TOP MANAGEMENT COMPENSATION AND PERFORMANCE IN RUSSIAN COMPANIES

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Abstract

This paper contributes to the research on top management remuneration policy and the way in which it relates to performance in Russian corporations. Following an overview of the evidence presented in previous studies focusing on other markets, the paper presents a new empirical study of pay and performance using self-collected data on 93 Russian public companies for the five-year period between 2009 and 2013. The data on key management personnel compensation has been collected from the companies' official reports, including annual or financial reports and other stock exchange reports. The data on other financial indicators has been procured from the Bloomberg Professional® database.

Using fixed effect models for econometric analysis, we find evidence of a positive relationship between compensation and business performance in Russia, although this is not evident for every performance indicator. Indeed, both short-term and long-term forms of compensation as well as their sum show a positive relationship to return on assets (ROA), and the respective sensitivities of pay to performance are not negligible. However, institutional or state ownership can weaken this sensitivity. The relationship is only evident in companies with no state participation. Whereas 33 state-owned companies in the sample exhibit no significant relationship of top management compensation to corporate performance, the accounting profits and ROA of the remaining 60 (private) companies serve as significant determinants of remuneration levels.

Keywords: management compensation, executive compensation, management remuneration, management pay, pay and performance.

JEL: M52, J33, J44, G34, G39.

Introduction

Executive remuneration[1] policy is one of the key topics that attracts economists' attention when they study governance and economic incentives inside big corporations. Indeed, from year to year, top management pay is at the center of attention in numerous articles: as it was noted already in 1999 in the "Handbook of Labor Economics", since the beginning of the 1990s dozens of papers had been devoted to CEO pay every year (Murphy, 1999). This discussion has only expanded today due to plenty of academic contributions from different countries. However, empirical research on executive compensation generally focuses on developed markets, first and foremost the United States (Oxelheim et al., 2008). Therefore, this paper is aimed to fill the gap in studying top management pay in Russian companies, which has gained almost no attention in previous studies.

The importance of labor remuneration for top management staff is proven by a constant interest in this topic that goes beyond academic studies. For corporates, executive compensation policy is expected mitigate the agency conflict by providing the managers with incentives that are aligned with the other stakeholders' interests. Therefore, it is no coincidence that annual reports increasingly disclose pay figures, even though some managers may want to keep them private. Moreover, these disclosures are nowadays often supported or even required of companies by respective regulations that governments introduce to protect investor interests. Indeed, according to G20 Financial Stability Board, since 2010 more than 20 countries have experienced changes in regulations of corporate remuneration policy (Financial Stability Board, 2015). In particular, since 2012 Russian companies with a stock exchange listing are required to disclose compensation figures in their annual reporting, which eventually inspired and enabled this study.

1. The terms "remuneration", "compensation" and "pay" are hereinafter used as synonyms (unless noted otherwise).

For the empirical research, a new dataset on executive compensation in Russia comprised of 93 companies has been manually collected. Including total compensation sums and their breakdown into basic components, it allowed for deriving executive compensation indicators that are comparable between different companies. The data were collected for the years between 2009 and 2013. Many companies started applying the new accounting standards in the reporting for 2011, which eventually also meant two years of retrospective compensation disclosure and helped to form a panel close to a balanced one in terms of compensation data completeness. Using this dataset, we tested the relationship between key executive compensation and firm performance indicators. Such indicators included both absolute (monetary) and relative (ratios and returns) measures based on company's financial reporting and market performance, namely accounting returns and profits, Tobin's Q, economic value added, market capitalization and stock return.

Few of the performance proxy variables appeared to be significant in compensation equations for the whole sample. However, subgroup analysis of companies with and without state ownership in the sample has shown that the pay-performance relationship is significant only for the latter category. For private corporations, both short- and long-term compensation demonstrated positive pay-to-performance sensitivity with regard to return on assets. The same was evident for absolute values of the accounting profits and market capitalization, though with less statistical confidence for the latter.

Literature Review

The relation between pay and performance

Research in management compensation can be generally divided into two main categories: (1) relationships between pay and performance and (2) relationships among pay and behaviors (Devers at el., 2007). As follows from the title, this paper is contributes to the first research direction.

Performance serves as an obvious benchmark for every work remuneration – however, the way and degree it is considered in payment schemes can differ tremendously even among similar cases. This problem is often underestimated in the media and public discussions about top management compensation, which tend to focus on the amounts of payment with less attention to the factors it can correspond to. As Jensen and Murphy noted in their seminal study on the pay to performance relationship, "the relentless focus on *how much* CEOs are paid diverts public attention from the real problem — *how* CEOs are paid" (Jensen and Murphy, 1990). The question *how* top executives are paid means mainly whether and by what means the compensation is aligned with business performance.

Compensation for top managers can include different components, namely almost always short-term pay in the form of a salary and annual bonuses, occasionally long-term compensation based on share appreciation, as well as other, usually less substantial components, such as severance pay, pension benefits and perquisites (Goergen and Renneboog, 2011). Whereas these less substantial elements are often disregarded when just the relationship with business performance is studied, some authors manage to examine not only work remuneration but also the managers' income from shareholdings as a proxy for their private goals or incentives, which the other shareholders, in theory, aim to align with their own interests (Jensen & Murphy, 1990). However, the disclosure of managers' stock ownership as a regulation requirement is rather an exception than a rule, which is why most of the studies on countries other than the U.S. and the UK operate only with short-term and long-term compensation as proxies for executives' incentives (Sarkar and Jafar, 2012).

Similarly, *performance* is a broader term, which leads to different particular company-level indicators in top management compensation studies (see Table 1.1). Not only can different variables proxy for the notion of business performance, but various studies also found evidence of existing positive relationships between executive compensation and value-based (e.g., shareholder wealth or stock return) or accounting-based (accounting profits and return) performance indicators. The studies in the Table 1.1 include a number of different markets.

Table 1.1

Performance indicators in executive compensation studies

Paper	Indicators	Paper	Indicators	Paper	Indicators
Jensen, Murphy (1990)	SHW (shareholder wealth / market capitalization)	*Conyon, Schwalbach (2000)*	R	*Kato, Long (2006)*	SHW, R, ROA
Gregg et al. (1993)	R (stock return), EPS	*Conyon, Murphy (2000)*	R	*Leone, Wu, Zimmerman (2006)*	R, ROA, bad news
Kaplan (1994)	EBIT, R	*Brunello et al. (2001)*	NI	*Kato, Kim, Lee (2007)*	R, ROA
Main et al. (1996)	R	*Boschen et al. (2003)*	R, ROA	*Unite et al. (2008)*	SHW, R, sales growth
Conyon, Peck (1998)	R	*Aggarwal, Samwick (2003)*	R, SHW	*Méndez et al. (2011)*	SHW, Return, EBIT/TA
Hall, Liebman (1998)	R	*Firth, Fung, Rui (2006)*	ROS (return on sales), R, SHW	*Ozhkan (2011)*	R
Zhou (1999)	SHW	*Ghosh (2006)*	ROA, Q	*Conyon, He (2011)*	R, ROA, SHW
Aggarwal, Samwick (1999b)	SHW	*Kato, Kubo (2006)*	R, ROA, SHW	*Conyon, He (2012)*	R, ROA

The idea of a relation between business performance and the remuneration of managers who do not entirely own the company is elaborated in agency theory (the applicability of this theoretical framework to top executives is reviewed in (Murphy, 1999; Bebchuk and Fried, 2003). According to the principle-agent models, the manager's private interests in a firm do not fully coincide with those of the owners. Therefore, in many cases it is more efficient for the owner to provide additional incentives for the manager, so that their incentives are aligned in the end and the manager works to the benefit of the company, i.e. the owner. A common way to do this is to tie executive compensation with company performance. If this is the case, one can expect *positive relationship* between the two.

In reality, money incentives of shareholders and top managers in corporations cannot be perfectly aligned. Dealing with the agency conflict between those groups by means of corporate governance is associated with unavoidable costs for shareholders. Therefore, studying the relationship between company performance and executive compensation empirically can provide insights into the quality of corporate governance and the severity of agency costs in the sample that is examined. A stronger positive pay-to-performance sensitivity can serve as a signal of better remuneration policy and thus a less severe agency problem (Murphy, 1999).

The notion of pay-to-performance sensitivity

The key notion that is used in management compensation studies of firm performance is pay-(to)-performance sensitivity, or shortly PPS. What is generally understood under PPS is a numerical measure that explains the direction and degree of the correlation or explicit dependence of management compensation with regard to firm performance[1]. However, both the related terms and the relationship itself can be measured differently, which is why particular empirical studies often differ in the way they obtain PPS.

Before reviewing these differences to define the framework of the study below, it is worth underlining one more assumption that stands behind the whole methodology. When speaking about pay-(to)-performance sensitivity, we already focus on effects of performance on remuneration and formulate the model accordingly. This corresponds to most of the research on pay and performance, where compensations usually act as the explained (dependent) component, while performance indicators serve as its determinants. Finkelstein et al. (2008) attribute this statement of a question to scholarly and popular interest in reasons for huge executive compensation sums. While studying performance as a determinant of compensation, we can provide insight into the more basic question of whether remuneration policy in a firm actually rewards managers for corporate achievements, i.e. if managers are provided with such performance incentives. Whether these incentives actually foster better firm

1. PPS in the narrow sense as opposed to PPE (pay-to-performance elasticity) is discussed subsequently.

performance might be a question for further research based on other models, needing more precise data on contracting and payment time periods than researchers have for Russian companies so far[1].

The first and most important methodical difference with regard to PPS is *calculating it* versus *inferring it statistically*. Often compensation contracts and financial instruments used for remuneration (e.g., stock options) allow for computing the "mechanical" built-in sensitivity to performance indicators that they are explicitly tied to (sometimes also called "effective ownership percentage"). This is possible if the researchers have such data available (Conyon andMurphy, 2000; Aggarwal and Samwick, 2003). However, this is often not the case in studies on markets other than the USA and the UK – in particular, not in this paper either. Furthermore, a direct calculation of the sensitivity is not applicable to compensation forms which are not explicitly (but still can be implicitly) linked with firm performance. It is reasonable to take these pay forms into account if we consider the relationship between pay and performance as a whole.

In case of statistical inference, the methods used in the previous studies had a consensus about neither the estimator nor using logarithms in the model. Concerning the estimator, most of the authors apply the "standard" panel data analysis based, mainly the fixed effects model (the so-called "within" estimator). However, some studies argue that other estimators find their application in compensation-performance regressions, e.g. median regressions or dynamic panel models. A review of estimators used to infer pay-to-performance sensitivity is presented in the Table 1.2.

Table 1.2

Methods used to estimate the relationship between pay and performance

Estimation method	**Studies**
Fixed/random effects model	Gibbons, Murphy (1990), Jensen, Murphy (1990), Gerhart, Milkovich (1990), Gregg et al. (1993), Kaplan (1994), Conyon, Peck (1998), Hall, Liebman (1998), Aggarwal, Samwick (1999a, 1999b, 2003), Kraft, Niederprüm Niederprüm(1999), Zhou (1999), Conyon, Murphy (2000), Conyon, Schwalbach (2000), Boschen et al. (2003), Kato, Kubo (2006), Ghosh (2006), Kato, Long (2006), Kato, Kim, Lee (2007), Unite et al. (2008), Conyon, He (2011), Ozhkan (2011), Méndez et al. (2011), Conyon, He (2012), Scholtz, Smit (2012), Rashid (2013)
Median regressions	*Aggarwal, Samwick (1999a, 1999b, 2003), Conyon, Murphy (2000), Ozhkan (2011)*
Dynamic models: Arellano-Bond (1988, 1991), Blundell-Bond (1998), VAR	*Main et al. (1996), Boschen et al. (2003), Conyon, He (2012), Alves et al. (2014)*
Other methods: Pesaran-Smith (1995), Fama-MacBeth (1973), robust and truncated regressions	*Conyon, Schwalbach (2000), Aggrawal, Samwick (2003), Ghosh (2006), Leone et al. (2006), Conyon, He (2011)*

Many authors distinguish between pay-to performance *sensitivity* (PPS) and *elasticity* (PPE) as two ways to measure the examined relationship. Under this classification, PPS is an absolute, numerical measure which is derived from a model where pay is measured in money units:

$$\Delta Executive\,Compensation_{it} = \alpha + \beta \Delta Firm\,Performance_{it} \quad (1)$$

Under the assumption that the relationship between pay and performance is presented by (1), β is interpreted as the amount of money that an average executive receives for an additional unit of company performance, i.e. the PPS. As opposed to this, the other approach is given by:

$$\Delta \ln\left(Executive\,Compensation\right)_{it} = \alpha + \beta \Delta \ln\left(Firm\,Performance\right)_{it} \quad (2)$$

Under (2), β is interpreted as the percentage change in compensation related to a 1% change in company performance (such a change is expressed, for instance, in return rates), i.e. the pay-performance *elasticity*. Murphy (1999) discussed the advantages and drawbacks of PPS and PPE, eventually giving no preference to any of them and using both in the study.

1. The sample and challenges associated with obtaining compensation data for companies in Russia are discussed further in part 2.

Pay and performance in prior studies on developed and emerging markets

Although studies devoted to the question of compensation and performance already number in the hundreds, so far there is almost nothing said about companies in Russia about this point. The only study on PPS in Russia was conducted on a sample of 26 companies and 3 years, i.e. 78 observations as a whole (Baiburina, Shustrova, 2008, in Russian). Moreover, the only compensation measure used by the authors was scarcely comparable between different firms because this indicator, namely the total key management compensation, was actually defined for a different number of top managers by companies themselves, which eventually was likely to yield very biased estimates.

Nonetheless, the existing body of literature on pay and performance in different countries serves as a methodological basis for this new study. The fact that many other authors found evidence of this relationship in different countries underlies the hypothesis that executive compensation is connected to firm performance in Russia as well. Figure 1 illustrates this evidence by answering the question in which countries there was found a profound evidence of positive pay-to-performance relationship in previous studies (colored blue on the map).

Figure 1. Countries for which academic evidence of positive pay-to-performance relationship exists

Although this overview might be still incomplete due to a big number of papers that address the pay-to-performance relationship, Figure 1.1 shows that evidence for it was found in different parts of the world in countries with obviously different economic systems and standards of living. This is one more reason not to underestimate the likelihood of this phenomena in Russian firms.

At the same time, Russia is conventionally considered an emerging market, which is why the features of such markets (observed in studies on China, India, the Philippines and South Africa) as opposed to more developed ones are also of interest with regard to pay and performance. A brief overview of existing research shows that performance tends to be more often significant and significant in more proxy variables in compensation equations for companies from developed markets. Differences become particularly evident in comparative studies: for example, Conyon and He (2011) showed that American executives received substantially higher compensation in 2001–2005 than the Chinese, even after controlling for economic and governance differences between the two countries. It is worth mentioning, however, that Chinese manager perquisites (usually not considered in studies) were estimated as 15% to 32% of the whole compensation (Kato and Long, 2006). Meanwhile, such incentive instruments as stock options, already common for top executives in the U.S. market, were virtually not used in China (Conyon and He, 2011).

Table 1.3

Evidence on pay and performance in emerging markets

Paper	Sample	Evidence of the relationship pay and performance
Ghosh (2006)	462 listed nonfinancial companies in India (1997-2002)	Board compensation is positively related to ROA in current and previous year, chief executive compensation – only with the current year's ROA. Tobin's Q is never significant a pay factor.

Kato, Long (2006)	937 listed companies in China (1998-2002)	There is a positive relationship between top management compensation and shareholder wealth as well as stock return, but for companies with state ownership it is weak. ROA is insignificant.
Firth et al. (2006)	549 listed nonfinancial companies in China (1998-2000)	CEO remuneration is positively related to shareholder wealth in firms without state ownership or with foreign ownership. No relationship to return on sales or stock return revealed.
Unite et al. (2008)	145 listed companies in the Philippines (2001-2003)	Compensations (mainly salaries and bonuses) are positively related to market value of equity, stock return and sales growth in firms that are not in a family conglomerate. No relationship to ROA revealed.
Conyon, He (2011)	1342 companies listed in China (2001-2005)	Executive compensation is positively related to ROA in the current year and stock return for the last year. Shareholder wealth is significant only where there are > 25% independent directors.
Scholtz, Smit (2012)	58 listed companies from South Africa (2003-2010)	Short-term compensations are positively related to total assets, turnover and share prices. The latter are not significant if only the crisis years 2008-2010 are analyzed.
Conyon, He (2012)	2024 companies listed in China (2000-2010)	In nondynamic panel models CEO pay is positively related to stock return and return on assets for the current or the last year. However, in dynamic models stock returns are no more significant.
Rashid (2013)	94 listed nonfinancial firms from Bangladesh (2000-2009)	There is a significant positive relationship between return on assets or Tobin's Q and total top management compensation.

Such striking differences in compensation structure may mean that performance can also be linked to pay through different channels. In fact, those studies which were focused on emerging markets found evidence of a positive relationship between executive pay and both accounting and market-based performance measures, such as return on assets (Ghosh, 2006; Conyon, He, 2011, 2012; Rashid, 2013), sales growth (Unite et al., 2008), Tobin's Q (Rashid, 2013), shareholder wealth, market capitalization or share price (Kato and Long, 2006; Firth et al., 2006; Unite et al., 2008; Conyon and He, 2011; Scholtz and Smit, 2012) or stock return (Kato and Long, 2006; Unite et al., 2008; Conyon and He, 2011, 2012). Considered studies on emerging markets are listed in Table 1.3.

For the further compensation research on Russian companies, it is also worth paying attention on ownership structure. Previous studies on Asian-Pacific economies, where large companies play a big role and informal institutes often affect business relations (which is also not untrue for Russia), have demonstrated that firm ownership affected the pay-performance sensitivity. Indeed, Chinese companies with state ownership showed weaker or insignificant PPS (Kato and Long, 2006; Firth et al., 2006). The same effect had ownership of business conglomerates in Japan (Abe et al., 2005), South Korea (Kato et al., 2007) and Philippines (Unite et al., 2008).

Now, as the theoretical framework, key notions and relevant findings of previous pay and performance research are defined, the next chapter introduces the design of this empirical study.

Data and methods

Sample

As many other studies on Russian companies, this one faced a challenge due to low data availability. When studying companies in Russia, one has to deal with at least three big limitations:

1. Relatively small financial market
2. Short market history
3. Lack of disclosed and collected data for companies

First, the number of objects to observe is constrained by the number of companies which data are available for. With no access to any private data sources, this study is based on public information as well as indicators calculated by the Bloomberg database. According to Bloomberg, only about two hundred companies in Russian domain have shares listed on a stock exchange[1].

1. The World Bank database counted 276 listed domestic companies in Russia by 2012, but actually even among those approximately 200 covered by Bloomberg not all are being traded on a regular basis.

Second, a short history of market economy in Russia generally does not allow to collect any longitudinal compensation data series so far. As in any other country, top management compensation in Russian listed companies is disclosed on *yearly basis*. Moreover, the most important limitation in this sense is that disclosure of executive compensation is required only since 2011 reporting (due to the introduction of International Financial Reporting Standards, shortly IFRS, for listed companies in Russia[1]). Therefore, inter alia, testing compensation equations in dynamic econometric models is questionable so far because this would mean giving up a substantial part of data for the sake of building lags into the equation.

Finally, collecting relevant data eventually complicates the study because not all indicators are aggregated by research and business databases and not all the companies that theoretically have to disclose information actually do it in practice. Indeed, among approximately 200 companies, only about a half actually followed the standards appropriately so that top management compensation was eventually disclosed, including the retrospective comparable figures.

As a result, collecting all the necessary data made possible to work with a sample of 93 companies that provided information about their top management compensation in the years between 2009 and 2013, with unsubstantial missing parts. All of these were companies in Russian domain, i.e. with their main assets and operations located in Russia, although such companies often register legal entities abroad (e.g., to contract under the common law). In order to study pay-to-performance sensitivity, we used a set of variables that includes compensation sums, different performance indicators (most of which were already mentioned in chapter 1) and control variables.

The most important and unique part of this data is a panel of *compensation indicators* collected manually especially for this sample, using primarily companies' financial reporting, as well as annual reports, reports to market regulators, IPO prospectuses, corporate websites and business media references to enhance the data completeness and quality. In some rather rare cases, Russian companies described their remuneration policies in detail, distinguishing between all the different pay forms for every top manager in particular. However, in most cases companies only disclosed what the IFRS standards required, namely the total sum of pay for the so-called key management personnel and its breakdown into short-term, share-based, termination and post-employment benefits[2]. The size and composition of the key management personnel are not strictly defined by the reporting standard, however, almost all companies include their executive body (sometimes called management board etc.) either alone or together with the board of directors in this notion. Their size is usually disclosed in reporting forms mentioned above.

However, for purposes of statistic inference, the study needed compensation variables that are comparable between different companies in the sample. To transform the total sums of top management compensation in different forms into such variables, two steps were undertaken. First, respectable sums were refined (via subtraction) from the non-executive directors' compensation because non-executive board members are usually paid incomparably less so that no averaging would make sense. Second, a comparable indicator, namely annual compensation per one executive was yielded through division of the total executive compensation sum by the number of executives it was attributed to, on average during the year (to take executive turnover into account):

$$\text{Compensation per executive} = \frac{\text{Compensation for all executives}}{\sum(\text{part of the year}) \times (\text{number of executives})} \qquad (3)$$

Although averaging the compensation between the CEO and other executive team members is also not perfect as it could be that not all of the compensation forms are attributed to all of the team members (therefore, many previous studies only focused on CEO pay), the data sources leave no other choice. Moreover, taking the top management team into account can also benefit the study and even help find "the missing link between CEO pay and firm performance" (Carpenter & Sanders, 2002).

1. Although before this, such disclosures were already a part of public issuer reports required by the regulator (Federal Financial Market Service), the common practice of underreporting or non-disclosure of compensation sums in these reports was repeatedly admitted (e.g., in the article Olenkov/Оленьков (2006, in Russian). "Раскрытие информации: работа над ошибками" published in Акционерное общество: Вопросы корпоративного управления).
2. International Accounting Standard (IAS) 24 – Related Party Disclosures.

Among 93 companies in the sample, the executive team for which the total (net of board) executive compensation sum was given averaged 9.9 members.

Table 2.1

List of variables used in the study

Variable abbreviation	Indicator description	Variable type and interpretation
SCOM	Short-term compensation per one member of the top executive management team	Dependent variables, compensation sums
LCOM	Long-term compensation per one member of the top executive management team	
SLCOM	Sum of SCOM and LCOM	
EBITDA	Earnings before interest, taxes, depreciation and amortization	Independent variable, accounting performance measures
EBIT	Earnings before interest and taxes	
NI	Net income	
ROA	Return on assets (measured in percentage points)	
ROE	Return on equity (measured in percentage points)	
MC	Market capitalization	Independent variables, value-based performance measures
RET	Real stock return	
Q	Tobin's Q, computed by the Bloomberg database as ratio between (MC+debt) and TA	
EVA	Economic Value Added, computed by the Bloomberg database as (return on invested capital – weighted average cost of capital) × (net operating profit after taxes)	
TA	Total assets	Independent variables used for control and testing other hypotheses
S	Sales	
BCOMtot	Total compensation of non-executive directors[1]	
STATE	State ownership dummy: 1 if the Russian state has a share	
INST	Institutional ownership dummy (explained below)	

Table 2.1 presents the entire list of variables. Apart from the executive compensation data, all the other variables proxy for firm performance or serve as control variables. Their values are all downloaded from the Bloomberg Professional database. Following the methodology of previous studies, we analyze only short- and long-term benefits and ignore termination and insurance benefits while testing the relationship to firm performance.

Sample description and preliminary analysis

The sample of companies in Russia in this study is fairly heterogeneous. The descriptive statistics of executive and director compensation are presented in Table 2.2. In tables hereinafter, all the monetary indicators are measured in Russian rubles (RUB) for the sake of conformity[1]. The prices are adjusted to the 2009 level by using the Consumer Price Index given by the Federal State Statistics Service, so that simultaneous changes in firm performance and incomes did not affect the inference of pay-to-performance sensitivity (market return rates are net of inflation as well).

Table 2.2

Descriptive statistics for compensation variables

Variable		Mean	Std. Dev.	Min	Max	Observations
SLCOM	overall	39.16622	64.37575	1.0925	576.7039	N = 458
	between		55.35728	2.028727	322.1473	n = 93
	within		32.63671	-250.584	293.7229	T-bar = 4.92473
SCOM	*overall*	29.31195	42.28645	1.0925	310.5374	N = 424
	between		39.29747	2.028727	226.3973	n = 86

1. For the better understanding of the sums by the reader, it is worth mentioning the exchange rates. In 2009, on average, 1 U.S. dollar was equal about 31.7 RUB on average. During the whole period 2009-2013, the exchange rate was relatively stable and fluctuated between 28 and 34 RUB.

	within		15.51268	-55.2994	157.0249	T-bar = 4.93023
LCOM	*overall*	9.343546	37.17196	-38.8822	446.9523	N = 414
	between		27.61521	0	219.753	n = 84
	within		24.99419	-210.41	236.5429	T-bar = 4.92857
BCOMtot	*overall*	30.4831	42.49161	0	373.1145	N = 288
	between		34.0606	0.173808	163.0033	n = 62
	within		25.45028	-72.1328	240.5942	T-bar = 4.64516

The sample demonstrated a great variation in compensation sums both for executives and directors (non-executive compensation values are collected for testing hypothesis). Table 2.2 also shows that pay for the non-executive board members is actually much less than the executive pay, the former in total (BCOMtot) is on average less than the latter per person (SLCOM). That is, distinguishing between these groups was actually reasonable. Moreover, though there can obviously be common trends in executive and non-executive compensation, the correlation between BCOMtot and SLCOM is still not absolute (0.467) and allows for further analysis.

Table 2.3

Descriptive statistics for firm performance variables

Variable		Mean	Std. Dev.	Min	Max	Observations
ROA	overall	4.241331	9.940881	-52.7107	68.52093	N = 448
	between		7.129202	-20.3526	22.8702	n = 92
	within		6.971414	-28.1167	58.39983	T-bar = 4.86957
ROE	*overall*	8.722032	28.2977	-181.575	153.6165	N = 427
	between		18.14439	-109.304	39.86747	n = 89
	within		23.17722	-174.568	140.4973	T-bar = 4.79775
EBITDA	*overall*	46612.26	166594.1	-22612	1706642	N = 410
	between		162596.8	-2028.46	1413395	n = 85
	within		25888.22	-251541	339859.6	T-bar = 4.82353
EBIT	*overall*	33441.85	134851.7	-111081	1468257	N = 412
	between		131270.9	-3438.88	1156566	n = 85
	within		24607.52	-229079	345133	T-bar = 4.84706
NI	*overall*	20169.84	103230.9	-177866	1132237	N = 452
	between		100360.4	-34650.1	933280.4	n = 93
	within		19827.6	-133526	219126.3	T-bar = 4.86022
RET	overall	0.345949	1.182003	-0.83073	9.765152	N = 379
	between		0.476595	-0.64113	2.191921	n = 88
	within		1.098922	-2.41797	8.005918	T-bar = 4.30682
MC	overall	166107.1	439289.4	0	4342077	N = 404
	between		411086.2	954.7821	3471777	n = 89
	within		102605.4	-796499	1036407	T-bar = 4.53933
Q	*overall*	1.25	0.728312	0.339909	6.466881	N = 411
	between		0.602661	0.538313	3.328554	n = 91
	within		0.409107	-0.66018	4.388327	T-bar = 4.51648
EVA	*overall*	2874.684	36025.99	-199009	395131.4	N = 448
	between		24963.54	-69634.3	185506.7	n = 93
	within		25628.38	-274368	212499.4	T-bar = 4.8172

Table 2.3 shows descriptive statistics for firm performance indicators in the sample. Accounting returns (ROA, ROE) are measured as percentage, i.e. the respective ratio times 100.

In addition to compensation and performance variables, a few other indicators are included in the analysis for purposes of control and testing of hypotheses. Descriptive statistics for them are presented in Table 2.4.

Table 2.4

Descriptive statistics for control and dummy variables

Variable		Mean	Std. Dev.	Min	Max	Observations
TA	overall	316535.9	1014231	270.7739	1.03E+07	N = 453
	between		1001197	500.7778	9252842	n = 93
	within		102022.7	-573092	1316117	T-bar = 4.87097
S	*overall*	174862.7	482765.2	146.494	4016995	N = 454
	between		475418.2	222.8612	3638695	n = 93
	within		63537.83	-472862	553161.9	T-bar = 4.88172
STATE	*overall*	0.334773	0.472422	0	1	N = 463
	between		0.47396	0	1	n = 93
	within		0	0.334773	0.334773	T = 4.97849
INST	*overall*	0.83871	0.368195	0	1	N = 465
	between		0.369792	0	1	n = 93
	within		0	0.83871	0.83871	T = 5

Variables S and TA are monetary values that can be interpreted as size of the companies. Both sales and total assets were repeatedly used in previous studies as proxies for size. Variables STATE and INST are dummy. According to the statistics, about a third of all companies in the sample have a state share in their ownership structure (mostly a majority share). More than 83% of companies are linked to institutional ownership: however, in the database the state is also understood as "institution" so that all state-owned companies eventually also belong here.

The role of all the variables in the empirical analysis in explained the part 2.3.

Hypotheses and methods

The basic question of the empirical study is whether there is any pay-to-performance sensitivity in Russian companies, and whether it is positive and substantial. To test the relationship between executive compensation and firm performance, the two are placed on the two different sides of the regression equation. In other words, generally the model looks like

$$\$_{it} = \alpha_{it} + \beta_1 \overline{Perf}_{it} + \beta_2 \overline{\Omega}_{it} + \varepsilon_{it} \qquad (4)$$

In this equation, the dollar sign stands for a dependent compensation variable (SLCOM, SCOM or LCOM), $\overline{Perf}_{it}$ is a vector of performance variables (possibly with several of them if there might be different relationships at the same time), and $\overline{\Omega}_{it}$ is a vector of other independent variables. Thus, β_1 is a pay-to-performance sensitivity vector.

Obviously not many performance variables may form be a part of the equation at the same time due to economic interdependencies and following multicollinearity problem. This is easy to see on the correlation matrix (Table 2.5).

Table 2.5

Correlation matrix of firm performance and size variables

	ROA	*ROE*	*EBITDA*	*EBIT*	*NI*	MC	RET	Q	EVA	S	TA
ROA	1										
ROE	0.7485	1									
EBITDA	0.1673	0.0951	1								
EBIT	0.1738	0.0958	0.9975	1							
NI	0.2167	0.1219	0.9781	0.9847	1						
MC	0.2477	0.132	0.9128	0.9135	0.9121	1					
RET	-0.017	-0.053	-0.0481	-0.0489	-0.0431	-0.0105	1				
Q	0.4192	0.2406	-0.0823	-0.0727	-0.0584	0.0885	0.2072	1			
EVA	0.2515	0.1712	0.7267	0.7329	0.7167	0.5086	-0.0657	0.0171	1		

S	0.1568	0.087	0.936	0.921	0.8954	0.86	-0.0501	-0.1106	0.685	1	
TA	0.1166	0.0557	0.9861	0.9824	0.9683	0.9076	-0.0418	-0.1151	0.648	0.917	1

For instance, both ROA with ROE or different profits together may not form the same performance vector because of their close interdependence and basically coinciding economic interpretation. However, return on assets (or return on equity) can be a part of the same equation with any of the last four, value-based performance indicators. It is worth mentioning that many authors even do not interpret Tobin's Q as a performance measure, considering it a proxy for future growth opportunities (Ozhkan, 2011).

Moreover, sales and total assets are not perfect control variables for size since they are also correlated with performance. However, size cannot be ignored as it has almost always proven to be significant in previous research, and even explained much more variance than performance (according to meta-study by Tosi et al., 2000). As sales volume can also be interpreted as a kind of firm performance, total assets were preferred in the following analysis as a size variable.

The key hypothesis tested in chapter 3 by models of the type (4) is the existence of positive and significant pay-to-performance sensitivity. In addition, following the hypotheses with regard to PPS and ownership structure pointed out in the literature review (see 1.3), we also tested if firms with state or institutional ownership have weaker pay-to-performance sensitivity than the others. The models are estimated on panel data by regressions with fixed effects. This method was preferred to random effects in every case according to the Hausman specification test.

Findings

Sensitivity of pay to accounting and value performance

To test pay to performance sensitivity, models of type (4) were used separately for short-term and long-term executive compensation and their sum. As previous studies found diverse evidence on the relationship of these indicators to performance, they are all worth testing statistically. For each of the three executive pay indicators as dependent variables, a number of regressions that differed in independent variables (proxies for performance) were estimated.

For the entire direct compensation, the pay to performance sensitivity has been tested by the models given by the equation (5): $SLCOM_{it} = \alpha_{it} + \beta_1 \overline{Perf}_{it} + \beta_2 TA_{it} + u_{it}$ (5) , where TA is stands for total assets. The estimation results are summarized in Table 3.1.

Table 3.1

Performance sensitivity estimation results for total short- and long-term compensation

Explanatory performance variable	PPS (interpretation): how much more compensation a better performance brings	P-value
MC	+37,800 RUB for a billion RUB capitalization	0.080*[1]
RET	insignificant	0.196
Q	insignificant	0.244
EVA	insignificant	0.477
NI	+157,700 RUB for a billion RUB net income	0.083*
EBIT	insignificant	0.344
EBITDA	insignificant	0.321
ROA	+6.59 million RUB for a 10 percentage point increase in ROA	0.008***
ROE	insignificant	0.143
MC and ROA concurrently	+6.35 million RUB for a 10 percentage point increase in ROA, +29.3 RUB for a million RUB capitalization (insignificant)	0.02** for ROA 0.177 for MC

1. Significance at 0.1, 0.05 and 0.01 confidence level is hereinafter marked by *, ** or ***, respectively.

Most of the performance variables showed no significant relationship to SLCOM. However, return on equity appeared to be very promising in this sense, even under the presence of market capitalization in the same equation. One average, when ROA increases by 10 p.p., a top executive receives at least 6.35 million RUB more (which could be a substantial incentive if the yearly compensation makes about 39 million RUB a whole). Net income and market capitalization also were positively related to SLCOM at 10% confidence level, but the PPS was also less. In particular, an additional billion of profit (while net income average in the sample is about 20 billion RUB) corresponds only to 157.7 thousands RUB of additional executive compensation.

For the long-term compensation, the pay to performance sensitivity has been tested by the models given by the equation (6):

$$SLCOM_{it} = \alpha_{it} + \beta_1 \overline{Perf}_{it} + \beta_2 TA_{it} + u_{it} \quad (6)$$

The estimation results are summarized in Table 3.2.

Table 3.2

Performance sensitivity estimation results for long-term compensation

Explanatory performance variable	PPS (interpretation): how much more compensation a better performance brings	P-value
MC	insignificant	0.266
RET	insignificant	0.615
Q	insignificant	0.359
EVA	insignificant	0.625
NI	+118,100 RUB for a billion RUB net income	0.095*
EBIT	insignificant	0.354
EBITDA	insignificant	0.39
ROA	+4.33 million RUB for a 10 percentage point increase in ROA	0.024**
ROE	insignificant	0.278

Compared to performance sensitivities of SLCOM, the long-term compensation alone demonstrated less relationship to performance in terms of significance and coefficient values. However, it might be attributed to the fact that the variable LCOM actually has many zero values because lots of companies in Russia did not pay any long-term compensation. Among 414 values of LCOM in the sample, 274 times it equals 0. The actual absence of long-term component in the remuneration policy of many companies in Russia easily explains a lack of pay-to-performance sensitivity of this component in the sample.

For the short-term compensation, the pay to performance sensitivity has been tested by the models given by the equation (7):

$$SCOM_{it} = \alpha_{it} + \beta_1 Perf_{it} + \beta_2 TA_{it} + u_{it} \quad (7).$$

The estimation results are summarized in Table 3.3.

This time, only accounting performance indicators, namely return on assets, return on equity and net income demonstrated a significant positive relationship to the short-term compensation. This stand in line with previous studies, which more often found evidence of accounting than market performance as determinant of short-term compensation, i.e. salaries and bonuses. The PPS figures are comparable with those for SLCOM and LCOM. For example, an increase of 10 p.p. in ROA corresponds to a 2.48 million RUB of additional short-term compensation.

Table 3.3

Performance sensitivity estimation results for short-term compensation

Explanatory performance variable	**PPS (interpretation): how much more compensation a better performance brings**	**P-value**
MC	insignificant	0.111

RET	insignificant	0.311
Q	insignificant	0.200
EVA	insignificant	0.123
NI	+79,200 RUB for a billion RUB net income	0.065*
EBIT	insignificant	0.941
EBITDA	insignificant	0.855
ROA	+2.48 million RUB for a 10 percentage point increase in ROA	0.033**
ROE	+0.677 million RUB for a 10 percentage point increase in ROE	0.084*

For the whole sample, the hypothesis of a positive relationship between executive pay and performance is mainly supported by such performance indicators as ROA and net income. However, the absolute values of pay-to-performance sensitivity are rather modest and not necessarily provide managers with strong incentives. A good criticism of low PPS can be found in the seminar pay and performance study by Jensen and Murphy (1990).

Ownership and PPS

According to the hypotheses stated in chapter 2, it is to be tested if pay-to-performance sensitivity differs for companies with different ownership structure. Two dummy variables from the sample reflect shareholding relations: STATE denotes all the companies with state ownership, and INST distinguishes all the firms with institutional investors, here including the state. Modifying the equation as in (8), one can test this hypothesis:

$$\$_{it} = \alpha_{it} + \beta_1 Perf_{it} + dummy * \beta_2 Perf_{it} + \beta_3 TA_{it} + u_{it}$$

As performance variable, here only ROA is used because it was the only variable that demonstrated stable significance at 5% for in all previous compensation equations.

Using STATE as a dummy and ROA as performance yielded pay-to-performance coefficients that are not significant at 10%. However, INST seemed to actually affect the PPS. Figure 3.1 shows clearly that firms with (broadly defined) institutional ownership have lower pay-to-performance sensitivity. While managers in other firms receive 2.67 million RUB with every additional ROA percentage point, the PPS for firms with "institutional" shareholders is, on average, 2.33 lower, that is, only 0.33 million for the same firms performance change.

Table 3.4

Estimation results for the hypothesis whether INST affects the PPS

SLCOM	Coef.	Std. Error	t	P>|t|	[95% Conf.	Interval]
TA	0.0000429	0.0000168	2.55	0.011	9.83e-06	0.0000761
ROA	2.666729	0.6530298	4.08	0.000	1.38236	3.951098
ROA*INST	-2.334241	0.7042104	-3.31	0.001	-3.719271	-0.9492107
_cons	23.14172	5.740183	4.03	0.000	11.85202	34.43142
σ_u	60.600153					
σ_e	35.919561					
ρ	0.74001198	(fraction of variance due to u_i)				
F test that all u_i=0:		F (91,349) = 10.55			Prob > F = 0.0000	

As prior analysis has shown, the sample is quite heterogeneous. This heterogeneity may also occur in pay-to-performance relationships for particular companies and their categories. With regard to ownership, we can separate the sample into groups and do it so that none of them is too small: among 93 companies, 60 are private and 33 are parastatal (i.e. owned by the state in some part).

Since the state ownership is supposed to weaken the PPS, it is reasonable to analyze the subsample of privately-owned companies again to see if this reveals any relationships that were obscured in the mixed sample.

Table 3.5

PPS estimation results for total short- and long-term compensation in non-state firms

Explanatory performance variable	PPS (interpretation): how much more compensation a better performance brings	P-value
MC	+72,500 RUB for a billion RUB capitalization	0.065*
RET	insignificant	0.384
Q	insignificant	0.184
EVA	insignificant	0.930
NI	+652,200 RUB for a billion RUB net income	0.003***
EBIT	+646,500 RUB for a billion RUB in EBIT	0.026**
EBITDA	+760,900 RUB for a billion RUB in EBITDA	0.003***
ROA	+7.36 million RUB for a 10 percentage point increase in ROA	0.027**
ROE	insignificant	0.154

For companies with no state ownership, there is more statistical evidence of a positive relationship between pay and performance. It can be observed on more variables, such as all accounting profits. The values of the PPS are also greater than in the sample as a whole. Indeed, while in companies with no state ownership one received about 72,500 RUB more with every additional billion of market capitalization, the same sensitivity for the whole sample (including also the companies with state ownership) equaled about a half of this, i.e. 37,800 (see Table 3.1).

Testing the basic pay-to-performance hypothesis on the subsample of companies with state ownership yielded absolutely no evidence of the studied relationship. Even where the performance variables were significant for the entire sample, in the state-owned subsample the same variables appeared to be far from significance. This corresponds to the findings of Kato and Long (2006) and Firth et al. (2006) for Chinese companies.

Overall, although data provide some evidence for pay-to-performance sensitivity in Russia, this is true only for specific variables (return on assets, net income, market capitalization) and on average only for companies without state ownership. Such a picture is similar to those observed in other emerging market where the examined relationship is also sometimes elusive or attributed only specific categories of firms (see 1.3).

Discussion

The purpose of the paper is to investigate the relationship between remuneration of executive management and business performance of a company. This study is supposedly one of the first ones that consider executive compensation totals in Russian companies (the only previous study we have found was in Russian and is briefly reviewed in Part 1). Therefore, the focus was placed on designing a proper research framework, accurate use of new data and testing the basic hypotheses in this research direction if the data allows for testing.

The data collection process inevitably faced a few limitations that eventually constrained the scale of this research project. Whereas the studies designed for the most advanced capital markets could exploit data that has been cumulated for hundreds of companies with decades of observations, examining public companies from Russia imposed constraints due to the relatively short history of Russian companies' listings and, more importantly, the even shorter history of disclosure of management remuneration. Certainly, the obligatory application of the IFRS for companies listed in Russia since 2011 enabled the collection of research data to the full extent available, with a sample of 93 companies for the five-year period between 2009 and 2013. This sample allowed for the testing of pay-to-performance sensitivity hypotheses within this scale by means of fixed effect models, the most frequently used instrument in this research direction to date. However, the small number of periods for which data is available so far hindered the use of dynamic econometric models because the testing lag would have reduced the original sample by 20% for every lagged period in the equation, and could thus substantially reduce the explanatory power.

Testing the relationship between key executive compensation and company performance indicators yielded the conclusion that this relationship was significant only for companies which were not owned by the state. The weakening effect of state ownership on pay-to-performance sensitivity was previously observed by Kato and Long (2006) and Firth et al. (2006) in the case of Chinese companies. However, the reasons behind this effect have not been diagnosed in remuneration studies so far. With regard to China's public listed companies, Quiang (2003) attributed this to ambiguous principal-agent relationships and weak market discipline, e.g. no takeover threat. Ncube and Maunganidze (2014) argued that corporate governance structures in Zimbabwean parastatal enterprises appeared too fragile to restrain over-compensation of executives. The link between pay and performance in Russia parastatal companies might be weak or absent because of state ownership's hindrance of good governance procedures.

Concerning the private corporations examined in the study, the relationship of executive compensation to business performance appeared to be positive, as one would expect from the economic sense of pay-for-performance as well as the evidence from previous studies. However, corresponding to the major existing evidence from emerging markets, the pay executives receive was associated first and foremost with companies' accounting performance, i.e. indicators based on reporting such as profits or ROA. We attribute this mainly to the moderate use of long-term compensation instruments in Russian public companies. Indeed, even for the sub-sample of 60 private corporations that appeared to pay their managers for performance, 25 of them, in fact, paid literally zero long-term compensation during the five-year period observed (another five companies did not disclose the pay structure at all). Among their state-owned peers in the sample, only 11 of 33 companies ever paid a long-term compensation package during this period. This corresponds to the findings of Petrov and Chirkova (2012), who identified only 27 public companies in Russia that had any long-term management incentive scheme by 2009. Paying managers for the company's value performance using long-term incentive instruments is still not common in Russia.

All in all, the findings show that corporate remuneration policies in Russia are heterogeneous and developing. On average, companies in Russia do not tie executive compensation to company performance as evidently as, for instance, companies in the United States do, where researchers have repeatedly discovered management pay sensitivity with regard to different performance indicators, which were also used in this study. However, this paper now provides evidence that executive compensation in Russia is also in some way related to performance, primarily to accounting profitability (ROA). This is true for companies with no state ownership, whereas the parastatal companies do not exhibit this relationship. Explaining the differences between Russian companies in the way pay and performance are related could be a question for further research. The inevitable enlargement of data available will also enable us to study different forms of Russian companies' management remuneration in more detail in the future, as will exploiting other research approaches such as dynamic econometric models.

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