Managerial change, competition, and privatization in Ukraine

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This paper analyzes the determinants of managerial change and the impact of privatization, competition, and managerial change on firm performance, using survey data from 300 Ukrainian firms. Ownership and competition are shown to be linked to managerial change; privatized firms experience less turnover than state firms, which suggests an entrenchment effect. However, managerial change in privatized and *de novo* firms is positively related to performance, which suggests a disciplining impact of private ownership. Moreover, dominant firms have more managerial turnover. Although managerial change and privatization do not individually affect performance, together they have a positive effect on profitability. In addition, competition improves profitability and productivity in privatized firms only. These findings suggest that privatization, competition, and managerial change are complementary measures in improving firm performance. *Journal of Comparative Economics* 31 (2) (2003) 297–314. IDEI (Institut d’Économie Industrielle), Université de Toulouse, Manufacture des Tabacs, 21, allée de Brienne, 31000 Toulouse, France; LICOS Centre for Transition Economics, KU Leuven, 34 Deberiotstraat, 3000 Leuven, Belgium.

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1. Introduction

This paper addresses the issue of the complementarity between reforms and in particular between privatization, competition, and managerial change in a slowly reforming transition country, namely Ukraine. In the empirical finance literature, turnover of top executives is seen favorably as a demonstration of an efficient monitoring process, while the contract theory literature has developed many, and sometimes contradictory, theoretical implications concerning the link between performance, on the one hand, and competition and privatization, on the other. However, the dominant view is that both measures are beneficial to firm performance. Imposing hard budget constraints and exposing the firm to strong competition should help to discipline managers. By bringing in new owners more interested in the profitability of the firm, privatization tends to sharpen the incentives provided to managers. Moreover, improved monitoring will help the owners in selecting the right managers. A change of managers would then serve as another indicator of restructuring.

Under socialism, managers were appointed according to political loyalty and their aptitude to meet the plan, not necessarily their ability to achieve efficient production levels. Direct and indirect incentives were not set optimally, e.g., soft budget constraints and the ratchet effect acted as disincentives for effort (Dewatripont and Roland, 1997). The transition process from a centrally planned economy to a market economy transformed dramatically the economic environment in which firms operate. Managers with outdated human capital were to be replaced by new people with adequate skills for managing the firm in a market economy (Barberis et al., 1996). Additionally, transition has transformed completely the provision of incentives for managers in various direct and indirect ways.

First of all, the privatization process in Ukraine resulted in an ownership structure dominated by insiders, i.e. workers and managers (IMF, 1997; Estrin et al., 1998). While this might solve agency problems, it also reduces the likelihood of restructuring through the allocation of voting power to stakeholders, who might be hurt by the restructuring process (Blanchard and Aghion, 1996). Managers and workers may become entrenched and resist change that would improve the value of the firm. Second, foreign and domestic competitive forces have been introduced. Trade has been liberalized, while de novo firms are able to avoid the disorganization problems encountered by traditional firms (Konings and Walsh, 1999). A more competitive environment should lead to less managerial slack and better performance (Hart, 1983; Aghion et al., 1997, 1999). Third, in most countries, hard budget constraints have been established as governments stopped allocating subsidies to unprofitable firms and allowed bankruptcies to proceed. However, this factor plays only a minor role in Ukraine due to the lack of commitment to reforms by the government.

Changing the provision of incentives is likely to induce managers to increase their effort to improve firm performance but, when the incumbent manager lacks the skills to restructure and run the firm in a market environment, managerial change might be a necessary step. Product market competition allows owners to infer the manager’s ability by comparing the performance of the firm with the results of its competitors when common shocks are present in the industry. Having more information, owners will change the manager more easily if he is not working in their interests (Gibbons and Murphy, 1990; DeFond and Park, 1999). By linking the manager’s continuation on the job to performance,
privatization increases not only the incentives of the manager to produce effort but also the rate of manager turnover (Cragg and Dyck, 1999). However, a giveaway to insiders will not have the same effect because it is more likely to lead to entrenchment of bad managers (Roland, 2000). Government policy at the economy level has important consequences for restructuring activities at the firm level. Competition and privatization make managerial change more effective, illustrating the complementarity of reforms (McMillan, 1997). Reforms might be so strongly intertwined that undertaking one without another would have no effect at all. However, liberalization and privatization are likely to be subject to political constraints. In Russia and Ukraine, resistance from bad managers organized in strong lobbies has pushed the government to adopt inefficient strategies.

We use a sample of 300 Ukrainian firms to test whether competition and ownership structure affect managerial change, whether managerial change improves firm performance, and how competition, privatization and managerial change interact with each other. Ownership and competition are shown to have a significant influence on managerial change. Privatization has two opposing effects on the probability of managerial change. First, it makes it less likely by itself. Second, past firm performance has more impact on managerial change in privatized firms than in state firms, which suggests a disciplining effect of privatization. Competition does not lead to more managerial turnover, which occurs more frequently in dominant firms than in oligopolistic firms and firms facing strong competition. Moreover, managerial change has a positive effect on profitability only in privatized firms, and no evidence that it leads to an increase in productivity is found. Furthermore, competition is linked to improvements in profitability and productivity in privatized firms only. These conclusions stress the importance of the complementarity of reforms and the need for coherence in the transition process.

The paper is organized as follows. In Section 2, we first provide a brief overview of the privatization process in Ukraine. We then formulate our main hypotheses and review the theoretical and empirical literature on the effects of competition, privatization, managerial change, and the complementarity of reforms. Section 3 describes the data and presents some summary statistics. Section 4 discusses the results and Section 5 concludes.

2. Theoretical background

2.1. Privatization in Ukraine and managerial entrenchment

At the beginning of the transition when Ukraine emerged as an independent state from the dissolution of the Soviet Union, privatization was high on political agendas. However, the existing political forces inherited from the Soviet political system were strong enough first to resist privatization and then to arrange a compromise that led to a mass privatization program largely favoring insiders, which is similar to the well-known Russian privatization story. Thus, political constraints led to a non-optimal method of privatization. In Russia and

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1 Although good managers would have the right incentives to start restructuring the firm, they might lack the access to outside finance necessary to engage in deep restructuring.
Ukraine, estimates of the average combined ownership share of insiders in privatized firms vary between 51% and 80% (Estrin and Wright, 1999). Moreover, there is much more inertia in Ukraine, as the ownership structure has not changed much since privatization, while, in Russia, outside investors and managers have increased their average ownership shares.

Managerial ownership is seen in the finance literature as a way to align the objectives of the manager to those of the owners. However, extended managerial discretion can also lead to various forms of expropriation of the firm’s funds by the manager. One particular manifestation of this type of behavior occurs when managers, who are no longer competent to run the firm, entrench themselves and remain on the job. Hence, increased managerial ownership might lead not only to a positive convergence-of-interests effect, but also to a negative entrenchment effect. Entrenchment through ownership is the most obvious way by which the manager obtains voting power and protects his own interests. Morck et al. (1988) find a positive relation between managerial ownership and the firm’s Tobin’s Q, if the share is restricted below 5%, but a negative relationship if the share falls in the 5% to 25% range. Above 25%, the relationship is again positive. The interpretation of these results is that the initial positive effect reflects greater managerial incentives to maximize value as the ownership share rises, but beyond the 5% threshold, entrenchment is actively sought. With more than a 25% share, entrenchment is secured and the positive effect takes over.

The evidence indicates that entrenchment through ownership applies to both Ukraine and Russia. As a consequence, managers do not fear a takeover threat after privatization, suggesting that they are confident about their position and have achieved substantial job security (Buck et al., 1996). Filatotchev et al. (1999) find that managers collude effectively with workers to maintain insider control and block takeovers by outside investors. Managers also buy out the shares of the workers to increase their power and impede resale to outsiders. Despite the fact that their ownership share is low, managers are able to control a much larger share by capturing the interests of the workers. Shares are not traded much and the protection of minority shareholders is almost nonexistent. This situation creates an environment that is extremely favorable to unmonitored managerial discretion and substantial entrenchment.

Many studies show that managerial change is negatively related to past performance, e.g., Warner et al. (1988), Weisbach (1988), Morck et al. (1989), Gibbons and Murphy (1990), Denis and Denis (1995), and Denis et al. (1997). This result indicates that the board or outside hostile bidders are able to discipline imperfectly the manager by replacing him. However, disciplining actions are less likely if the manager is solidly installed in his position. Morck et al. (1989) document that firms with only one young senior officer executive, i.e., one man management, can resist disciplinary turnover more easily, but not takeovers. In contrast, members of founding families can resist both types of measures, implying that they are effectively entrenched. More recently, Denis et al. (1997) find a negative relationship between the probability of top executive turnover and managerial ownership, after controlling for firm performance. This result illustrates that the ownership structure has an effect on the monitoring effectiveness of the board, which confirms the entrenchment-by-ownership hypothesis.
In the modern corporation, ownership is separated from control. The investors who own the firm delegate the daily operations to a manager who in practice is responsible for, and in control of, the firm. To monitor the manager’s actions, various corporate governance mechanisms are used. However, when the law protecting investors is weak, investors have incentives to take important positions in the firm to compensate for this lack of protection, so that concentrated ownership will be a common pattern.

In Ukraine, the law does not protect minority shareholders effectively; such a situation provides weak incentives to buy shares in a company. Therefore, the manager is in a position to expropriate the firm’s assets. In the rest of the section, we advance several testable hypotheses relating ownership to control and performance. We postulate that private owners will be more able to discipline the manager and that market mechanisms will help the owners to monitor the actions of the manager.

2.2. The effects of competition and privatization on incentives

A large theoretical literature analyzes how competition allows owners to compare the performance of managers in a common environment. In Hart (1983), product market competition reduces the slack resulting from the conflict of interests between owners and managers, when owners are not able to monitor the manager’s actions. Competition creates interdependence among firms so that firms in which agency costs are high will be disciplined by the firms run directly by the owner or where monitoring is better. In Vickers (1995), competition improves incentives for efficiency by allowing relative performance evaluation, and enriches the information base on which contracts may be written. Risk is reduced for the manager and the optimal explicit incentive induces effort closer to the efficient level. The previous papers focus on the informational effect of competition, i.e., how competition improves the information set on which the owner can design an optimal incentive scheme. Two other papers focus on the effect of competition on the manager’s utility function. Aghion et al. (1997, 1999) introduce agency considerations in a Schumpeterian growth model and show that, if managers care only about private benefits, competition pressures them to exert effort to keep the firm solvent. Schmidt (1997) develops a similar idea. Competition has two effects on managerial incentives. First, a threat of liquidation induces the manager to exert more effort as competition lowers the cost of effort. Second, competition modifies the impact of effort on performance. While the first effect is unambiguously positive, the sign of the second effect is not obvious. Growing empirical evidence supports these theories (Nickell, 1996; Nickell et al., 1997; Hay and Liu, 1997; Konings, 1997b). Hence, our first hypothesis states that competition leads to better incentives and, then, a higher level of managerial effort.

The literature on privatization usually assumes that a private owner provides proper incentives to the manager. A change in the allocation of ownership rights shifts the objectives of the principal, which changes the types of incentives provided to the manager.

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2 Pivovarsky (2001) discusses investor protection and the importance of concentrated ownership in Ukraine.

3 This finding is very sensitive to the choice of the utility function (Scharfstein, 1988; Hermalin, 1992).

4 However, in a dynamic setup, the effect of competition is ambiguous.

5 This discussion draws on Section 3 of Laffont and Meleu (1999).
However, Sappington and Stiglitz (1987) show that, with complete contracts and a benevolent government, the government is able to replicate the incentive scheme in the private sector. To explain why ownership matters, other authors argue that privatization delivers the manager from the negative influence of politicians. In a state-owned firm, politicians can impose excess employment on the manager at a lower cost than in a private firm so that privatization may reduce excess employment (Shleifer and Vishny, 1994). Privatization may also deny access to information that a malevolent government could use abusively (Shapiro and Willig, 1990). Even if the government is benevolent, under incomplete contracts, it might not be able to commit credibly not to intervene in the firm’s operations, which distorts managerial incentives (Schmidt, 1996). Complementing earlier papers by Boardman and Vining (1989) and Megginson et al. (1994), recent work by La Porta and López-De-Silanes (1999) and D’Souza and Megginson (1999) find a positive effect of privatization on incentives. Hence, our second hypothesis asserts that privatization leads to better incentives and higher effort.

In Eastern Europe, some authors show that privatization has had little effect on firm performance and that the most important factor is whether the firm was established recently, i.e., a de novo firm, or is a traditional enterprise (Richter and Schaffer, 1996; Konings, 1997a). Frydman et al. (1999) find that the type of private owners is important and stress the advantages of having outside owners. However, even considering different ownership types, privatization alone is shown to have no effect on firm performance in Ukraine by Estrin and Rosevear (1999). This negative result is explained by the entrenchment hypothesis, the poor legal environment for the protection of outside owners, and negative selection bias for outside owners.

2.3. The effect of managerial change

Managerial change is often seen as evidence of efficient but costly monitoring by the board and should be regarded beneficial for the firm. In the USA, Johnson et al. (1985) find that the sudden death of its executive may lead to an increase in the share price of a company. If the market believes that the expected future benefits associated with replacing the manager is higher than if the incumbent manager is retained, the sudden termination of the contract between the firm and the manager leads to an increase in share price and in shareholder wealth. The authors demonstrate this result for a firm run by the founder, who is able to capture a larger share of the contractual rent in his compensation, so that his replacement is valuable for shareholders.

Most of the evidence comes from the USA. Although Warner et al. (1988) find no evidence that turnover affects the stock returns of the firms, Weisbach (1988) shows that excess returns are always positive and larger when the CEO is not of retirement age. Dividing the sample by board composition, the effects of turnover are more positive in outsider-controlled and mixed boards and close to zero for inside boards, although the differences are not significant. Denis and Denis (1995) report that forced resignations and retirements are followed by significant improvements in terms of stock returns and operating income growth. Moreover, important restructuring activity accompanies both types of change.

In transition countries, three studies indicate that managerial change benefits the firm. In China, Groves et al. (1995) find that, for the large majority of the firms surveyed with
managers who were selected by bureaucratic hierarchy, an improvement in performance was observed in firms that hired a new manager, while no improvement was detected when the incumbent manager was reappointed. The opposite is true for firms that were auctioned, most likely indicating superior information by the incumbent before the bid. In the Czech Republic, Claessens and Djankov (1999) find unambiguously that bringing in new managers is associated with improvements in profitability and productivity. Finally, an empirical investigation of Russian shops by Barberis et al. (1996) indicates that hiring a new manager with new skills increases the likelihood of restructuring, but the provision of better incentives to incumbent managers does not improve restructuring prospects in the firm. Hence, our third hypothesis states that managerial change increases the human capital of the firm.

2.4. The complementarity between managerial change, privatization and competition

By facilitating monitoring and learning about the talent of the executive, competition leads to an increase in managerial turnover. Gibbons and Murphy (1990) provide a simple mechanism by which learning about the manager’s ability is improved by comparing individual output to the outputs of similar agents. They find that the probability of CEO turnover is related negatively to individual performance but positively to industry performance. Morck et al. (1989) show that boards replace top managers when the firm is underperforming compared to its industry rivals. Similarly, DeFond and Park (1999) find that CEO turnover is negatively associated with the level of industry concentration and that relative performance evaluation measures are strongly associated with managerial turnover in highly competitive industries, although firm-specific measures are used in industries with a more concentrated market structure. Hence, our fourth hypothesis asserts that competition leads to more managerial change.

The objective function of private owners is usually considered to be more profit oriented than that of a state owner. Cragg and Dyck (1999) formalize this idea by modeling privatization as disturbing the manager’s quiet life. By examining the extent of top management turnover and linking this to the type of owner, they find that turnover and firing rates are higher in privatized firms. Therefore, this result supports the assumption that privatization can improve firm performance if the new owners make turnover more likely by linking continued employment to performance, and thus raise both incentives and turnover. Our fifth hypothesis states that privatization leads to more managerial change.

On the contrary, privatization has transformed the managers and the workers into shareholders in Russia and Ukraine, and has rarely allowed outside investors to change the manager. More generally, restructuring actions that could hurt the interests of the insiders are ruled out (Blanchard and Aghion, 1996). In Russia, positive examples of broken entrenchment are reported in Shleifer and Vishny (1996). However, Frydman et al. (1996) show that these cases are more the exception than the rule.

Our sixth hypothesis states that talent and effort are complements; therefore, incentives and new people should be complementary measures in improving firm performance. Some authors argue that new people and better incentives are strongly complementary measures in improving performance. McMillan (1997, p. 215) asserts that “[t]hey might be so strongly complementary that neither change would be effective by itself. Some managers
might be so inadequate as to be unable to respond to new incentives, no matter how well designed. Good managers might not work well under badly structured incentives. While bad managers expect to suffer a utility loss if the firm is privatized and restructuring is initiated by an outsider, good managers should be compensated for the costs that they incur to engage in defensive restructuring. In the former case, firing the manager will be the efficient response; in the latter, the efficient measure will be to provide better incentives (Roland, 2000). Therefore, we test the hypothesis that policies that improve incentives may be necessary for the new manager to express fully his talent through the new set of incentives, and new talent may be the first step for incentives to be effective.

Vickers and Yarrow (1988) note that ownership arrangements, the competitive structure of the industry in which the firm is operating and the regulatory constraints that it faces will each influence managerial incentive structures and economic performance. More importantly, they stress that the impact of changes in any of these three sets of influences on efficiency will, in general, be contingent upon the other two. Our seventh hypothesis states that privatization and competition are complements. We provide a simple test of this hypothesis using a data set that does not include regulated firms.

3. Data

The data set contains firm-level information about various economic aspects of 300 Ukrainian firms, namely ownership, finance, management and entrepreneurship, labor and production, in addition to other information about the firm and the respondent. The survey was conducted by LICOS in 1997 using personal interviews with firms’ managers in two regions, Kiev and East Ukraine, and contains retrospective information on firm characteristics from 1989 to 1997. The sample of firms was drawn not only from official business records but also from local address books, which were useful in locating de novo firms that are often too small to be included in national registers.

The survey was designed to include more or less 50% de novo firms and 50% traditional firms. This data set is the only one for Ukraine composed of these two types of firms; this stratification was chosen to stress differences that could affect performance. Previous studies have reported the superior performance of de novo firms compared to traditional firms (Richter and Schaffer, 1996; Konings, 1997a). The survey contains detailed information about the ownership structure of 295 firms. Each firm was asked to disclose the ownership share of the state, the municipality, the manager, the employees, private domestic investors and foreign investors. We define two main categories of firms based on these answers.

First, a de novo firm is defined as a firm that started operating after January 1991, with no participation either from the state or from the municipality, and has been private.

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6 More information on the survey can be found in Bilsen and Mitina (1999) and Konings and Walsh (1999).
7 The two main drawbacks of the data set are that it does not reflect the distribution of the population of firms, although it is representative within subsample, and that the de novo firms and the traditional firms included are survivors of a selection process that we do not capture.
since its establishment. These new firms were expected to emerge from the new spirit of entrepreneurship resulting from the adoption of a market economy. Second, a traditional firm is a firm which was operating under socialism in the planned economy. It can be either entirely state-owned or privatized; there are also a few cooperatives and firms owned by the municipality in the data. The firm is said to be state-owned if the state retains a stake of at least 51%. Twenty-seven of the firms are 100% state-owned while others are partially privatized. The firm is considered to be privatized if it reports having been privatized and it has less than 100% state ownership. In 93 of the 119 privatizations, the state kept no stake in the firm but it did retain a majority stake in 12 privatized firms.

While we focus our attention on these two types of firms, we also include other categories. A firm is said to be employee-owned if employees own more than 50% of the firm. Accordingly, 88 firms, or around 30% of the sample, are employee-owned. Some overlap with the two other categories occurs but only 12% of the de novo firms are employee-owned so that employee ownership results mainly from privatization. Only 12 firms have foreign participation of at least 50% and among them 10 are de novo. This reflects the lack of attractiveness of the Ukraine to foreign investors, due mostly to widespread corruption, weak legal environment and the government’s poor commitment to reforms. Finally, two firms are majority-owned by the municipality, while the municipality has a minority share in two other firms. Table 1 presents the distribution of ownership types in our sample.

Table 2 presents the extent of managerial change by ownership category. Managerial change is less likely in de novo firms than in other types. This finding confirms the fact that de novo firms are able to avoid the necessary upgrading of human capital since they were founded with a manager selected by the owners without any political interference.

Table 1
Distribution of firms by type

<table>
<thead>
<tr>
<th>Type</th>
<th># of firms</th>
<th>% of firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>de novo</td>
<td>137</td>
<td>46.4</td>
</tr>
<tr>
<td>of which foreign</td>
<td>10</td>
<td>3.4</td>
</tr>
<tr>
<td>of which domestic</td>
<td>127</td>
<td>43</td>
</tr>
<tr>
<td>traditional</td>
<td>153</td>
<td>51.9</td>
</tr>
<tr>
<td>of which privatized</td>
<td>119</td>
<td>40.4</td>
</tr>
<tr>
<td>– majority foreign</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>– majority state</td>
<td>12</td>
<td>4.1</td>
</tr>
<tr>
<td>– majority private domestic</td>
<td>15</td>
<td>4.7</td>
</tr>
<tr>
<td>– majority insiders</td>
<td>75</td>
<td>24.6</td>
</tr>
<tr>
<td>of which 100% state-owned</td>
<td>27</td>
<td>9.1</td>
</tr>
<tr>
<td>municipality</td>
<td>2</td>
<td>0.7</td>
</tr>
<tr>
<td>cooperatives</td>
<td>5</td>
<td>1.7</td>
</tr>
<tr>
<td>others</td>
<td>5</td>
<td>1.7</td>
</tr>
<tr>
<td>Total</td>
<td>295</td>
<td>100</td>
</tr>
</tbody>
</table>

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8 This definition explains why the fraction of de novo firms in the sample is not exactly 50%. In the sample, all private firms created after 1989 were considered to be de novo. Since transition started only in 1991 when Ukraine declared its independence, we impose a narrower restriction.
State firms are much more active in changing the firm leadership than privatized firms. Political cycles, restructuring, or the privatization process that gave power to the insiders who blocked managerial change, may explain this difference. Note that the category of state firms includes firms that remain 100% state-owned and those that were privatized but in which the state kept a majority stake.

The bottom of Table 2 indicates that important changes in key management staff increase significantly over the transition and reach a peak in 1996 for most types with more than 20% of all firms reporting a managerial change. After some time, even de novo firms start to replace managers. However, this measure does not distinguish between the types of change, namely natural attrition, true termination, or voluntary leave. We assume that managerial change leads to a improvement in human capital, although this may not be true in all cases. The reasons given for a change in management vary according to firm type. The survey indicates that the most important reasons used to justify this change are voluntary leave, change in corporate strategy, and the growth of the firm for the de novo firms. For traditional firms, the decision is taken mainly due to a change of strategy, the need for new managers with new skill, and bad management, with voluntary leave also a consideration. Table 3 indicates the percentage of firms for which a given reason was reported as the most important to explain the managerial change.9

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9 The respondent could choose between measures and was asked to indicate a value from one to eight as their importance in the decision. We report the percentage of firms giving each reason a value of one. In some cases, more than one reason was recorded as having a value of one.
Table 4

<table>
<thead>
<tr>
<th>Type of regime</th>
<th>All</th>
<th>De novo</th>
<th>Privatized</th>
<th>Traditional</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>dominant firm</td>
<td>14.8</td>
<td>10.1</td>
<td>15</td>
<td>19.5</td>
<td>30</td>
</tr>
<tr>
<td>between 2 and 4 competitors</td>
<td>27.6</td>
<td>23.9</td>
<td>30</td>
<td>30.5</td>
<td>30</td>
</tr>
<tr>
<td>more than 5 competitors</td>
<td>57.6</td>
<td>65.9</td>
<td>55</td>
<td>50</td>
<td>40</td>
</tr>
</tbody>
</table>

Firms were also asked about the number of competitors operating in the same market. Following Nickell (1996), we argue that this is a good measure of competition. Managers know best their firm’s environment and this measure also reflects import competition. Other measures of market structure, e.g., market share or concentration ratio, do not always identify the relevant market. As Table 4 indicates, around 15% of the firms reported that they were the dominant firm in their market. Competition is moderately difficult for 28% of the firms, while 57% of the firms report evidence of a highly competitive environment having more than five competitors. However, ownership matters because de novo firms are more prevalent in competitive environments and the state still controls dominant firms, possibly because of a concern for market power in the absence of an effective regulatory body. Nonetheless, state firms are shielded from competition.

4. Results

4.1. Determinants of managerial turnover

The stylized facts indicate that managerial change occurs less frequently in de novo firms. Since these firms were established from scratch with the appropriate managers, they are able to avoid disorganization resulting from changes in their managerial team. In this section, we analyze whether ownership and the competitive regime affect managerial change. We use the following probit model:

$$\Pr(MCH_{it} = 1 | X_{it}) = F(X_{it}', \beta),$$

where $i$ is a firm index and $t$ is a year index. $MCH_{it}$ is equal to 1 if firm $i$ changes the manager in year $t$ and is equal to 0 otherwise. $X_{it}$ is a vector of explanatory variables and $\beta$ is the resulting coefficient vector. $F$ is distributed as a standard normal distribution.

The log likelihood function is given by

$$L(\beta | X, y) = \sum_{i=1}^N y_i \ln F(\beta' X_i) + \sum_{i=1}^N (1 - y_i) \ln [1 - F(\beta' X_i)],$$

and maximized with respect to $\beta$.

We test for the effect of the ownership type and the competitive environment, along with other factors, on the probability of managerial change. First, we introduce a dummy variable to indicate whether a firm experienced financial difficulties in the previous period using responses from the survey. This variable provides a proxy for the financial health of the firm based on the manager’s subjective answer. Our expectation is that bad performance
Table 5
Probit results: the determinants of managerial change

<table>
<thead>
<tr>
<th>Dep. var.</th>
<th>MCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>de novo</td>
<td>$-0.093^{***}$ ($-4.78$)</td>
</tr>
<tr>
<td>privatized</td>
<td>$-0.049^{**}$ ($-2.24$)</td>
</tr>
<tr>
<td>many competitors</td>
<td>$-0.049^{**}$ ($-2.40$)</td>
</tr>
<tr>
<td>few competitors</td>
<td>$-0.069^{***}$ ($-3.54$)</td>
</tr>
<tr>
<td>financial difficulties</td>
<td>$-0.032$ ($-1.27$)</td>
</tr>
<tr>
<td>financial difficulties $\times$ de novo</td>
<td>$0.144^{***}$ (2.97)</td>
</tr>
<tr>
<td>financial difficulties $\times$ privatized</td>
<td>$0.144^{***}$ (3.19)</td>
</tr>
<tr>
<td>year dummies</td>
<td>yes</td>
</tr>
<tr>
<td>sector dummies</td>
<td>yes</td>
</tr>
<tr>
<td>log likelihood</td>
<td>$-595.78$</td>
</tr>
<tr>
<td>pseudo $R^2$</td>
<td>0.10</td>
</tr>
<tr>
<td>nr. obs.</td>
<td>1764</td>
</tr>
</tbody>
</table>

Notes. (1) The $t$-value equivalents are in parentheses. (2) The residual ownership type is state firms. (3) The residual competition category is dominant firm. $^{*}$, $^{**}$, $^{***}$ Significance at the 10%, 5%, and 1% levels, respectively.

in the past, for which the manager is accountable, may lead the firm toward insolvency and trigger a managerial change. We interact this variable with the ownership dummies to see if financial difficulties affect managerial change differently in privatized firms and de novo firms than in state firms. Private investors put a high weight on profitability and should be less willing to tolerate a bad financial state.

Table 5 presents the results. As expected, de novo and privatized firms are less likely than state firms to experience a change in manager. Considering the competitive environment, we find that firms with few competitors and firms in a competitive environment are less likely to change the manager than dominant firms. This result suggests that competition does not help to monitor the managers. On the other hand, owners may replace managers in dominant firms to protect rent, or, since dominant firms are mostly state firms, restructuring may involve firing the manager. Hence, this comparison is somewhat complex.

Previous studies of managerial turnover indicate that bad past performance, either in terms of income growth or stock return, is strongly associated with a change of manager. The coefficient of financial difficulties is negative but not significant, indicating that financial difficulties do not have much effect on the probability of managerial change by themselves. However, when we interact this variable with either a privatized firm dummy or a de novo firm dummy, the coefficient is positive and highly significant. Hence, we conclude that private owners are more likely to replace managers in the event of financial difficulties than is a state owner (Cragg and Dyck, 1999). For privatized firms, we have two opposing effects because privatization makes managerial change less likely by itself but more likely in firms experiencing financial difficulties. Hence, privatization leads to both entrenchment and improved discipline through greater reliance on performance for job continuation.
4.2. Effects of privatization, competition and managerial change on firm performance

Following the discussion in Section 2, performance depends on incentives and the type of human capital of the manager. To test whether privatization, competition and managerial change contribute to improving the performance of the firm, we use two dependent variables, namely the change in profitability between 1996 and 1997 and the change in productivity between 1995 and 1997. The variables are constructed on the basis of the manager’s responses to questions asking whether these measures increased, decreased or stayed the same over the respective period. Hence, we define two discrete variables, \( \Delta \text{PROD} \) and \( \Delta \text{PROF} \), that can take one of three values. These performance variables do not measure the level of productivity or profitability, so that we observe only a limited amount of heterogeneity.\(^{10} \) However, they do not suffer from the usual criticism that they are unreliable for tax evasion reasons. In addition, they are reported by the manager who is well informed about the financial performance of the firm. They reflect two different important dimensions of firm performance, i.e., how firms can make profits and how they utilize labor.

We run an ordered probit regression, in which the latent regression is

\[
y_i^* = \beta'X_i + \epsilon_i,
\]

where

\[
y_i = \begin{cases} 
-1 & \text{if } y_i^* \leq 0, \\
0 & \text{if } 0 < y_i^* \leq \mu, \\
1 & \text{if } y_i^* > \mu. 
\end{cases}
\]

In the regression, \( y_i \) is a measure of performance and \( X_i \) is a vector of explanatory variables. Among the explanatory variables, \( \text{MCH} \) is a dummy variable to represent a change of manager in the previous period and, in addition to the competition and ownership variables already used, we include in the specification dummy variables for the size category of the firm, a dummy variable equal to 1 if the firm invested in equipment in the previous period and zero otherwise, and variables describing the age of the capital. Share of very old equipment represents the share of total physical capital older than 25 years, share of old equipment represents the share between 9 and 25 years old, and the share of middle age equipment is the share between 2 and 8 years old. The reference category is the share of new equipment, i.e., not older than one year.

Using lagged managerial change and ownership does not solve the endogeneity problem because it does not capture some of the relevant selection issues. Unfortunately, we are limited by the qualitative nature and cross-sectional dimension of our performance variables so that we cannot address this issue. A log likelihood function is obtained as before and we maximize it with respect to \( \beta \). Tables 6 and 7 present the results.

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In the first column of each table, we consider the effects of ownership, competition and managerial change on profitability change and productivity change, respectively, and without interactions to determine whether these variables affect performance independently. \( \text{De novo} \) firms perform better than state firms, confirming previous findings and indicating that a new spirit of entrepreneurship prevails in these newly established firms. Privatization has

\(^{10} \) Although we asked for the actual level of sales and profits year by year, we did not use the data because high inflation, a change in currency over the period and reporting problems made them dubious.
Table 6
Ordered probit analysis of profitability change

<table>
<thead>
<tr>
<th>Dep. var.: ΔPROF</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>de novo</td>
<td>0.47 (1.76)</td>
<td>0.52 * (1.92)</td>
</tr>
<tr>
<td>privatized</td>
<td>0.46 (1.83)</td>
<td>−0.23 (−0.71)</td>
</tr>
<tr>
<td>many comp.</td>
<td>−0.28 (−1.24)</td>
<td>−0.68** (−2.55)</td>
</tr>
<tr>
<td>few comp.</td>
<td>0.08 (0.32)</td>
<td>0.08 (0.32)</td>
</tr>
<tr>
<td>MCH</td>
<td>−0.14 (−0.75)</td>
<td>−0.40 (−1.61)</td>
</tr>
<tr>
<td>many comp. * privatized</td>
<td>−</td>
<td>1.04*** (3.09)</td>
</tr>
<tr>
<td>MCH * privatized</td>
<td>−</td>
<td>0.72** (1.84)</td>
</tr>
<tr>
<td>investment</td>
<td>0.63*** (3.81)</td>
<td>0.69*** (4.12)</td>
</tr>
<tr>
<td>50–100 employees</td>
<td>−0.21 (−0.66)</td>
<td>−0.23 (−0.73)</td>
</tr>
<tr>
<td>100–250 employees</td>
<td>−0.04 (−0.10)</td>
<td>−0.19 (−0.51)</td>
</tr>
<tr>
<td>250–500 employees</td>
<td>−0.40 (−1.17)</td>
<td>−0.48 (−1.39)</td>
</tr>
<tr>
<td>500–1000 employees</td>
<td>−0.60 (−1.60)</td>
<td>−0.68* (−1.77)</td>
</tr>
<tr>
<td>share of very old equip.</td>
<td>−0.013*** (−2.56)</td>
<td>−0.015*** (−2.77)</td>
</tr>
<tr>
<td>share of old equip.</td>
<td>−0.008** (−2.25)</td>
<td>−0.009** (−2.41)</td>
</tr>
<tr>
<td>share of middle age equip.</td>
<td>−0.003 (−1.08)</td>
<td>−0.005 (−1.48)</td>
</tr>
<tr>
<td>log likelihood</td>
<td>−226.7</td>
<td>−220.5</td>
</tr>
<tr>
<td>pseudo R²</td>
<td>0.09</td>
<td>0.11</td>
</tr>
<tr>
<td>nr. obs.</td>
<td>238</td>
<td>238</td>
</tr>
</tbody>
</table>

Notes: In addition to the specification in the notes to Table 5, the following apply: (1) The residual category for employment is more than 1000 employees. (2) The residual category for equipment is new equipment.

Table 7
Ordered probit analysis of productivity change

<table>
<thead>
<tr>
<th>Dep. var.: ΔPROD</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>de novo</td>
<td>0.51*** (1.99)</td>
<td>0.56*** (2.23)</td>
</tr>
<tr>
<td>privatized</td>
<td>0.33 (1.31)</td>
<td>−0.015 (−0.05)</td>
</tr>
<tr>
<td>many comp.</td>
<td>−0.38 (−1.61)</td>
<td>−0.72** (−2.54)</td>
</tr>
<tr>
<td>few comp.</td>
<td>−0.31 (−1.20)</td>
<td>−0.34 (−1.30)</td>
</tr>
<tr>
<td>MCH</td>
<td>−0.09 (−0.47)</td>
<td>0.003 (0.01)</td>
</tr>
<tr>
<td>many comp. * privatized</td>
<td>−</td>
<td>0.80** (2.34)</td>
</tr>
<tr>
<td>MCH * privatized</td>
<td>−</td>
<td>−0.16 (0.40)</td>
</tr>
<tr>
<td>investment</td>
<td>0.60*** (3.57)</td>
<td>0.64*** (3.75)</td>
</tr>
<tr>
<td>50–100 employees</td>
<td>0.71** (2.12)</td>
<td>0.69* (2.06)</td>
</tr>
<tr>
<td>100–250 employees</td>
<td>0.88** (2.18)</td>
<td>0.84** (2.07)</td>
</tr>
<tr>
<td>250–500 employees</td>
<td>0.37 (1.02)</td>
<td>0.28 (0.76)</td>
</tr>
<tr>
<td>500–1000 employees</td>
<td>0.43 (1.06)</td>
<td>0.32 (0.78)</td>
</tr>
<tr>
<td>share of very old equip.</td>
<td>−0.013** (−2.27)</td>
<td>−0.013** (−2.06)</td>
</tr>
<tr>
<td>share of old equip.</td>
<td>−0.005 (−1.39)</td>
<td>−0.006 (−1.46)</td>
</tr>
<tr>
<td>share of middle age equip.</td>
<td>−0.001 (−0.33)</td>
<td>−0.001 (−0.49)</td>
</tr>
<tr>
<td>log likelihood</td>
<td>−229.8</td>
<td>−226.9</td>
</tr>
<tr>
<td>pseudo R²</td>
<td>0.10</td>
<td>0.12</td>
</tr>
<tr>
<td>nr. obs.</td>
<td>245</td>
<td>245</td>
</tr>
</tbody>
</table>

Note: see Table 6.
a marginally significant positive effect on profitability but its effect on productivity change is not significant. Hence, privatization may have oriented the objectives of the firm somewhat more toward profit but not changed the utilization of inputs. Neither competition nor managerial change have a significant effect individually on firm performance. However, the effect of either might depend on ownership type and there may be some complementarity between them.

The complementarity of reforms is investigated in the second column of each table. The effect of competition depends on ownership type; it is negative by itself, but it has a positive effect on the performance of privatized firms. Hence, the combined effects of competition and privatization on the manager’s incentives may lead to improved performance. However, competition may have a negative effect by itself because state firms have not modified their behavior and are hurt by increased competition.

When managerial change is interacted with privatization, the effect is positive and significant for privatized firms in terms of profitability change but not with respect to productivity. By itself, managerial change has no significant effect on firm performance. As we asserted above, managerial change is not necessary in de novo firms. In state firms, turnover is decided for political reasons so that it may not yield improved performance. However, in privatized firms, managerial change allows the replacement of a manager who is ill-suited to run the firm in a new environment. Since productivity change is not affected by managerial change, profitability may be a necessary first step to improving productivity. Furthermore, the privatization variable is no longer significant by itself in the profitability change regression, which suggests that it acts only through complementary reforms.

Regarding the control variables, the employment dummies do not have significant effects on profitability change, but they do play a role in explaining productivity change. Smaller firms are more likely to experience productivity improvements than larger firms. The investment variable is intended to characterize deep restructuring and it has the expected positive effect on both performance measures. In addition, restructuring involves replacing outdated physical capital with new equipment, which is reflected by the age of capital. The share of very old equipment, which is older than 25 years, and the share of old capital, which is between 8 and 25 years old, both have negative effects on profitability. The former also has a negative effect on productivity.

Other specifications were tested but not reported. In particular, we analyzed the effect of the type of owner in a privatized firm and found no evidence that one type of owner is more beneficial than another. In practice, privatization may not have led to improvements in corporate governance, regardless of its form. Alternatively, Estrin and Rosevear (1999) suggest that outside investors only gained control in poorly performing firms because insiders, who were in control of the firm, influenced its privatization process.

5. Conclusion

Significant differences are found regarding managerial change among privatized, state, and de novo firms in Ukraine. Privatized and de novo firms experience less managerial turnover, which may be due to an entrenchment effect in the former. Moreover, continuation on the job was also found to be more performance sensitive, implying a
discipline effect of privatization. However, competition does not lead to more manager change. On the contrary, dominant firms fired more managers.

We also showed the importance of the complementarity of reforms. The effect of managerial change on firm performance is positive if it is interacted with privatization. Bringing in new people and providing new types of incentives are complementary measures. Moreover, privatization has a positive effect in competitive markets: market mechanisms and new owners are complementing each other to provide incentives to the manager.

The implication of these findings is that a reforming government must design wisely its reform package, taking into account the complementary between reforms. Privatization is more likely to lead to improved performance if competitive product markets are in place and if the process allows for the replacement of managers who are not longer competent to run the firm in the new environment.

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