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Working Paper

Firm performance and managerial turnover: the case of Ukraine

IZA Discussion Papers, No. 4372

Provided in Cooperation with:

IZA – Institute of Labor Economics

Suggested Citation: Muravyev, Alexander; Talavera, Oleksandr; Bilyk, Olga; Grechaniuk, Bogdana (2009) : Firm performance and managerial turnover: the case of Ukraine, IZA Discussion Papers, No. 4372, Institute for the Study of Labor (IZA), Bonn

This Version is available at:

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IZA DP No. 4372

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August 2009

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ABSTRACT

Firm Performance and Managerial Turnover: The Case of Ukraine*

The paper studies whether and how CEO turnover in Ukrainian firms is related to their performance. Based on a novel dataset covering Ukrainian joint stock companies in 2002-2006, the paper finds statistically significant negative association between the past performance of firms measured by return on sales and return on assets, and the likelihood of managerial turnover. While the strength of the turnover-performance relationship does not seem to depend on factors such as managerial ownership and supervisory board size, we do find significant entrenchments effects associated with ownership by managers. Overall, our analysis suggests that corporate governance in Ukraine operates with a certain degree of efficiency, despite the well-known lacunas in the country's institutional environment.

JEL Classification: G34, J40, L29

Keywords: managerial labor market, corporate governance, transition, Ukraine

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* Bilyk and Grechaniuk acknowledge financial support by the Economics Education and Research Consortium (EERC), EERC Grant No. R07-0832. We are also grateful to the EERC experts as well as participants of Summer 2007 and Summer 2008 EERC Research Workshops for helpful comments and suggestions. Our special thanks are addressed to David Brown, Hartmut Lehmann, Russell Pittman, Yulia Rodionova, and Charlie Weir. The usual caveat applies.

INTRODUCTION

When economic transformation started in Eastern Europe in the late 1980s, the initial focus of both academics and policy-makers was on macro-issues, such as macroeconomic stabilization, liberalization of prices and foreign trade, as well as privatization – a standard set of Washington consensus reforms. After less than a decade, there was a remarkable shift in attention from this initial agenda to the need of filling in institutional gaps inherited by transition countries from the era of socialism (Mitra, Muravyev, and Schaffer, 2008). In particular, there was a growing awareness that, at a micro-level, the success of the economic reforms would to a large extent be determined by the emergence of effective corporate governance, mechanisms which would, in turn, promote the restructuring of formerly state-owned enterprises and eventually contribute to their improved performance (Dyck, 2001).

As in developed market economies, corporate governance problems facing transition countries stem from the separation of ownership and control and the divergence of the interests of principals (shareholders) and agents (managers). In the absence of well-functioning governance mechanisms, managers may expropriate investors' funds, engage in empire building, or simply live an easy life (Shleifer and Vishny, 1997). Among various corporate governance mechanisms that ensure managerial discipline, the managerial labor market plays a key role. In particular, performance-based compensation schemes encourage managers to maximize profit and shareholder value, while the threat of dismissal prevents them from shirking and/or engaging in the expropriation of investors' funds.

It is widely acknowledged that the corporate governance problem has had an extra dimension in transition countries. During the socialist period, managers of state enterprises were appointed for their adherence to the state-supported ideology or because they were proficient in lobbying the government for credits and securing

delivery of inputs (Shleifer and Vasiliev, 1996). In the 1990s, most of these skills became of little or no value and the lack of ability of many managers in the emerging market environment became apparent. In other words, the countries of Eastern Europe entered the transition period with considerable mismatch between managerial talent and productive assets (Roland, 2000). The lack of ability on the part of the existing managers, and their entrenchment, raised concerns about whether introducing appropriate incentives would have any positive effect on enterprise restructuring and performance. It might well be the case that the governance problems could not be resolved without replacing the incumbent pre-privatization managers in the first place (Fidrmuc and Fidrmuc, 2006).

These factors explain recent interest among both academics and policy-makers in the functioning of the managerial labor market in transition countries. Managerial pay and performance, factors triggering dismissal of incumbents and those leading to the appointments of inside versus outside successors, as well as the effect of managerial turnover on enterprise performance are among the topics that have stayed high on the research agenda in the region. The empirical research remains, however, hampered by the limited availability of data, apart from a few relatively well-studied countries such as the Czech Republic and Russia (e.g., Claessens and Djankov, 1999; Fidrmuc and Fidrmuc, 2006; Fidrmuc and Fidrmuc, 2007; Muravyev, 2003a; Kapelyushnikov and Demina, 2005).

Our paper focuses on corporate governance in Ukraine, a transition country that has received little attention. The country occupies a particular position among transition economies. It is the only state in the Eastern European region that has experienced a prolonged decline from 1991 to 1999, with GDP falling by nearly 60 percent (EBRD 2001). It is also among the countries that introduced very few reforms in the course of the 1990s. In particular, Ukraine is known for slow, convoluted and politicized

privatization (Estrin and Rosevear, 2003). Further, a sound legal framework regulating the creation and operation of corporations – the core of the modern economies – was established in Ukraine only in 2008, with the adoption of Law on Joint-Stock Companies. Before that, the legal basis consisted of largely outdated acts (e.g., Law on Economic Associations) that were adopted in the 1990s. The weak legal framework, combined with ineffective enforcement of law (e.g., Pistor et al., 2000), raised considerable concerns about the quality of corporate governance in the country. Indeed, as suggested by Schnytzer and Andreyeva (2002, p. 83), Ukrainian firms in 1998 still behaved as if they were “... in a loosely reformed Soviet environment where exchange via interpersonal connections, rather than the price mechanism, determined the allocation of resources.”

In this paper we take a look at a particular aspect of corporate governance in Ukraine, the sensitivity of managerial turnover to the past performance of firms. Such an analysis can be regarded as a test of the overall efficiency of corporate governance in the country (Gibson, 2003). Indeed, an effective corporate governance system requires that badly performing incumbents are systematically replaced by new, more skilled and better motivated, managers. In addition, we examine how managerial turnover is related to several other factors, such as managerial ownership, supervisory board size, leverage, and liquidity of firms. The role of corporate boards is of particular importance because regulations concerning board size and the exact distribution of power between corporate boards and shareholders’ meetings have been a subject of intense debates among academics, policy-makers, and practitioners.

Using a new dataset on Ukrainian joint-stock companies, which we assemble from companies’ reports to the regulator, State Commission on Securities and the Stock Market, we find evidence of an inverse relationship between the past performance of companies and the likelihood of managerial turnover. This result is robust to controlling

for a number of important factors, such as firm size, leverage, liquidity, supervisory board size, as well as important characteristics of chief executives, such as experience and gender. We also find that higher managerial ownership reduces CEO turnover, suggesting entrenchment effects. However, there is no evidence in the data that managerial ownership affects the strength of the turnover-performance relationship. The same is true of the size of supervisory boards. Overall, our analysis suggests that Ukraine passes the crude test of the efficiency of corporate governance, despite all the institutional weaknesses accompanying the country's transition process.

The rest of the paper is organized as follows. Section 2 contains a brief review of the literature on managerial turnover – performance relationship, with a particular emphasis on the Eastern European region. Section 3 discusses the methodological approach adopted in the study. The data and sample are described in Section 4. Section 5 presents main results of the empirical analysis. Section 6 concludes.

LITERATURE REVIEW

There is an extensive literature on the managerial labor market (and the relationship between managerial performance and turnover in particular) that dates back to the 1980s (Coughlan and Schmidt, 1985; Warner et al., 1988; Weisbach, 1988; Jensen and Murphy, 1990). These and other studies have established an inverse relationship between the likelihood of managerial turnover and past corporate performance in a number of developed economies, most notably the US and the UK. Further research shows that the performance-turnover relationship is influenced by board size (Yermack, 1996), board composition (Weisbach, 1988), and ownership (Kang and Shivdasani, 1995; Lausten, 2002). Dismissals of CEOs are found to lead to positive abnormal stock performance (Dennis and Dennis, 1995), especially when outside successors are appointed as new managers (Rosenstein and Wyatt, 1997).

Summarizing the available evidence, Djankov and Murrell (2002) suggest that managerial turnover is almost always effective in improving enterprise performance in Western countries. As regards transition and emerging economies, the picture is less clear-cut as many institutions of corporate governance remain underdeveloped in these countries. Indeed, a clear link between enterprise performance and managerial turnover may not exist in transition countries due to the imperfections in the protection of property rights, underdevelopment of the financial market, as well as due to the intervention by the state (Muravyev, 2003b). How the managerial labor market operates in these economies remains, therefore, an interesting and important empirical question (Gibson, 2003).

There is some evidence suggesting the importance of new managerial human capital for enterprise restructuring and improved performance in transition countries. One of the early studies of the impact of managerial turnover on corporate performance is that by Barberis et al. (1996). Using a survey of 452 Russian privatized shops, they find that the presence of new management matters for restructuring, which is measured by shop renovations, supplier changes, store hours increases, and layoffs. Claessens and Djankov (1999) report for the Czech Republic that the appointment of new managers in 1993-1997 is associated with improvements in corporate performance measured by profit margins and labor productivity. The result is particularly strong if new managers are selected by private owners rather than by government officials. The finding that replacing a CEO in a newly privatized firm improves firm performance in the Czech Republic is reported in Fidrmuc and Fidrmuc (2007).

Another strand of literature looks at the relationship between past performance of firms and the likelihood of senior management turnover. For example, Gibson (2003) focuses on the link between corporate performance and CEO turnover using a sample of over 1,200 non-financial firms in eight emerging markets (Brazil, Chile, India, Korea,

Malaysia, Mexico, Taiwan, and Thailand). He finds that the probability of CEO turnover rises with poor firm performance, which suggests that corporate governance in the selected emerging markets is not ineffective. Gibson (2003) also finds that the presence of a large domestic private shareholder does not improve corporate governance.

Eriksson (2005) provides some evidence that poor corporate performance in the Czech Republic and Slovakia also results in a higher likelihood of managerial turnover. Fidrmuc and Fidrmuc (2007) report a similar relationship for Czech firms, but only three to four years after their privatization. Muravyev (2003a) studies determinants of CEO turnover using a sample of over 400 privatized firms in Russia. Past performance measured by labor productivity is found to be an important factor triggering CEO replacement in underperforming firms. Furthermore, outside ownership, smaller size of corporate boards, control changes, and financial constraints are associated with higher rates of managerial turnover. Similar results are reported by Kapelyushnikov and Demina (2005), who identify three main determinants influencing CEO turnover in Russia: ownership structure, control changes, and financial performance. Interestingly, Kapelyushnikov and Demina (2005) find that outside succession is driven by poor performance whereas Muravyev (2003b) reports a higher probability of outside succession in firms with a higher return on equity.

An important issue in most of these studies is the distinction between voluntary departures and forced resignations of managers (Hermalin and Weisbach, 2003). Distinguishing between the different reasons for CEO change is indeed problematic, and many studies disregard these differences due to the unavailability of relevant information. The argument in favour of the approach that ignores the differences is that when a negative performance-turnover link is detected in the overall sample (e.g., covering routine turnover, voluntary leaves, and forced resignations), it is still likely to

be driven by firing for poor performance. In particular, routine turnover is hardly related to performance; and it is far from obvious why poor performance should trigger voluntary departures of CEOs. It may be argued that poorly performing managers are likely to be willing to stay rather than leave their firms because their outside options are bad. Therefore, the only problem with the approach that pools all types of separations together is that the negative performance-turnover relationship becomes more difficult to establish. It may simply be not found if the bulk of all separations are routine or voluntary. Overall, there seems to be a consensus in the literature that a negative performance-turnover relationship reflects boards firing CEOs (Hermalin and Weisbach, 2003).

Nevertheless, few attempts to distinguish between different reasons of CEO replacement are known in the literature. For example, Rachinsky (2002) uses publicly available information on large companies to study managerial turnover in the context of the transition economy of Russia and finds that most separations are actually not dismissals. However, as acknowledged above, different types of turnover can overlap (even in the case of firing for poor performance, the officially announced reason for turnover is often neutral: for example, health conditions and the ending of a contract) and therefore the classification of turnover cases is far from objective.

As regards Ukraine, the evidence concerning the performance–turnover relationship is limited. The study by Warzinski (2003) is a notable exception in this respect. Based on survey data covering 300 Ukrainian firms, it analyzes determinants and consequences of managerial change, as well as the role of privatization and competition in improving company performance. He finds some evidence that financial difficulties in private, though not state, firms results in a higher probability of CEO departure. The study also suggests that managerial change and privatization have a positive joint effect on profitability, though the individual effects appear to be

insignificant.

Warzinski's study has several weaknesses stemming largely from the nature and quality of the data. First, the sample size is relatively small. Moreover, the data are obtained in two Ukrainian regions only. More importantly, the study does not use accounting information—performance is measured based on qualitative assessments of respondents, who are asked if their firms faced financial difficulties shortly before the interviews. The reliability of such subjective data on company performance is unclear, which raises substantial concerns about the main findings of the study.

Thus, with the exception of Warzinski (2003) there is little evidence concerning the relationship between corporate performance and managerial turnover, and the overall effectiveness of corporate governance for Ukraine. Our paper contributes to filling in this gap.

METHODOLOGY

Performance measures

Choosing an indicator that would reliably capture all essential aspects of company performance is a non-trivial task in developed economies, and even more so in transition and developing countries. For example, Bevan et al. (1999) suggest that poor accounting standards and the underdevelopment of stock markets force researchers studying enterprise performance in transition economies to place less emphasis on indicators that are based on capital stock, assets, or equity.

In particular, the use of Tobin's Q, a traditional measure of the expected long-run performance of firms, is virtually ruled out in the transition context because of the absence, or a very limited role, of stock markets. There are also problems associated with the use of total factor productivity owing to low reliability of the capital stock data.

Imprecise estimates of capital coupled with endogeneity of profit plague profitability ratios, such as return on equity.¹

These difficulties lead researchers studying enterprise performance in emerging and transition countries to adopt indicators that are less common in the context of developed economies. For example, Bevan et al. (1999) consider the share of exports in sales to be a particularly useful indicator of enterprise performance in the transition environment. Gibson (2003) uses accounting measures of performance such as earnings before interest and taxes scaled by assets, the change in earnings scaled by lagged assets, and growth in sales. The study by Warzinski (2003) employs a rather peculiar performance measure, a dummy that indicates if a firm faced financial difficulties in the preceding period, according to managers' subjective responses while Barberis et al. (1996) consider a range of restructuring indices, such as shop renovations. A number of studies use labor productivity as the most suitable performance measure (e.g., Earle, 1998; Kouznetsov and Muravyev, 2001); however, this measure is appropriate for short-term analysis only, as it is based on the implicit assumption that the level of capital remains unchanged.

Given that each performance indicator has its own particular advantages and disadvantages, we opt for using several indicators instead of choosing and defending a single one. In particular, our focus will be on labor productivity (LP), return on sales (ROS), and return on assets (ROA). This list deliberately omits return on equity (ROE), one of the measures that can easily be computed from the data. Such an omission is not an accident. In the data we have, there are more than 100 firms that, according to their balance sheets, have negative equity.² Thus, in case such a firm reports losses in the last financial year, one obtains a positive value of ROE from the division of one negative number (financial loss) by another one (negative equity). Clearly, the calculated positive value has nothing to do with the actual performance of the firm. While there are credible

concerns about the other measures of performance, including labor productivity, return on sales, and return on assets, we believe that the magnitude of possible accounting distortions is much smaller in these cases.

Econometric models

The focus of this study is the link between CEO turnover on the one hand and firm performance on the other. The outcome in our analysis can be represented by a dichotomous variable which equals to one in case of CEO dismissal between two adjacent years and zero otherwise. Because of the binary outcome variable, we use the logit model to estimate the following CEO turnover equation:

$$Prob(Turnover)=Prob(C_{it}=1|Perform_{it-1},X_{it-1})=A(\alpha+\beta Perform_{it-1}+X_{it-1}\gamma) \quad (1)$$

where i indexes firms, t denotes time, C_{it} is a binary variable for a change in CEO between years $t-1$ and t , $Performance_{t-1}$ is a measure of firm performance in period $t-1$, X_{it-1} is a vector of control variables that characterize firms and their managers, α , β , and γ are unknown parameters to be estimated, and A is the cumulative density function of the logistic distribution. The parameter of interest is β , which we expect to be negative.

Based on previous studies of determinants of managerial turnover, we include the following characteristics of firms and their managers in vector X :

- a variable measuring the size of a company's supervisory board, the mechanism that is empowered to monitor managers and fire them in case of poor performance. The optimal size of the board has been subject of controversy in the literature (e.g., Jensen 1993). Board size has been found an important determinant of CEO change in Yermack (1996), Borokhovich et al. (1996), and Huson et al. (2001). Hermalin and Weisbach (2003) provide an extended list of studies documenting a negative relationship between board size and corporate performance in their survey of corporate boards in developed economies.

- measures of leverage and liquidity, which are supposed to control for firms' financial constraints. High leverage and/or low liquidity are likely to rise the probability of bankruptcy and the threat of bankruptcy may cause higher CEO turnover.

- firm size (measured by the natural logarithm of total assets or by the natural logarithm of employment). This variable is highly relevant in our analysis as larger firms may have a bigger pool of internal successors for a departing manager so that these firms face smaller costs of finding a new CEO.

- chief executives' ownership stakes. We expect that managerial ownership inhibits managerial turnover by promoting, *ceteris paribus*, entrenchment of the incumbents.³

- the gender of managers. There is a growing attention in the corporate finance literature to gender composition of corporate boards and the gender of chief executives (Rose, 2007, Francoeur et. al., 2008). The interest is sparked by the existence of differences between men and women, for example, in risk aversion, which may translate into different behavior as directors and managers (Schubert et. al., 1999, Stelter, 2002). We hypothesize that boards may have a gender bias in evaluating CEO performance and therefore include a dummy variable indicating CEOs' gender in our econometric model.

- managerial experience (number of years of work on managerial positions) and age. Managers' experience is another important variable in our analysis that may help shed more light on the role of managerial human capital. On the one hand, managerial experience, which characterizes accumulation of professional knowledge and acquisition of managerial techniques, may be a valuable asset to the firm. On the other hand, greater managerial experience, *ceteris paribus*, implies older managers who may have insufficient ability to run firms in a market environment if much of their skills were acquired in the Soviet time. We include both managerial age and experience in our regressions in order to separate these effects.

- industry and region fixed effects represented by a set of dummy variables.⁴

A potentially interesting extension of the baseline analysis comes from augmenting the econometric model with interactions of performance with a number of control variables comprising vector X . Such an extension provides evidence as to whether the strength of the performance-turnover relationship varies with different characteristics of firms, most notable ownership and board size. We conduct such an analysis by interacting performance with managerial ownership, board size, and industry affiliation of firms.

DATA AND SAMPLE DESCRIPTION

In our empirical analysis, we employ a recently established database of Ukrainian joint-stock companies which is maintained by the country's regulator – the State Commission on Securities and the Stock Market. The Commission collects essential information about companies and makes it publicly available on its website.⁵ The database covers over 7,000 firms, with the earliest records available in 2001. The data contain detailed financial information about firms including annual balance sheets and income statements, information on their ownership and governance structures, industry affiliation, number of employees and location. There are also data on firms' chief executives, including names, gender, and tenure on the managerial positions.

The estimation sample for our empirical analysis is constructed from these data in several steps. First, we restrict the sample to open joint-stock companies, dropping all observations pertaining to closed joint-stock firms. One reason for such a decision is restrictions on transferability of shares in closed corporations, which may have implications for managerial turnover.⁶ More importantly, the disclosure standard for closed joint-stock companies is less demanding than for open corporations, resulting in the unavailability of essential data about the former type of firms. Second, because we

want to relate changes in CEOs between the current and preceding periods to companies' performance in the preceding period, we only keep observations with complete data in the current and preceding financial years. The final sample includes 916 companies with a total of 3,012 observations over a 5-year period from 2002 to 2006.⁷

In the process of data collection, we attempted to trace exact reasons for changes in CEOs in Ukrainian firms. In doing so, we have been looking at publicly available data sources about Ukrainian companies, such as State Commission on Securities and Stock Market's disclosure server (<http://smida.gov.ua>), corporate sites, and various mass media, most notably Interfax News Agency (<http://interfax.com.ua>). The importance of mass media in covering corporate news has grown considerably in recent years, with many cases of changes in management receiving high publicity.

A complete classification of the 436 cases of changes in CEOs that we observe in the data has proved to be a virtually impossible task, however. The principal reason for that is the unavailability of relevant information from earlier years and for smaller firms, as well as ambiguous and contradictory information in many other instances. Nevertheless, we have identified 22 cases of routine turnover of managers (due to death, health reasons, and retirement because of pension age), changes in CEOs due to bankruptcy of firms, as well as a number of cases linked to the political process, including cabinet changes. The latter is not a surprise in view of abundant evidence of important role of political factors in the Ukrainian economy (Baum et al., 2008).

In particular, we have found several instances of politically-motivated changes in CEOs in firms with considerable government ownership – “strategic” enterprises, especially among the power utilities and in the metallurgical sector. For example, managerial change in “Chornomornaftogas” in 2006 caused a stir as it clearly revealed government officials' fight for a particularly attractive company. Interestingly, despite

wide coverage of the case in mass media, the officially announced reason for managerial change was the ending of the departing CEO's contract. This example illustrates the difficulties encountered when identifying the true reasons for managerial turnover in Ukraine.

Given these difficulties, we do not investigate the reasons underlying turnover of CEOs in Ukrainian firms. Even though we are able to exclude 22 admittedly routine changes in CEOs from the final estimation sample, our paper essentially follows the standard approach in the literature that does not draw a distinction between different types of separations (Hermalin and Weisbach, 2003).

Table 1 shows descriptive statistics of the variables used in the empirical analysis. Rather surprisingly, Ukrainian joint stock companies appear to be, on average, unprofitable, as the mean values of ROA and ROS are negative. The other financial ratios show that firms are, on average, financially stable. In particular, the ratio of debt-to-equity is 1:2, and firms' current liabilities are covered by working capital more than three times. As regards chief executives, they are, on average, 50 years old and have 18 years of experience on the managerial positions. Supervisory boards consist of three to four members on average.

[Table 1 about here]

We also compare summary statistics for two groups of firms: those that have not changed their CEOs during the whole period under study and those that have changed their managers at least once. Table 2 shows descriptive statistics for both types of firms. It turns out that firms with no change in CEO are more frequently headed by executives who are males and who are also older and more experienced compared with managers of firms in the complimentary group. In particular, the mean experience of managers is 19 years in the former group and only 16 years in the latter group.

Managerial turnover is more typical for larger firms, which also have somewhat

larger supervisory boards. Firms that experience no change in managers have higher liquidity, return on sales and return on assets, and also appear to be less leveraged. In other words, the reported financial indicators suggest a link between financial risk facing companies and managerial turnover. In particular, managers of high-leveraged firms are more likely to lose their jobs even though these firms may be more profitable, as the corporate finance literature suggests.

[Table 2 about here]

Overall, the univariate analysis reveals substantial differences in the characteristics of the two groups of firms. The multivariate regression analysis that follows will help to understand the interplay between these various factors and the main outcome of interest, CEO turnover.

REGRESSION RESULTS

To estimate the effect of firm performance on CEO turnover we employ five specifications that differ in terms of performance indicators and control variables used. The dependent variable in all regressions is binary variable CHANGE that indicates CEO turnover between the current and preceding periods. As discussed above, our analysis focuses on three measures of performance: return on assets (ROA), which is the ratio of net profit to assets, return on sales (ROS), which is the ratio of net profit to sales, and labor productivity (LP), which is the ratio of sales to the number of workers employed.

In addition to the main regressor, which measures firm performance, our econometric models include several other characteristics of firms and of their managers. Financial constraints facing the firms are approximated with leverage (LEVERAGE), which is the ratio of short-term and long-term debt to assets (in fact, debt-to-equity ratio is inappropriate because of the above-discussed problems with measurement of equity).

Liquidity (LIQUIDITY) is measured as the ratio of working capital to short-term debt. Since we expect to find a negative relationship between CEO turnover and lagged performance of firms, we use lagged values of ROA, ROS, and labor productivity, as well as of financial constraints, in the regressions.

Firm size is proxied by either the natural logarithm of assets (ASSETS) or the natural logarithm of employment (LABOR). Variable EXPERIENCE is measured as the number of years of work record on managerial positions, variable AGE measures CEO's age, and variable BOARD captures the number of directors in the supervisory board. The regressions also include variable FEMALE, which is a dummy for the CEO's gender.

Our baseline regression results are reported in Table 3. Columns (1), (2) and (3) show the estimation results for specifications with firm size measured by the natural logarithm of assets, and columns (4) and (5) by the natural logarithm of employment. The indicators of firm performance are ROA in columns (1) and (4), ROS in columns (2) and (5), and labor productivity (LP) in column (3).

[Table 3 about here]

The estimates obtained are in line with our predictions. Managerial turnover is negatively and statistically significantly related to firm performance measured by ROS, and especially ROA. In particular, an increase in ROA by three standard deviations reduces the likelihood of CEO turnover by about 6% (see columns 1 and 4). The negative correlation between ROS and managerial turnover is observed only in the specification with firm size measured by the number of employees. A change in ROS has a much smaller impact on CEO turnover than a similar change in ROA. The possible explanation is that return on sales does not reflect the efficiency of management in generating earnings using available assets. In contrast to these performance indicators, labor productivity appears to have no statistically and

economically significant effects on CEO turnover. Being industry-specific characteristics labor productivity may fail to be representative firm performance measure for all the industries in general. Overall, the results are similar to the findings by Muravyev (2003a) and Kapelyushnikov and Demina (2005) for Russia and suggest a certain degree of effectiveness of corporate governance in Ukrainian companies. In contrast to these earlier studies for Russia, our results show that financial indicators play an important part in triggering CEO turnover.

Table 3 also shows a number of interesting results related to the role of firms' financial constraints. For example, leverage has a significant positive impact on the probability of CEO turnover in all five specifications. This is consistent with Jensen (1989), who regards leverage as a crucial constraint on managerial discretion. In contrast, liquidity has no statistically or economically significant effect on CEO change.

The regression results do not show any statistically or economically significant effect of supervisory board size on the probability of CEO turnover. This is unexpected given that studies from other countries suggest an important role for board size and composition in the monitoring and replacing of CEOs, see the survey article by Hermalin and Weisbach (2003). We, however, find that larger companies, *ceteris paribus*, are more likely to experience a change in CEO, regardless of how we measure firm size.

As regards characteristics of managers such as gender and experience, they appear to have no effect on CEO turnover in Ukrainian firms. However, managerial ownership has negative and statistically significant effect on the probability of turnover. An increase in the equity stake of the manager by 1% reduces the probability of dismissal by 0.3%. Our study therefore confirms the adverse impact of managerial entrenchment, long suggested in the corporate governance literature.

We also test whether the strengths of the performance-turnover relationship varies

with supervisory board size and CEO share ownership. With this purpose, we introduce interaction terms between these characteristics and firm performance. The coefficients of these interactions, however, turn out to be statistically insignificant. The coefficients on the other variables remain pretty similar to those reported in the baseline regressions.⁸

We also investigate the link between CEO turnover and the relative performance of companies (that is, relative to other firms in the same industry). The idea is that such a relative measure is a better indicator of the quality of management than firm performance per se. Indeed, company performance is subject to various shocks, which may have nothing to do with managerial decisions. For example, poor performance of a particular company may be a consequence of a decline in the whole industry, rather than a result of mismanagement. Thus, shareholders and supervisory boards may place stronger emphasis on such a relative evaluation when deciding the future of corporate executives.⁹

In this study, relative performance is measured as the difference between the company's performance indicator and the average performance in the relevant industry, distinguished by two-digit industry codes. The regression results for the standard logit specifications are shown in Table 4. In general, they are similar to the previous estimates. The main result is that poor relative performance of a company in terms of relative ROA triggers CEO change, while the other measures of relative performance do not appear to be strong signals for the dismissal of managers.

[Table 4 about here]

Another interesting issue is whether firm performance has differential impacts on CEO turnover in different industries. We check this by interacting firm performance with industry dummies. The results from estimating the five familiar specifications are reported in Table 5. Note that of all industry-performance interactions, the table shows

only those with statistically significant coefficients. There are a number of interesting results. The negative effect of ROA on managerial turnover is observed in the construction materials and construction industries. ROS has a strong impact on managerial dismissal in the food processing, textile, construction materials, energy, and construction sectors. Strong effects of labour productivity are visible in the metallurgical and electronic tools industries. Of all these industry effects, the strongest relationship (from the statistical viewpoint) is observed in the construction materials industry. We believe that this pattern can be explained by a considerable number of firms comprising this industry as well as by its considerable homogeneity, implying that the performance of a firm provides a better signal for shareholders and supervisory boards about the quality of management than in more concentrated and less homogenous sectors.

[Table 5 about here]

CONCLUSIONS

This paper studies the relationship between managerial turnover and firm performance in Ukraine. We use a new sample of open joint-stock companies that operated in the country in 2002-2006, a period of robust economic growth and intensive restructuring. Our analysis is based on several specifications of the standard logit model. In order to mitigate distortions in measures of firm performance, which stem from deficient accounting practices, we use multiple indicators of performance: ROA, ROS, and labor productivity. In addition, we measure performance of a firm relative to other firms in the same industry, which may be a better indicator of managerial effort in the firm.

Our main result is the presence of a negative relationship between the likelihood of CEO dismissal and firm performance, especially if the latter is measured by return on assets which the most fully capture the managers' efficiency in operating firm's assets.

This suggests that corporate governance in Ukraine shows a certain degree of efficiency. We also find that larger ownership by managers reduces the likelihood of managerial turnover. The size of supervisory boards appears to play no significant role in CEO turnover. We also found that Ukrainian managers are financially constrained in their activities with the probability of a CEO's departure being related to the firm's leverage. We do not observe any significant effect of liquidity, however. The inclusion of interaction terms between performance measures on the one hand and supervisory board size and managerial ownership on the other hand does not provide any additional insight into the functioning of Ukraine's managerial labor market.

Our results are of particular interest in view of the ongoing changes in Ukrainian corporate law, and in particular, the recent enactment of Law on Joint-Stock Companies. According to the regulations that existed before the adoption of the new law, the right to dismiss executives belonged exclusively to the shareholders' meeting. Supervisory boards, while having some authority to initiate management changes, had rather limited power in deciding the future of CEOs. The new law changes the balance of power in favour of supervisory boards. It also establishes a minimum size of supervisory boards. The proponents of these changes argue that they would produce more efficient response to poor performance of managers. Whether such a redistribution of power within the firm leads to better monitoring of managers and improves corporate performance may be an interesting topic for future research.

Footnotes

¹ The biggest concern is profit if measured net of taxes because taxes are often viewed as endogenous rather than parametric (Schaffer, 1998).

² This is typical in an inflationary environment when firms that do not regularly revalue their fixed assets incur considerable losses in the current period.

³ It is worth noting that managerial ownership may be positively associated with performance as managers have stronger incentives to exert effort when their ownership stake is larger (Jensen and Meckling, 1976). This incentive effect of managerial ownership works in the opposite direction to the entrenchment effect.

⁴ Industry affiliation may affect the cost of replacing CEOs as it is related to the ease of finding an outside successor. If a company belongs to an industry consisting of very heterogeneous firms, finding an outside successor may be difficult as many potential candidates may not possess adequate (firm-)specific human capital.

⁵ The Internet address is www.smida.gov.ua, the link effective as of May 2008.

⁶ Comparing open and closed joint-stock companies is an interesting research topic that is outside of the scope of this paper.

⁷ The sample is dominated by privatized enterprises that, according to the common classification scheme, belong to the group of large and medium-sized firms (the average firm in the sample has 320 employees). As to industrial affiliation, 16.90% of the sampled firms are power utilities, 14.17% represent metal works and machinery, 13.24% come from the construction materials industry, 12.81% come from the food processing industry, 11.04% are from the mining and quarrying sector, and 11.37% represent the construction sector. The sample contains firms located in all 27 regions of the country, with largest fractions in Kyiv city (11.70%), Poltava region (10.57%), Donetsk region (8.47%), Cherkassy region (7.97%), and Kyiv region (7.14%). The data also suggests that the annual turnover rate among Ukrainian managers is about 10%, with rather small variation within the period under study (between 9.8% in 2003-2004 and 10.8% in 2004-2005).

⁸ These results are not reported in the paper, but are available on request from the authors.

⁹ For a detailed discussion of relative performance evaluation, see for example, Holmstrom (1982) and Parrino (1997).

REFERENCES

- Barberis, N., Boycko, M., Shleifer, A. and Tsukanova, N. (1996), "How Does Privatization Work? Evidence from the Russian Shops", *Journal of Political Economy*, 104(4), pp.764-90.
- Baum, C., Caglayan, M., Schäfer, D. and Talavera, O. (2008), "Political Patronage in Ukrainian Banking", *The Economics of Transition*, 16(3), pp.537-57.
- Bevan, A.A., Estrin, S. and Schaffer, M.E. (1999), "Determinants of Enterprise Performance during Transition", *CERT Discussion Paper*, No. 9903.
- Borokhovich, K. A., Parrino, R. and Trapani, T. (1996), "Outside Directors and CEO Selection", *The Journal of Financial and Quantitative Analysis*, 31(3), pp. 337-55.
- Claessens, S. and Djankov, S. (1999), "Enterprise Performance and Management Turnover in the Czech Republic", *European Economic Review*, 43(4-6), pp. 1115-24.
- Coughlan, A.T. and Schmidt, R.M. (1985), "Executive Compensation, Management Turnover, and Firm Performance: An Empirical Investigation", *Journal of Accounting and Economics*, 7(1-3), pp.43-66.
- Denis, D.J. and Denis, D.K. (1995), "Performance Changes Following Top Management Dismissals", *Journal of Finance*, 50(4), pp. 1029-57.
- Djankov, S. and Murrell, P. (2002), "Enterprise Restructuring in Transition: A Quantitative Survey", *Journal of Economic Literature*, 40(3), pp. 739 – 92.
- Dyck, A. (2001), "Privatization and Corporate Governance: Principles, Evidence and Future Challenges", *The World Bank Research Observer*, 16(1), pp. 59-84.
- Earle, J.S. (1998), "Post-Privatization Ownership Structure and Productivity in Russian Industrial Enterprises", *SITE Working Paper*, No.127.
- EBRD (2001), Transition Report 2001, EBRD, London.
- Eriksson, T. (2005), "Managerial Pay and Executive Turnover in the Czech and Slovak Republics", *The Economics of Transition*, 13(4), pp. 659-77.
- Estrin, S. and Rosevear, A. (2003), "Privatization in Ukraine", in: D. Parker and D. Saal, eds., *International Handbook on Privatization*, Edward Elgar Publishing, Cheltenham, UK.
- Fidrmuc, J.P. and Fidrmuc, J. (2006), "Can You Teach Old Dogs New Tricks? On Complementarity of Human Capital and Incentives", *Journal of International Money and Finance*, 25(3), pp. 445-58.
- Fidrmuc, J. P. and Fidrmuc, J. (2007), "Fire the Manager to Improve Performance? Managerial Turnover and Incentives after Privatization in the Czech Republic", *Economics of Transition*, 15(3), pp. 505-33.
- Francoeur, C., Labelle, R. and Sinclair-Desgagné, B. (2008), "Gender Diversity in Corporate Governance and Top Management", *Journal of Business Ethics*, 81(1), pp. 83-95.

- Geddes, R. R. and Hrishikesh, D. V. (1997), "CEO Age and Outside Directors: A Hazard Analysis", *Review of Industrial Organization*, 12(5), pp. 767-80.
- Gibson, S. M. (2003), "Is Corporate Governance Ineffective in Emerging Markets?", *The Journal of Financial and Quantitative Analysis*, 38(1), pp. 231-50.
- Hermalin, B.E. and Weisbach, M. S. (2003), "Boards of Directors as an Endogenously Determined Institution: A Survey of the Economic Literature", *Economic Policy Review*, 9(1), pp. 7-26.
- Holmstrom, B. (1982), "Moral Hazard in Teams", *Bell Journal of Economics*, 13(2), pp. 324-40.
- Huson, M. R., Parrino R. and Starks L. T. (2001), "Internal Monitoring Mechanisms and CEO Turnover: A Long-Term Perspective", *The Journal of Finance*, 56(6), pp. 2265-97.
- Jensen, M.C. (1989), "Eclipse of the Public Corporation", *Harvard Business Review*, 67(5) pp. 61-74.
- Jensen, M.C. (1993), "The Modern Industrial Revolution, Exit, and the Failure of the Internal Control Systems", *Journal of Finance*, 48(3), pp.831-80.
- Jensen, M.C. and Murphy, K.J. (1990), "Performance Pay and Top-Management Incentives", *Journal of Political Economy*, 98(2), pp.225-64.
- Jensen, M.C. and Meckling, W. (1976), "Theory of the Firm: Managerial Behavior, Agency Cost, and Capital Structure", *Journal of Financial Economics*, 3(4), pp.305-60.
- Kang, J.-K. and Shivdasani, A. (1995), "Firm Performance, Corporate Governance, and Top Executive Turnover in Japan", *Journal of Financial Economics*, 38(1), pp.29-58.
- Kapeliushnikov, R., and Demina, N. (2005), "Turnover of Managers in Russian Manufacturing Enterprises: Evidence from Russian Economic Barometer", *Russian Journal of Management*, 3(3), pp. 27-42, in Russian.
- Kouznetsov, P. and Muravyev, A. (2001), "Ownership Structure and Firm Performance in Russia: The Case of Blue Chips of the Stock Market", *EERC Working Paper Series 01-10e*, EERC Research Network, Russia and CIS.
- Lausten, M. (2002), "CEO Turnover, Firm Performance and Corporate Governance: Empirical Evidence on Danish Firms", *International Journal of Industrial Organization*, 20(3), pp. 391-414.
- Mitra, P., Muravyev, A. and Schaffer, M.E. (2008), "Convergence in Institutions and Market Outcomes: Cross-Country and Time-Series Evidence from the BEEPS Surveys in Transition Economies", *IZA Discussion Papers 3863*, Institute for the Study of Labor (IZA).
- Muravyev, A. (2003 a), "Turnover of Senior Managers in Russian Privatized Firms", *Comparative Economic Studies*, 45(2), pp. 148-72.
- Muravyev, A. (2003 b), "Turnover of Managers in Russian Privatised Enterprises: A Survey of Evidence", *Russian Journal of Management*, 1, pp. 77-90, in Russian.

- Parrino, R. (1997), "CEO Turnover and Outside Succession: a Cross-Sectional Analysis", *Journal of Financial Economics*, 46(2), pp.165–97.
- Pistor, K., Martin, R. and Gelfer, S. (2000), "Law and Finance in Transition Economies", *Economics of Transition*, 8(2), pp. 325-68.
- Rachinsky, A. (2002), "Self Enforced Mechanisms of Corporate Governance: Evidence from Managerial Turnover in Russia", *Centre for Economic and Financial Research Working Paper*, No.w0051.
- Roland, G. (2000), "Transition and Economics. Politics, Markets and Firms", London: *MIT Press*.
- Rose, C. (2007), "Does Female Board Representation Influence Firm Performance? The Danish Evidence", *Corporate Governance: An International Review*, 15(2), pp. 404-13.
- Rosenstein, S. and Wyatt, J.G. (1997), "Inside Directors, Board Effectiveness, and Shareholder Wealth", *Journal of Financial Economics*, 44(2), pp. 229-50.
- Schaffer, M.E. (1998), "Do Firms in Transition Economies Have Soft Budget Constraints? A Reconsideration of Concepts and Evidence", *Journal of Comparative Economics*, 26(1), pp. 80-103.
- Schnytzer, A. and Andreyeva, T. (2002), "Company Performance in Ukraine: Is This a Market Economy?", *Economic Systems*, 26(2), pp. 83-98.
- Schubert, R., Brown, M., Gysler, M. and Brachinger, H.W. (1999), "Financial Decision-Making: Are Women Really More Risk-Averse?", *The American Economic Review*, 89(2), pp. 381-85.
- Shleifer, A. and Vasiliev, D. (1996), "Management Ownership and Russian privatization", in: Frydman, R., Gray, C. W., and Rapaczynski, A., eds., "*Corporate Governance in Central Europe and Russia*", Vol. 2., CEU Press, Budapest, pp. 62-77.
- Shleifer, A. and Vishny, R. W. (1997), "A Survey of Corporate Governance", *Journal of Finance*, 52(2), pp. 737-83.
- Stelter, N.Z. (2002), "Gender Differences in Leadership: Current Social Issues and Future Organizational Implications", *Journal of Leadership & Organizational Studies*, 8(4), pp.88-99.
- Warner, J.B., Watts R.L., and Wruck K.H. (1988), "Stock Prices and Top Management Changes", *Journal of Financial Economics*, 20 (1-2), pp. 461-92.
- Warzynski, F. (2003), "Managerial Change, Competition, and Privatization in Ukraine", *Journal of Comparative Economics*, 31(2), pp. 297–314.
- Weisbach, M. S. (1988), "Outside Directors and CEO Turnover", *Journal of Financial Economics*, 20 (1-2), pp. 431-60.
- Yermack, D. (1996), "Higher Market Valuation of Companies with a Small Board of Directors", *Journal of Financial Economics*, 40 (2), pp. 185-211.

Table 1. Descriptive statistics for the sample used in the logit regressions.

Variable	Definition	Mean	Standard Deviation
CHANGE	Equals one if change take place in this period	0.102	0.302
FEMALE	Equals one if female	0.090	0.286
EXPERIENCE	Number of years of experience on executive position	18.245	9.809
AGE	CEO age	50.319	8.876
BOARD	Number of members in the supervisory board	3.483	1.737
SHARE	The share ownership of CEO	11.733	18.557
LEVERAGE	The ratio of debts to assets	0.327	0.279
LIQUIDITY	The ratio of working capital to short-term debts	3.379	4.593
ASSETS	Firm's assets in mln UAH	26.899	69.153
LABOR	Number of people employed	319.506	559.583
ROA	The ratio of net profit to assets	-0.009	0.089
ROS	The ratio of net profit to sales	-0.054	0.183
LP	The ratio of sales (mln UAH) to the number of employed	0.062	0.078
BOARD*ROA	Interaction of board size and ROA	-0.032	0.308
BOARD*ROS	Interaction of board size and ROS	-0.180	0.633
BOARD*LP	Interaction of board size and LP	212.966	291.815
SHARE*ROA	Interaction of share ownership of CEO and ROA	-0.015	1.236
SHARE *ROS	Interaction of share ownership of CEO and ROS	-0.239	1.709
SHARE *LP	Interaction of share ownership of CEO and LP	556.198	1151.805

Note: Descriptive statistics are based on 3,012 observations. All firm-level variables except CHANGE are lagged.

Table 2. Descriptive statistics of the variables, by CEO turnover.

Variable	Firms without CEO turnover during the period under consideration (2,004 observations)		Firms with CEO turnover during the period under consideration (1,008 observations)		p-value
	Mean	Standard deviation	Mean	Standard deviation	
FEMALE	0.081	0.274	0.108	0.308	0.030
EXPERIENCE	19.256	9.542	16.234	10.025	0.000
AGE	51.488	8.370	47.996	9.385	0.000
BOARD	3.409	1.691	3.632	1.816	0.001
SHARE	15.198	20.519	4.844	10.993	0.000
LEVERAGE	0.297	0.265	0.388	0.296	0.000
LIQUIDITY	3.617	4.747	2.906	4.233	0.000
ASSETS	19.487	55.437	41.636	88.651	0.000
LABOR	257.212	453.906	443.354	709.509	0.000
ROA	0.000	0.085	-0.026	0.093	0.000
ROS	-0.042	0.174	-0.078	0.197	0.000
LP	56.986	68.852	79.992	93.701	0.000
BOARD*ROA	-0.003	0.292	-0.089	0.329	0.000
BOARD*ROS	-0.141	0.605	-0.259	0.679	0.000
BOARD*LP	188.880	249.833	260.850	356.402	0.000
SHARE*ROA	0.089	1.382	-0.132	0.861	0.000
SHARE *ROS	-0.218	1.849	-0.283	1.390	0.343
SHARE *LP	700.665	1254.331	268.983	844.496	0.000

Note: The last column shows p-values from the t-test for the equality of means in the two groups of firms. See Table 1 for variables definitions.

Table 3. Regression results from the logit model.

	(1)	(2)	(3)	(4)	(5)
FEMALE	-0.001 (0.015)	-0.003 (0.016)	-0.003 (0.016)	-0.003 (0.015)	-0.003 (0.016)
EXPERIENCE	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)
AGE	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)
BOARD	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)
SHARE	-0.003*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)
LEVERAGE	0.038* (0.018)	0.058*** (0.019)	0.062*** (0.019)	0.042** (0.019)	0.059*** (0.019)
LIQUIDITY	0.000 (0.001)	0.000 (0.001)	0.000 (0.001)	0.001 (0.001)	0.001 (0.001)
Log(ASSETS)	0.009*** (0.004)	0.006** (0.004)	0.006 (0.004)		
ROA	-0.227*** (0.055)			-0.218*** (0.054)	
ROS		-0.031 (0.023)			-0.042* (0.024)
LP			-0.040 (0.072)		
Log(LABOR)				0.012*** (0.004)	0.011*** (0.004)
X ²	133	119	117	133	121
p-value	0.000	0.000	0.000	0.000	0.000
Pseudo R ²	0.081	0.072	0.072	0.081	0.074

Note: The number of observations is 3,012. The dependent variable equals to one if there is CEO turnover in a given year and zero otherwise. The table reports marginal effects after logit estimation. Cluster-robust standard errors are in brackets. Marginal effects are estimated around mean points. The intercept, region and industry dummies are included in the regressions but not reported. *, **, *** correspond to 10, 5, and 1% level of significance, respectively. All firm-level variables are lagged. See Table 1 for variables definitions.

Table 4. Regression results from the logit model: relative performance measures.

	(1)	(2)	(3)	(4)	(5)
FEMALE	-0.001 (0.015)	-0.003 (0.016)	-0.003 (0.016)	-0.003 (0.015)	-0.003 (0.016)
EXPERIENCE	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)
AGE	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)
BOARD	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)
SHARE	-0.003*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)
LEVERAGE	0.038* (0.018)	0.058** (0.022)	0.061*** (0.019)	0.042** (0.019)	0.060*** (0.022)
LIQUIDITY	0.000 (0.001)	-0.000 (0.001)	0.000 (0.001)	0.001 (0.001)	0.000 (0.001)
Log(ASSETS)	0.009** (0.004)	0.006 (0.004)	0.006 (0.004)		
ROA_relative	-0.227*** (0.055)			-0.217*** (0.053)	
ROS_relative		-0.025 (0.111)			-0.026 (0.109)
LP_relative			-0.038 (0.038)		
Log(LABOR)				0.012*** (0.004)	0.009* (0.005)
X^2	134	118	120	135	121
p-value	0.000	0.000	0.000	0.000	0.000
Pseudo R ²	0.081	0.072	0.072	0.081	0.072

Note: The number of observations is 3,012. The dependent variable equals to one if there is CEO turnover in a given year and zero otherwise. The table reports marginal effects after logit estimation. Cluster-robust standard errors are in brackets. Marginal effects are estimated around mean points. The intercept, region and industry dummies are included in the regressions but not reported. *, **, *** correspond to 10, 5, and 1% level of significance, respectively. All firm-level variables are lagged. See Table 1 for variables definitions.

Table 5. Regression results from the logit model: differences across industries.

	(1)	(2)	(3)	(4)	(5)
FEMALE	-0.001 (0.016)	-0.000 (0.016)	-0.004 (0.011)	-0.002 (0.016)	-0.001 (0.016)
EXPERIENCE	0.000 (0.001)	-0.000 (0.001)	-0.000 (0.000)	0.000 (0.001)	-0.000 (0.001)
AGE	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.000)	-0.000 (0.001)	-0.000 (0.001)
SHARE	-0.003*** (0.000)	-0.003*** (0.000)	-0.002*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)
BOARD	0.001 (0.003)	0.001 (0.003)	0.001 (0.002)	0.001 (0.003)	0.001 (0.003)
LEVERAGE	0.039** (0.018)	0.052*** (0.018)	0.044*** (0.013)	0.044** (0.018)	0.055*** (0.018)
LIQUIDITY	0.000 (0.001)	0.000 (0.001)	-0.000 (0.001)	0.000 (0.001)	0.000 (0.001)
Log(ASSETS)	0.010*** (0.004)	0.008** (0.004)	0.006** (0.003)		
ROA	-0.134 (0.083)			-0.119 (0.080)	
ROAind6	-0.987** (0.489)			-1.050** (0.486)	
ROAind12	-0.931* (0.512)			-0.905* (0.505)	
ROS		0.049 (0.034)			0.036 (0.035)
ROSind2		-0.926** (0.446)			-0.882** (0.450)
ROSind3		-84.575* (46.754)			-78.012* (46.489)
ROSind6		-0.909*** (0.279)			-0.901** (0.280)
ROSind11		-0.427** (0.212)			-0.406* (0.211)
ROSind12		-0.984** (0.392)			-0.946** (0.392)
LP			0.039 (0.062)		
LPind7			6.242*** (0.475)		
LPind8			-0.028** (0.011)		
Log(LABOR)				0.012*** (0.004)	0.011*** (0.004)
X ²	152	137	131	158	144
p-value	0.000	0.000	0.000	0.000	0.000
Pseudo R ²	0.085	0.083	0.080	0.086	0.084

Note: The number of observations is 3,012. The dependent variable equals to one if there is CEO turnover in a given year and zero otherwise. The table reports marginal effects after logit estimation. Cluster-robust standard errors are in brackets. Marginal effects are estimated around mean points. The intercept, region and industry dummies are included in the regressions but not reported. Interactions between performance measures and industry dummies are included for all the dummies; however, the table only shows the statistically significant ones. Ind2 refers to Food Production, ind3 – Textile, ind6 – Construction Materials, ind7 – Metallurgy, ind8 – Electronic Tools, ind11 – Energy, ind12 – Construction. *, **, *** correspond to 10, 5, and 1% level of significance, respectively. All firm-level variables are lagged. See Table 1 for variables definitions.