

DOES INCENTIVE  
COMPENSATION TO SUPERVISORY  
BOARDS AFFECT CEO TURNOVER?

by

Viktoriia Shum

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Thesis Supervisor: \_\_\_\_\_ Assistant professor Oleksandr Talavera

Approved by \_\_\_\_\_  
Head of the KSE Defense Committee, Professor Roy Gardner

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Kyiv School of Economics

Abstract

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The goal of this paper is to examine both the effects of different forms of incentive compensations to supervisory board and the impact of SB composition on chief executive officers turnover. The logit estimation is applied to the panel dataset collected from State Commission on Securities and Stock Market for Ukrainian joint stock companies. Compensation to SB based on firm performance is found as the effective remuneration for improving companies' corporate governance whereas fixed and absent of compensation have no effect on CEO turnover. Compensation is not systematically structured to mitigate agency conflicts and to encourage effective monitoring, since SB directors earn remuneration based on firm performance in more rare cases than other forms of compensation or do not receive it at all. Therefore, the paper indicates poor corporate governance performance in Ukraine during 2003-2006.

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## GLOSSARY

**Chief Executive Officer (CEO).** The highest-ranking corporate officer (executive) or administrator in charge of total management of an organization.

**Supervisory Board (SB).** A group of individuals chosen by stockholders of a company to promote their interests through the governance of the company and to hire and supervise the executive directors and CEO.

## *Chapter 1*

### INTRODUCTION

With the growing amount of joint-stock companies the corporate governance has become an important subject in transition economies. The period of last decades was characterized by privatization process and rapid financial development. In connection with new forms of management, new standards and laws should be established to improve and enhance the corporate governance effectiveness.

The shareholder-manager conflicts, named in the corporate governance literature as agency problem, can produce shirking, gratuity and overinvestment among managers. Fama and Jensen (1983) tried to find keys to reconcile the management interests with those of shareholders. Such issue can be resolved by separation of managers and controls scopes in the decision-making process. The useful mechanism for monitoring managerial performance and improving its quality is a board of directors that protect shareholders' interests.

The supervisory directors monitoring can be either effective or negligent. Principal agent theory considers the arrangement of remuneration as an instrument to alleviate the agency problem with assumption that compensation is organized to provide the agent (supervisory director) with incentives to maximize the long-run firm's value (Jensen and Murphy, 2004). Therefore, the main target of this paper is to identify what kind of compensation or compensation package should be set up to enhance SB monitoring efforts and make them more diligent.

The top managers or Chief Executive Officers are responsible to represent the shareholders' interests, so they have to maximize shareholders profit under the

corporate governance theory. Thereby, CEOs are accountable for good or bad firm performance and should be dismissed in case of ineffectiveness (Weisbach, 1988).

Recent development of corporate governance in transition countries results in growing number of companies with established Supervisory Board. The case study in Ukraine is of a special interest since there is data available for SB size, composition and compensation unlike Russia and other transition countries similar to Ukraine. Dataset from State Commission on the Securities and Stock Market for Ukrainian joint-stock companies allows to investigate the influence of SB remuneration as well as a SB composition on the CEO turnover. Thus, this paper is the first attempt to examine SB compensation and composition in Ukraine. It is also aimed at supporting the literature on the agency problem and important understanding of corporate governance in transition countries. Also, this research should be interesting for Ukrainian policy makers, who are concerned with reforms and design of corporate governance structures.

Under the Ukrainian legislation, boards can be organized as an entity (one-tier board) or a two-tier board including Supervisory and Management boards. Establishing a Supervisory Board in joint-stock companies consisting of more than fifty shareholders is required under item 51 of the Law on Joint Stock Companies, which became available in April 2010.<sup>1</sup> The compensation of nonexecutive directors can be in the form of fixed payment (Bryan, 2000); percentage of the net profit or a proportion in shares' value; stocks and stock options (Ertugrul, 2007). The remunerations for SBs in Ukraine are presented by fixed payment; percentage of the net profit or a proportion in shares' value; equity-based compensation or some other forms. There can be some mix of two or more forms of compensation. In other cases Supervisory Board directors and head do not receive any compensation. The composition of SB in Ukrainian joint

stock companies is presented by companies' representatives, state representatives, juridical persons, shareholders who hold 10% of shares and shareholders with less than 10% of shares.

As far as the Board of directors regulates the process of hiring and evaluating CEO, the incentive compensation should enhance the Supervisory Board's monitoring efforts.

Thus, the first hypothesis is that there is a difference in probability of CEO turnover between companies where SB directors receive fixed compensation, percentage of the net profit or a proportion in shares' value, equity-based compensation or no compensation at all. The second hypothesis is: The composition of SB affects the likelihood of CEO changes.

Because of the binary outcome variable, and based on previous studies (Fama and Jensen, 1983; Hermalin and Weisbach, 1991; Conyon, 2008; Muravyev, Talavera, Bilyk and Grechaniuk, 2009) the logit model will be involved. The firm determinants such as profitability measured by return on assets, liquidity and leverage, firm size, measured by the log of total assets and log of weighted labor force, SB characteristics such as size, compensation and composition are involved in the logit analysis as the control variables as well as managerial characteristics, such as ownership, gender, age, experience.

The paper is organized as follows. Chapter 2 provides an overview of the related literature concerning agency problem, managerial board structure and incentive compensation, and appropriate compensation to supervisory board directors. Chapter 3 presents the methodology involved. Chapter 4 contains the data description. Chapter 5 presents the obtained empirical results. Chapter 6 comprises conclusions and suggestions on further development of the research.

The contribution of this paper to the literature on the corporate governance consists in finding that performance-based compensation is designed to decrease agency conflicts, to encourage effective monitoring and therefore to enhance corporate governance in Ukrainian joint stock non financial corporations.

## *Chapter 2*

### LITERATURE REVIEW

Jensen and Meckling (1976) were the first to point out that there were shareholder-manager conflicts caused by managers' opportunity of receiving some benefits bearing only minor cost equal to their proportional ownership in the firm.

According to the corporate governance theory an important instrument to attenuate agency problem is the board of directors, which deals with strategic questions such as a business strategy, appointment or removal of CEO, and executive compensation (Fama and Jensen, 1983; Kaplan and Reishus, 1990; Shivdasani and Zenner, 1997; Bhagat and Black, 2000; Spira, 2002).

The board system varies for different countries. In contrast to one-tier board system, which is represented only by executive directors, for example as in the US, the two-tier board includes supervisory directors, named also nonexecutive directors, as well as executive, internal, directors. The last system is popular in the majority of European countries (Charkham, 1995). Thereby, the concept of new changes in the corporate governance brought about a variety of studies regarding the structure and composition of the supervisory board (Hermalin and Weisbach, 1988; Bathala and Ramesh, 1995; Nguyen, 2009), the motivation and compensation of nonexecutive directors (Conyon, 1998; Bryan, 2000; Fich, 2004; Ertugrul, 2007; Andreas (2009) and the link between those indicators and managerial turnover as an important factor of corporate governance (Conyon, 2008; Jenter, 2008). Extensive studies evolved in developed countries, such as

Germany (Andreas, 2009), France (Nguyen, 2009), Denmark (Lausten, 2002) and others, specify a higher probability of managerial dismissals for poor performance in the firms where number of outside directors in the board is larger than in the inside one.

However, among these studies there are some that reveal no relationship between board structure and corporate profitability. On the other hand, some studies show a significant dependence between the corporate performance and inclusion of the supervisory directors into the board. For instance, Weisbach (1988) points out the higher efficiency in corporate governance with two-tier board, especially dominated by supervisory board. The Cadbury Committee (Cadbury, 1995) trying to establish best recommendation for U.K. corporations based on empirical estimations suggests to involve at least three nonexecutive directors.

With recent improvement in corporate governance in developing countries there occur many studies on the link between firm performance and management tenure on examples of transition countries. Djankov (1999) points out a negative relationship between CEOs' dismissals and the prior performance of the firms in case of Czech Republic. These results are supported by Fidrmuc and Fidrmuc (2007) and Muravyev (2003) using data from Russian surveys. Valuable contribution of Conyon (2008) recent research lies in extension of existed theoretical and empirical results for transition countries by using data of China's listed firms. A case study of Ukraine, investigated by Muravyev, Talavera, Bilyk and Grechaniuk (2009), supports the results received in other transition countries according negative relationship between CEOs' turnover and the prior firm performance.

However, the agency problem theory specifies not only divergence of managers and directors interests, but also contradiction between directors and shareholders

(Fama, 1980; Fama and Jensen, 1983). To reduce this agency cost related to shortage of outside directors' motives to protect shareholders interests, some researchers recommend to introduce appropriate compensation (Fich and Shivdasani, 2005; Ferrarini, 2009; Perry, 1999; Andreas, 2009). Despite of a large stock of literature regarding top managerial and executive compensation (Fama and Jensen, 1983; Conyon, 1998; Devers, 2007), outside director remuneration came to attention of academic audience only recently. Developing the concept of determinants of nonexecutive directors' compensation, Bryan (2000) in addition to cash payments examines stock option compensation and stock grants. Using a data set of U. S. firms over five year period, he found positive relationship between mix of fixed payment and stock option compensation and firm productivity.

Confirming the previous study by Yermack (1996), Nguyen (2009) determines more effectiveness of two-tier board with smaller supervisory board. This evidence, providing on the French-listed companies, is grounded on fact that small board can make a decision faster than large one. However, in contrast to Nguyen, Andreas (2009) argues that in the firms with absence of supervisory directors in the board the likelihood of CEO changes is higher and thus governance of such firms is more effective.

Andreas (2009) provides new evidence on the fact that the nonexecutive director compensation schemes are important component in corporate governance and firm efficiency. Using German panel data for the period 2005-2008 Andreas points out that package of compensation to supervisory directors is arranged to alleviate agency conflict and support effective monitoring.

The contribution of this paper to the literature on the corporate governance consists of finding that performance-based compensation is designed to decrease

agency conflicts, to encourage effective monitoring and therefore to enhance corporate governance in Ukrainian joint stock non financial corporations.

### *Chapter 3*

## METHODOLOGY

The main goal of this paper is to investigate the effect of incentive compensation on work of supervisory board of directors. According to corporate governance theory incentive compensation for directors is implemented to reduce the secondary agency costs connected with the relationship between nonexecutive directors and shareholders by balancing the interests of shareholders and directors.

Finkelstein and Hambrick (1996) in their work examine the effect of outside directors' incentives. They concluded that low fixed stakes and low equity share holdings reduce the efforts and desires of supervisory board for monitoring executive directors. Perry (1999) supports this study, defining that supervisory boards whose members and head receive stock option compensation are more likely to dismiss the CEO for bad firm performance.

Therefore, the main objective of the present paper is to examine monitoring results of supervisory board whose directors receive fixed payment, percentage of the net profit or a proportion in shares' value, remuneration in the form of firms' equities or some other compensation, which is not described in the data source<sup>1</sup>. Also they can earn mix of two or more forms of compensation. In other cases Supervisory Board directors do not receive any compensation.

The implication of this model is consistent with the study by Muravyev, Talavera, Bilyk and Grechaniuk (2009), using data Ukrainian joint-stock companies. Findings of this investigation reveal the negative relationship between the prior

firm performance and probability of CEO turnover, resulting in effective corporate governance. Conyon (2008) uses log of logit for investigating the same turnover-performance relationship for China during transition period of 1999-2006.

$$\text{Pr ob}(CEO\text{turnover} = 1 | \bar{X}_{it-1}, \bar{M}_{it}, \bar{I}_{it}, \bar{K}_{it}) = \Lambda(\alpha + \beta\bar{X}_{it-1} + \gamma\bar{M}_{it} + \eta\bar{I}_{it} + \mu\bar{K}_{it}),$$

$$\Lambda(z) = \frac{e^{\bar{x}\bar{\beta}}}{1 + e^{\bar{x}\bar{\beta}}} \text{ is the logistic function.}$$

$\bar{X}$  – is set of firm characteristics with the lag in one year.

$\bar{M}$  – is a set of CEO characteristics.

$\bar{I}$  – is a set of dummy variables on incentive compensations that equals 1 if supervisory directors receive any of three types of compensation and 0 otherwise.

$\bar{K}$  – is set of variables that describes SB composition.

Year effect, region and industry effects are involved in the model as sets of control dummy variables. For example, CEO skills may vary with industries. That is why some aspects of CEO qualification could be controlled only by including industry dummy.

### **Dependent variable**

The dependent variable is CEO turnover, which is a dummy variable that equals unity if there is a change in CEO during the year and zero otherwise. It is worth mentioning the limitation of the dependent variable construction, because it is

difficult to separate “voluntary” turnovers (for example retirements, job changes) and “involuntary” turnovers (for example dismissals). However, we tried to address this problem by involving the age variable into logit analysis. Evidently, the experience explanatory variable can have a positive correlation with the age variable, since the older managers have longer tenure in particular company. Nevertheless, the correlation coefficient between these independent variables is not very large and equals 0.45 according to the correlation matrix presented in Table E1 of Appendix E. Moreover, we included two logit regressions: one with age and another without it to confirm that there is no statistical difference in margins and probabilities of CEO changes with or without one of these variables. (Table D1 of Appendix).

It is important to stress the endogeneity problem that can turn up in such logit model. The likelihood of CEO changes may also affect financial determinants of enterprises and firm performance. We tried to remove the possible endogeneity problem by involving all firm-specific variables with one lag.

### **Firm characteristics**

Several firm characteristics are included in the model to control the factors that might influence the decision to replace a CEO. First, the firm size measured by natural logarithm of total assets or by natural logarithm of total labor. Total labor is measured as a weighted sum of full time workers plus  $\frac{1}{2}$  of part time workers and  $\frac{1}{2}$  of supernumerary workers.

The common measure to assess the prior firm performance on CEO changes is accounting returns (Weisbach, 1988; Jenter, 2008; Bryan, 2000). These studies document the increase in likelihood of CEO dismissals after bad firm performance.

In present paper the prior firm performance is proxied by RoA – return on firm assets. RoA is measured as net profit normalized by total assets.

The financial structure is approximated by leverage, which is total debt to assets ratio and liquidity, which in its turn is a ratio of working capital to short term debt.

Firm size varies across firms. For example, the minimum level of assets is 914 and the maximum is 802174 thousands UAH. The same evidence is presented for labor force. So, using logarithms of total assets and total labor is requisite for logit analysis.

### **CEO characteristics**

One of the important variables that have an impact on CEO turnover is the managerial experience that reflects managerial abilities to manage firm. Older managers have more professional experience obtained during their careers. Therefore, both managerial experiences measured by number of years on CEO position and managerial age should be included into consideration.

CEO ownership stakes variable describes share of stocks owned by CEO. This variable is expected to have a negative impact on CEO changes, since managers with larger amounts of stocks try to increase a firm value and thus put more efforts, alleviating the shareholder-manager problem. In addition the size of executive managerial board is examined.

### **SB compensation**

To reduce the agency cost related to shortage of outside directors' motives to protect shareholders interests, some researchers recommend introducing

compensation to Supervisory Board (Fich and Shivdasani, 2005; Ferrarini, 2009; Perry, 1999). Andreas (2009) in his recent research on determinants of director compensation in two-tier system makes some suggestions for future research to examine consequences from different director payments on CEO turnover.

To catch the effect of SB remuneration on CEO turnover the treated group should include enterprises where Supervisory Boards are established. The remuneration for SBs in Ukraine is presented by fixed payment; percentage of the net profit or a proportion in shares' value; equity-based compensation or some other forms. There can be some mix of two or more forms of compensation. In other cases Supervisory Board directors do not receive any compensation.

#### *Fixed payment*

Under the Ukrainian legislation the supervisory board head receives 6 minimum wages, whereas member receives 4 minimum wages for discharging their duties. In addition, board head and members gain 10% from the head of executive board remuneration. Under the new Ukrainian legislation<sup>1</sup> the compensation for supervisory directors can be arranged by general meeting in each enterprise.

#### *Equity-based compensation*

Developing the concept of determinants of nonexecutive directors' compensation Bryan (2000) in addition to cash payments examines stock option compensation and stock grants. Using a data set of U.S. firms over five year period, he found positive relationship between mix of fixed payment and stock option compensation and firm productivity.

The equity-based compensation to supervisory directors has become popular in developed countries (Ertugrul, 2007) to alleviate the shareholder-director

conflicts. He specifies that “equity-based compensation for directors would improve board oversight and reduce corporate bond yield spreads”.

The dummy variables of fixed compensation, percentage of the net profit or a proportion in shares’ value, and equity-based compensation are included in to the logit model. The dummy variable on the absence of compensation cannot be excluded from the model, since there are a lot of cases where SB directors work without remuneration. In addition to previous dummies the dummy on mix of equity-based and percentage of the net profit or a proportion in shares’ value is examined. This compensation package determines the compensation based on firm performance and is named so in further in this text.

### **SB composition**

The corporate governance development in recent years has resulted in a variety of studies regarding the structure and composition of the supervisory board (Hermalin and Weisbach, 1988; Bathala and Ramesh,1995; Nguyen, 2009).

There are some conditions for requirements of SB establishment and size under item 53 of the Law on Joint Stock Companies in Ukraine, which became effective in April 2010<sup>1</sup>. The arrangement of SB is required in companies with more than 10 owners of ordinary shares. The SB should include five or more directors in companies with 100-1000 shareholders; seven or more directors in companies with more than 1000 shareholders; nine or more directors in companies with more than 10000 shareholders.

The composition of SB in Ukrainian join stock companies is presented by companies’ representatives, state representatives, juridical persons, shareholders who hold 10% of shares and shareholders with less than 10% of shares. The amount of representatives from each group is known from the data source used

in present investigation and described in the next section. Thus, five variables on each group of representatives are included to the logit model.

## *Chapter 4*

### DATA DESCRIPTION

The firm-level financial data collected from State Commission on Securities and Stock Market for Ukrainian joint stock companies was used to estimate the relationship between the CEO's turnover and the incentive compensation. The impact of SB composition on executive managerial removals is investigated by using the same sample. The analysis is based on the sample of open joint-stock companies that functioned in Ukraine in 2003-2006 years. The data on closed joint-stock companies was excluded from the research, because these companies do not report adequate information about their CEOs and supervisory boards. In addition, the data on financial companies is eliminated from the survey (for instance: insurance companies, banks, mutual funds), because of the significant differences in methods of financing used by industrial and financial companies. The unbalanced panel data sample on public joint-stock companies obtained from the official web site<sup>2</sup> comprises annual balance sheets, companies' financial accounts, SB compensation and composition, and information about chief executive board directors for 741 firms. Thus, the information on SB remuneration, SB board composition, financial indicators of firms' performance, firms' size, managerial board size, executive directors' characteristics such as age, experience, gender and ownership share are known. The sample obtained for this investigation is much smaller than population (which is 7,000 firms) because we have applied some restrictions. Firstly, only non financial firms were treated. Secondly, since the panel data is used, the sample contains missed values of data for different parameters and for different years. Sixteen independent variables were used in the logit regression, causing much data to be lost. The third reason

of small sample is the lag variables included in model. The sample of 2,790 observations contains 80.9 % observations with established Supervisory Board. Thus the sample for further investigation and running logit regressions contains 2,257 observations. In spite of this the sample is still representative. Table B1 contains percentage of different forms of remuneration distribution across sample. It is easy to see that ratios between sample and population for different forms of compensation are assured. Therefore, the sample used in the model is reliable.

There is data on the size of each group of representatives in the supervisory board: number of companies' representatives, number of state representatives, number of representatives who own more than 10 % of shares and number of representatives who own less than 10 %, number of representatives of shareholders – juridical persons.

The descriptive statistics for the variables that are used in the logistic analysis are presented in Table A1. According to descriptive statistics the SB comprises 4 persons on average. The supervisory board contains in average 8 persons of shareholders that hold less than 10 % of shares. From large standard deviation it could be concluded that the SBs include many representatives of this group in very rare cases. From frequency analysis it is easy to see that SBs contain from one to five members from each group under consideration. (Tables C1-C5).

Data on supervisory board compensation is represented by three types: cash payment; percent from net profit or increase in shares' value; and firms' equities. In all other cases supervisory directors acquire no remuneration. In addition, we included the mix of two compensation forms, because both of them are defined from firm performance. All members of one supervisory board earn identical

form of compensation. Each type of remuneration is represented as a dummy variable for each company.

According to descriptive statistics there is 15% of fixed cash presence, 2% from net profit or increase in shares' value and only 0.26% of SB directors receive firm' equities as the recompense. Other forms of remuneration, which are only mentioned in official web site<sup>2</sup> but not specified, are presented by one variable and consist of 17%. The supervisory boards of over 60 % receive no compensation

## *Chapter 5*

### EMPIRICAL RESULTS

To estimate the impact of the supervisory board compensation and composition on CEO turnover the unbalanced panel data was used and logit model was applied. The dependent variable in the model is the probability of CEO change.

In addition to main regressors, which define the compensation and composition of SB, the logit model contains firms' financial and accounting indicators and top executive managers' characteristics.

The marginal effects of fixed and equity compensation separately turn up to be statistically insignificant. This means that there is no effect of fixed and equity-based compensation on the probability of CEO turnover. In contrast to robust results for cash payments, the equity compensation effect can not be estimated because of the unreliable small sample.

However, the regression results provide us with proofs that there is a statistically significant effect of compensation based on share of the firm's value growth on CEO turnover. The increase in compensation defined as percent from net profit or increase in shares' value by one standard deviation increases the likelihood of CEO turnover by about 12 % with the 10% level of significance.

According the study by Hamdani and Kraakman (2007) the equity-based rewards to SB directors enhance their diligence to monitor chief executive managers. Thus, we suggest using mix of these two non-cash forms of remuneration to test the effect on CEO turnover. As the result from the logit analysis, the increase in

compensation based on firm performance by one standard deviation increases the likelihood of CEO turnover by 6.8% with 1% level of significance.

The absence of remuneration has no impact on the likelihood of CEO changes. Since more than a half of all observations indicates no remuneration for SB, this is the important result. The informal compensation and personal motives may serve as reasons why more than a half of all SB directors do not receive official compensation. There can be some hidden income of supervisory directors.

The measure of firm profitability in our model is the return on assets measured by ratio of net profit to assets. The regression results reported in Table D1 determine the CEO turnover has negative and statistically significant relationship with the prior firm performance measured by ROA. The financial indicators leverage and liquidity do not have any significant impact on CEO removals.

According to Ukrainian legislation<sup>1</sup> supervisory directors are responsible to represent the shareholders interests. Thus, supervisory board members have motives to monitor CEO better for increasing the firm prosperity and shares value. However, there can be some rewards to SB that are not documented in official sources. For example, some non-official payments could be given to protect the personal interests of some group of shareholders. About two decades ago Tirole (1986) mentioned this problem as possible secret agreement between managers and board of directors.

Such three-level system produces new agency conflict such as a secret agreement between managers and board of directors (Tirole, 1986). In this case SB performs effectively and thus official remuneration has no effect on CEO dismissals.

The Ukrainian legislation<sup>1</sup> defines low stake of cash remuneration for SB directors<sup>3</sup>. That's why the motivation of SB directors who receive fixed compensation is similar to motivation under no compensation. That's why the motivation of SB to monitor CEO more effectively may be similar to the motivation under no compensation. This remuneration reveals classical example of principal-agent theory (McConnell and Brue, 1976). Thus, the wage earner is interested in positive enterprise's statistics to maximize her own gains. In case when supervisory directors receive compensation based on firm performance, their interests coincide with concerns of chief executive managers, who often have the salary depending on firm financial indicators.

The influence of SB composition was found statistically insignificant. It can follow from that fact that shareholders try to protect their own interests and hence try to have own representatives in the largest possible amount. Hence, equal amount of each group representatives are included into SBs (from one to five in average).

To capture the multicollinearity problem the correlation matrix for all independent variables was built (Table E1). The Table E2 reveals correlation between some forms of compensation used to determine interdependence. As it turned out, there is some 58% correlation between variables on other forms of compensation and on the absent of compensation. Thus, the excluding one of this variables from the model can resolve the multicollinearity problem. The other forms of remuneration are not clearly defined and have much less data sample. So, this variable can be excluded from the logit model.

Concerning the problem of model specification, the square of firm size was included as an independent variable into the model. The result, given in logit

regression (4), does not show higher adjusted  $R^2$  (19 % goodness of fit) in comparison with other regressions (19.1 %). Thus, our logit model is not supposed to contain the squared firm size. Thus, in spite that fact that there are some shortcomings expressed by lack of data the model was build intending to catch all weaknesses and cover this problem.

Therefore, the compensation to SB based on firm performance is found as the effective remuneration for improving companies' corporate governance whereas fixed and absent of compensation have no effect on CEO turnover. Compensation is not systematically structured to mitigate agency conflicts and to encourage effective monitoring, since SB directors earn remuneration based on firm performance in more rare cases than other forms of compensation or do not receive it at all. Therefore, the paper indicates poor corporate governance performance in Ukraine in 2003-2006.

## *Chapter 5*

### CONCLUSIONS

The study investigates the impact of supervisory board remuneration on chief executive managers' dismissals using the data of Ukrainian open joint-stock companies that operated during 2003-2006. In addition, the effect of firms' characteristics and executive managers' features on CEO changes was analyzed.

Empirical results of the present analysis show that there are no effects of fixed salary and no compensation for supervisory directors on CEO turnover. The compensation based on firm performance turned out to be the best instrument to stimulate supervisory directors to monitor management more diligent.

Consequently, based on the absence of remuneration for 60% of SBs in Ukraine, the compensation for supervisory directors is not intended to mitigate agency conflicts and to encourage effective monitoring in Ukrainian joint-stock nonfinancial companies. Therefore, this study supports to Zheka (2005) in determining the poor corporate governance performance in Ukraine during the period under consideration. The policy recommendation is to impose the supervisory directors by remuneration based on firm performance.

The informal payments and hiding of personal income may be reasons why more than half of all SB directors do not receive official compensation.

The SB composition does not have any impact on CEO removals. This result follows from homogeneous distribution of SB members from different groups of shareholders across enterprises.

This research contributes to the principal-agent and corporate governance literature by determining what forms of SB remunerations should be constituted by corporate governance law to mitigate agency problem.

Several issues could be suggested for future research. Firstly, it is interesting to analyze financial companies, which were not included in present investigation. Secondly, the quantitative assessment of SBs remuneration could be provided in case of availability of such data for Ukrainian firms in the future. It is supposed to answer the question: What amount of compensation or what proportion of each form in compensation package should be given to alleviate the shareholders-managers conflicts.

## FOOTNOTES

1. <http://zakon.rada.gov.ua/cgi-bin/laws/main.cgi?page=1&nreg=514-17>.

Law on Joint Stock Companies. Section VIII, item 51.

2. <http://www.smida.gov.ua>

3. <http://zakon1.rada.gov.ua/cgi-bin/laws/main.cgi?nreg=114-2001-%EF>.

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## APPENDIX A

Table A1. Descriptive statistics for variables used in the regression analysis for Ukrainian joint-stock companies with SB operated in 2003-2006

<b>Variable</b>	<b>Mean</b>	<b>Std.Dev.</b>	<b>Min</b>	<b>Max</b>
change	0.1154	0.3195	0	1
ROA	-0.0012	0.0913	-0.2563	0.217576
leverage	0.3465	0.2853	0.01363	1.070626
liquidity	3.3198	4.6868	0.248981	23.55396
Assets	65141.11	157017.1	914	802174
Labor	371.9648	672.5689	12.5	3213
female	0.0986	0.2982	0	1
exper	18.6098	9.9836	0	49
age	50.3606	9.1652	24	78
board	4.4861	2.4840	1	18
share	10.7678	18.5936	0	99.58
fix_comp	0.1502	0.3573	0	1
share_comp	0.0203	0.1409	0	1
equity_comp	0.0026	0.0513	0	1
perf_based	0.0229	0.1525	0	1
no_comp	0.6199	0.4855	0	1
other_com	0.1756	0.3806	0	1
SB size	4.0124	1.5352	1	981
SB_comp	2.1048	2.8567	0	19
SB_state	0.1967	0.7313	0	7
SB_m10	0.7839	1.1081	0	5
SB_l10	8.9969	53.8939	0	981
SB_jur	0.837	1.8514	0	36

Note. Number of observations is 2257.

Assets are measured in thousands UAH.

Labor – number of people employed.

ROA, leverage, liquidity are used with one year lag.

## APPENDIX B

Table B1. Sample of dummies on forms of compensation

Variable	Obs	Mean	Std. Dev.
fix_comp	2257	0.150	0.357
share_comp	2257	0.020	0.141
equity_comp	2257	0.003	0.051
no_comp	2257	0.620	0.485
other_com	2257	0.176	0.381

Table B2. Population of dummies on forms of compensation

Variable	Obs	Mean	Std. Dev.
fix_comp	15392	0.124	0.329
share_comp	15392	0.015	0.123
equity_comp	15392	0.002	0.043
no_comp	15392	0.633	0.482
other_com	15392	0.199	0.293

## APPENDIX C

Table C1. The distribution of company representatives in SB across firms. The result presented in the table is restricted for showing (for values with more than 0.03 %) for convenience

SB_comp	Freq.	Percent	Cum.
0	1,219	41.93	41.93
1	407	14	55.93
2	391	13.45	69.38
3	440	15.14	84.52
4	144	4.95	89.47
5	113	3.89	93.36
6	11	0.38	93.74
7	20	0.69	94.43
8	2	0.07	94.5
10	9	0.31	94.81
11	4	0.14	94.94
12	3	0.1	95.05
13	2	0.07	95.12
15	1	0.03	95.15

Table C2. The distribution of state representatives in SB across firms

SB_state	Freq.	Percent	Cum.
0	2,542	91.11	91.11
1	164	5.88	96.99
2	29	1.04	98.03
3	23	0.82	98.85
4	16	0.57	99.43
5	9	0.32	99.75
6	1	0.04	99.78
7	6	0.22	100

Table C3. The distribution of SB members who owns less than 10% of shares across firms. The result presented in the table is restricted for showing (for values with more than 0.13 %) for convenience

less 10	Freq.	Percent	Cum.
0	783	34.72	34.72
1	247	10.95	45.68
2	333	14.77	60.44
3	445	19.73	80.18
4	158	7.01	87.18
5	156	6.92	94.1
6	25	1.11	95.21
7	25	1.11	96.32
8	11	0.49	96.81
9	4	0.18	96.98
10	3	0.13	97.12
15	2	0.09	97.21
16	1	0.04	97.25
18	1	0.04	97.29
19	3	0.13	97.43

Table C4. The distribution of SB members who owns more than 10% of shares across firms

SB_m10	Freq.	Percent	Cum.
0	1,790	64.02	64.02
1	519	18.56	82.58
2	270	9.66	92.24
3	140	5.01	97.25
4	60	2.15	99.39
5	16	0.57	99.96

Table C5. The distribution of SB members who are juridical persons across firms

SB_jur	Freq.	Percent	Cum.
0	1,985	68.28	68.28
1	357	12.28	80.56
2	166	5.71	86.27
3	154	5.3	91.57
4	80	2.75	94.32
5	40	1.38	95.7
6	3	0.1	95.8
7	1	0.03	95.84
9	2	0.07	95.91
11	1	0.03	95.94
13	2	0.07	96.01
14	2	0.07	96.08
16	1	0.03	96.11
17	1	0.03	96.15

APPENDIX D

Table D1. Logistic regression results for dependent variable Change of CEO

	Dependent variable: probability of CEO turnover			
	(1)	(4)	(2)	(3)
l.ROA	-0.164**	-0.171**	-0.192***	-0.179***
	(0.065)	(0.067)	(0.071)	(0.066)
l.leverage	0.020	0.016	0.024	0.010
	(0.023)	(0.023)	(0.023)	(0.023)
l.liquidity	0.000	0.000	-0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.001)
labor	0.015***			
	(0.005)			
assets		0.013***	0.014***	-0.034
		(0.004)	(0.005)	(0.031)
assets sqr				0.003
				(0.002)
female(d)	-0.016	-0.015	-0.012	-0.015
	(0.017)	(0.017)	(0.017)	(0.017)
expeirence	(0.002***	(0.002***	(0.005***	(0.002***
	(0.001)	(0.001)	(0.001)	(0.001)
age	(0.004***	(0.004***		(0.004***
	(0.001)	(0.001)		(0.001)
share	(0.003***	(0.002***	(0.003***	(0.002***
	(0.001)	(0.001)	(0.001)	(0.001)
fix_comp (d)	0.029	0.029	0.014	0.024
	(0.02)	(0.02)	(0.019)	(0.02)
share_comp (d)	0.107*	0.097*		
	(0.058)	(0.056)		
equity_comp(d)	0.270	0.298		
	(0.222)	(0.239)		
perf_based (d)			0.066**	0.069***
			(0.027)	(0.025)
no_comp (d)	-0.016	-0.016	-0.009	-0.008
	(0.022)	(0.022)	(0.014)	(0.013)
sb_comp	0.000	0.000	-0.002	0.000
	(0.003)	(0.003)	(0.003)	(0.003)
sb_state	-0.001	-0.004	-0.005	-0.004
	(0.007)	(0.007)	(0.008)	(0.007)

TABLE D1 - Continued

	Dependent variable: probability of CEO turnover			
	(1)	(4)	(2)	(3)
sb_m10	0.004	0.003	0.004	0.003
sb_l10	0.001	0.001	0.001	0.000
	(0.002)	(0.002)	(0.002)	(0.002)
sb_jur	0.002	0.001	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.002)
N of observations	2257	2257	2257	2257
R2	0.191	0.191	0.169	0.192

Note: Cluster-robust standard errors are in brackets. The constant is included but not reported. The region, year and industry dummies are included in logit. \*, \*\*, \*\*\* correspond to 10, 5, and 1% level of significance, respectively.

APPENDIX E

Table E1. Correlation matrix

	exper	female	board	share	age	sbcom	sbstate	sb_m10	sb_l10	sb_jur	fixed
exper	1										
female	-0.08	1									
board	0.11	-0.05	1								
share	0.06	-0.05	-0.01	1							
age	0.66	-0.03	0.12	0.09	1						
sbcomp	0	-0.04	0.1	0.09	0.07	1					
sbstate	-0.02	-0.01	0.05	-0.09	-0.03	-0.03	1				
sb_m10	-0.11	0.01	-0.09	-0.16	-0.14	0	0.06	1			
sb_l10	-0.03	-0.03	0	-0.02	0.01	0.45	-0.01	0.05	1		
sb_jur	-0.06	0.05	0.03	-0.17	-0.05	0.14	0.08	0.33	0.12	1	
fix_comp	-0.03	-0.02	0.03	-0.06	0.03	0.05	0.11	0.08	0.02	0.08	1
share_comp	0.06	-0.03	0.01	-0.05	0.06	0.08	0.03	0.05	0.18	-0.04	-0.02
equity_comp	-0.04	-0.02	-0.01	0	-0.03	0.01	0	-0.01	0	0.01	0
other_com	0.04	0.01	-0.01	0.03	0.01	0.02	0	-0.02	0.05	0.06	-0.18
no_comp	-0.03	0.02	-0.06	-0.01	-0.05	0.11	0	0.11	-0.03	0.02	-0.35
labor	0.03	-0.03	0.05	-0.07	0.08	0.01	0.04	0.03	-0.01	0.03	0.05
assets	0.03	-0.06	0.11	-0.16	-0.02	-0.06	0.17	0.1	-0.02	0.15	0.12
Liquidity	0.03	0.02	0	0.04	0.04	0	-0.02	-0.05	0	-0.04	0
Leverage	-0.14	0.04	-0.08	-0.15	-0.22	-0.06	0.02	0.1	0.04	0.11	0.05
ROA	0.03	-0.03	0.01	0.06	0.03	0.03	-0.03	-0.01	0.01	-0.01	0.02
	share_co	equity	other_co	no_co	labor	assets	Liquid	lever	ROA		
share_comp	1										
equity_comp	0.1	1									
other_com	-0.06	-0.02	1								
no_comp	-0.11	-0.04	-0.48	1							
labor	0.09	0	-0.02	-0.01	1						
assets	0.13	-0.01	0	-0.05	0.48	1					
Liquid	0	-0.01	0.02	-0.02	-0.02	-0.06	1				
lever	0.02	0	-0.03	-0.02	0.03	0.19	-0.23	1			
ROA	0.02	0.02	-0.01	0.02	0.05	0.06	0.03	-0.14	1		

Table E2. Matrix of correlation of independent variables for SB compensation

	perf_based	fixed_comp	no_comp	other_com
perf_based	1			
fixed_yes	-0.0389	1		
no_comp	-0.162	-0.5013	1	
other_com	-0.0693	-0.1941	-0.5897	1

