# JOURNAL OF CORPORATE FINANCE RESEARCH

Электронный журнал
«**Корпоративные финансы**»

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# Speed of Adjustment in Dividend Payout Decisions: A Comparative Analysis of Developed and Developing Countries

**Nicos Koussis**
PhD, Assistant Professor of Finance
ORCID
Email: bus.kn@frederick.ac.cy

Frederic University, Nicosia, Cyprus


**Vladislav Ruzinskii**
Consultant
ORCID
Email: vladruz13@gmail.com

Baker Tilly in Russia, Moscow, Russia

**Speed of Adjustment in Dividend Payout Decisions:**
**A Comparative Analysis of Developed and Developing Countries**

# Abstract

This study examines the phenomenon of dividend smoothing, which is a policy of setting higher or lower dividend values than aligns with the levels of a company's earnings. Herein we specifically examine the speed of adjustment as a measure for the presence of dividend smoothing, and investigate how this manifests as a corollary to the phenomenon. Our research also includes an investigation of firms' internal characteristics and other relevant parameters which determine the speed of adjustment.

We perform an analysis on an international sample comprising more than 4000 non-financial companies from 40 countries. The data for analysis were obtained from the Capital IQ database. We identified relevant and pertinent variables based on a thorough analysis of the existing academic literature, and applied a series of analytical models based on Lintner's model for evaluating corporate dividend policy. We applied a number of modifications to Lintner's basic model which were tailored to suit our individual approach.

Our results illustrate the ubiquitous presence of dividend smoothing across our international sample, and indicates a general speed of adjustment equal to 64.8%. Further, our results indicate that the speed of adjustment to a higher dividend level is significantly lower in comparison to the speed of adjustment to a lower dividend level. These differences in the speed of adjustment allows us to assert that the speed of adjustment in a group of companies which indicate a dividend fall of lower than 25%, significantly differs from the case presented in the rest of the sample. In fact, the speed of adjustment in a group with a dividend fall lower than 25% is approximately equal to 100%, while the remaining sample shows a speed of adjustment equal to 37%.

Our results allow for us to present a single novel theory of dividend smoothing. We conclude that the speed of adjustment can be best explained from the perspective of the theory of information asymmetry. This conforms with the majority opinion from existing studies in the field. This paper uses the most recent data available and provides insights not previously established, which is especially interesting considering the international context of our sample. Our analysis provides ground for further investigation into the most salient results confirmed by our analysis, and most specifically, the question as to why is there a difference in the speed of adjustment between lower and higher levels of dividends.

# Introduction

The analysis of dividends payout policy has been a popular subject of research since the middle of the 20th century. Despite a huge number of investigations there is no consensus opinion as to the best practices in the field. Over the years, different hypotheses have been put forward proposing various methodologies. Some working papers underline share repurchase as the best approach towards payout policy [1]. On the other hand, there are some investigations which emphasize the opposite point of view: that dividends are more preferable [2]. Another explanation states that there is no qualifiable difference in types of payout policy [3]. However, the majority of recent working papers argue that the best approach is to combine share repurchases and dividends [4].

Academic investigations into payout policy began with Lintner's working paper [5]. This research includes not only financial modeling and results based on regression analysis, but also presents information concerning the preferences of top-management in payout policy decisions. As a result of interviews with top managers, Lintner identified the existence of a target value for dividend payouts. So, managers tried to maintain the share of net income attributed to dividends instead of the value of dividends themselves. Moreover, Lintner found that there is a pertinent speed of adjustment[1] in dividend policy. This phenomenon is described by the fact that in case of significant net income changes, firms do not pay all the dividends targeted at a specific level of net income. Companies only adjust the level of dividends in the direction of the changes. Lintner also provided an explanation of this fact. It was noted that companies' top management was sure that significant changes in dividends can be negatively appraised by the stock market, especially in case of a fall in the value of dividends. So, managers understate the changes in dividends to better assure that next year's profit can cover the new dividends. However, next year's net income also incurs some fluctuations, so it it is necessary to make some adjustments to dividends. As a result the process of dividend adjustment becomes permanent.

The investigation of Brav et al. [6] also was devoted to the analysis of payout policy, and included interviews with a large number of CFOs. This research confirms the main results of Lintner's work, but with some limitations. The study carefully analyzed the existence of any target level in payout decisions. The authors found that only 6% of CFOs do not target dividends at all. However, in contrast to Lintner's work the majority of CFOs (approximately 40%) answer that their key target is dividends per share. Only 28% try to target a dividends payout, and 27% of managers target dividends per share growth. This investigation shows that nowadays, targeting dividends per share is a more common practice than targeting payouts. Despite

the fact that these results display some differences from Lintner's one, they do not reject the hypothesis about existence of dividend smoothing.

## Relevance and academic novelty

The question of academic novelty also attracts a lot of attention due to the fact that the payout policy was carefully analyzed in many studies during a period of more than half a century. First of all, the majority of investigations on this topic are devoted to the determination of a speed of adjustment for a particular country [7-11]. In the studies connected to this question, the determination of the underlying characteristics that drive the speed of adjustment was not treated with priority. Our work will address this problem. In addition, an up-to-date sample will be utilized in this investigation, so, the most recent data will be analyzed.

However, the main feature of this working paper, which emphasizes its novelty, is our analysis of difference in the speed of adjustment. This work sets the task of investigation of the speed of adjustment in two cases: where there are increases and where there are decreases in dividend payments. Despite similar reasons for the smoothing of dividends in these two cases, the decision-making mechanism of management is slightly different.

For the first case (increase in dividends), we will discuss the question of the speed of adjustment to a higher level of dividends. It will be associated with higher profits in the current period. On the contrary, the second case (decrease in dividends) will illustrate the mechanism of dividend smoothing in the situation of a fall in profits in the current period.

In the case of an increase in dividends, the firm generates more profit in comparison with the previous period. The company's management assumes that it could represent a one-time growth of earnings and the firm may obtain less profit over the subsequent period. In such a case, if the management team decides to keep the payout rate constant, the firm should increase dividends in the current period and decrease them going forward. However, as was shown in numerous investigations [5, 6], the majority of managers are certain about the possibility of a negative market reaction to dividend cuts. So, in the first case, management prefers to pay only part of a target dividend. In subsequent years, the confidence of a management team will grow and they will adjust dividends. However, the company's profit is non-constant and it differs from year to year, and that is why the process of dividend smoothing is a permanent phenomenon.

In the second case, in comparison with the first one, the company decreases the dividend. If it is assumed (as it was in the first case) that management decides to keep the payout rate constant, the firm should decrease dividends in predetermined proportions. However, as is tested

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[1] The speed of adjustment is a commonly used measure of dividend smoothing. It shows how fast the target payout ratio is adjusted in relation to the changes in a firm's earnings. The faster the target payout ratio is adjusted, the lower the degree of smoothing.

and analyzed in this investigation, it may be postulated that in assuming the negative effect of a dividend cut, a firm's management generally prefers to reduce the fall of dividends. This hypothesis seems to be reasonable due to the fact that some managers even take on debt in order to pay dividends [12]. So, the model of analyzing dividend smoothing is also applicable in the case of dividend cuts.

Despite very similar reasons for dividend smoothing, the mechanism of management decision-making about dividend payment differs in the two cases presented above. Due to this difference the following question arises: is the speed of adjustment in cases of dividend growth equal to speed of adjustment in case of dividend cut or not? This particular investigation will be a key point in novelty of this working paper.

Summarizing the above, the main points of economic novelty are:

- A single theory concerning dividend smoothing is developed.
- The company characteristics which drive the speed of adjustment are investigated.
- An analysis of differences in the speed of adjustment between lower and higher dividend levels is provided.

## Literature review

### The position of dividend smoothing in investigations

As was mentioned above, the results concerning target dividend levels were obtained by interviewing the companies' CFOs. Decisions regarding dividend smoothing were driven by their opinions, so the motivation of managers should be explained. The explanation of the CFOs' motivation can be taken from the book written by J. Tirole "The Theory of Corporate Finance" [13, pp. 311-314]. The J. Tirole's model assumes that there is information asymmetry between managers and shareholders (including potential shareholders) and companies' dividends are the signal of managers' productivity. The author took the model of income smoothing created by Fudenberg and Tirole in 1995, and modified it with the addition of dividends. The initial model shows that there are two periods: in the first, the firm obtains some profit and managers report the profit of first year In the second, the firm again obtains a profit, and then there is a comprehensive audit, which can carefully estimate the profit for previous periods. However, management can hide some profit from the first period to increase the profit of the second period by this amount. The reason for doing this is that the decrease in the second period's profit can be regarded as a loss of manager's efficiency and in such cases the manager will be fired. The decision to hide the first period's profit also can be explained by the uncertainty about the second period's profit. This model also can be applied for dividends. With regard to payout policy, the CFO can decrease dividends in the first period, so the dividends at the second period

will be higher. Applying this model to dividends, it is assumed that a decrease in dividends will be represented as an indicator of a decline in managers' productivity. As can be seen, the majority of firms have no constant level of profit, but as mentioned above, try to maintain the same level of dividend. So, the presence of the two factors of volatile profitability and a relatively constant level of dividends leads to the phenomenon of permanent dividend smoothing, which means companies partly adjust their dividends every period with some SOA.

In some cases, the chosen payout policy imposes restrictions on managers' work. So, the maintaining of target levels of dividends can solve the agency conflict [14, 15]. The existence of such a target level can motivate managers to choose the most profitable and reject the most risky projects in order to generate the required amount of net income. However, the investigation of Brav et al. [6] showed that the majority of executives (approximately 87%) do not observe a relationship between payout policy and discipline imposed by dividends. It should be mentioned that share repurchase levels are also not attributed to self discipline measures. There is another important factor at play concerning share repurchases. The investigation [6] described how dividends and share repurchases are not considered as substitutes by CFOs. It is well known that decisions about dividends are made simultaneously with investment decisions. According to the interview in question, funds allocated for share repurchases are planned after the decision has been made about dividends and investment.

However, the principal-agent models are not the only explanations for dividends smoothing. There are some other reasons for such phenomena, one of them being the effect of external financing constraints [16]. According to this theory, companies involved in dividends smoothing can have problems with external financing. In such cases, firms tend to smooth dividends, because the profit of future periods can be insufficient to cover both investment opportunities and prior levels of dividends. It should be emphasized that the firms will smooth dividends in such cases precisely because of their inability to finance investments by using external funds, so they resort to a more flexible payout policy.

In contrast to the explanation presented by Bates et al. DeAngelo and DeAngelo [17] showed that the phenomenon of dividends smoothing can be common for firms even without external financing constraints. Their investigation illustrates the advantages of low leverage, because of the presence of financial flexibility and the availability of low-cost external capital. The research also illustrates how in such cases leverage will not be an appropriate instrument for solving the agency conflict problem. Therefore, the best strategy will be low leverage and high equity payouts with a high level of dividends smoothing to solve the agency problems.

Another explanation for smoothing refers to the clientele theory in general and to information asymmetry among investors [18]. The less informed individual investors will

prefer dividends to decrease their information disadvantage in comparison with institutional investors. So, in case of a firm's hold by individual investors, the dividends will be smoothed more and all earnings fluctuations will be paid in the form of share repurchases. It was mentioned above that dividends, as a rule, become a positive signal for markets. The theory of dividends smoothing can expand this signaling role. It can be seen that the theory assumes that firms tend to increase their dividends (if they smooth it) only in cases where they are certain of future earnings. So, an increase in dividends where the company smoothes it should be a good signal of managers' confidence in a permanent growth of net income [19]. For a confirmation of the signaling point of view, the investigation of Grullon et al. [1] is of interest. The results illustrated in this working paper show that an increase in the dividend level of 10% is associated with a share price growth of 1.34%, and a decrease in dividend level of 10% is associated with a fall in share prices of 3.71%. There is another important feature here. It can be seen that the stock market reacts differently to a growth and a fall in dividends. Such phenomena should be reflected in different degrees of dividends smoothing, and in different speeds of adjustment for different directions of changes.

The importance of signaling theory for share repurchases is much more questionable. First of all, it should be mentioned that dividends are paid on a regular basis, while buy backs occur irregularly. Therefore, there is less evidence to indicate its speed of adjustment. This argument of irregularity also was used by Skinner [20]. On the other hand, there are lots of theories describing the signaling role of repurchases. The majority of them are based on the fact of information asymmetry between managers and other market participants. According to a number of articles, managers can use the signaling factor of repurchases to manipulate the stock price. So, there is confirmation that if the shares are overpriced the company tends to issue new stocks [21]. Similarly, if managers suppose that shares are underpriced they can give this signal to the stock market by providing buy backs [19]. In such cases share repurchases and the issue of new stock provide the same signals as dividends changes.

Since the Lintner investigation, several working papers analyzing payout policy have been published. Some of them, as was shown above, tested the applicability of Lintner's suggestions, some of them studied the speed of adjustment across countries, and a third group tried to investigate the factors determining it. This section will be devoted to the analysis of the second group of works. First, it is necessary to present Lintner's original results. Lintner estimated that the average payout among firms is equal to 52% and the speed of adjustment is equal to 0.32. The estimation of speed of adjustment can explain the planning horizon of firms. It is assumed that a high speed of adjustment is common for firms with a short planning horizon (the converse is also true).

However, nowadays many studies show the decreasing importance of dividends. Fama and French [22] named it "disappearing dividends" because firms that pay dividends have decreased in numbers during the past decades. Simultaneously, with the decrease of number of companies which pay dividends, there is a downward trend in dividends payouts on the US market (in comparison with Lintner's time). By contrast, there is strong evidence of the expanding role of share repurchases. It should be mentioned that its increase is common for firms not only in US, but in other countries as well [23].

Summarizing the above, there is no clear understanding of the phenomenon of dividend smoothing. Previous investigations have controversial results on the question of the influence of a firm's characteristics. Moreover, there are a selection of articles which propose different arguments for the impact of determinants.

Currently, there are very few studies analyzing the comparison of adjustment rates to a higher and lower dividend level.

## Determinants of speed of adjustment

It is necessary in our study to outline and describe the individual determinants which can explain the speed of adjustment. In fact, there are no common or standard explanatory variables for the speed of adjustment. A huge number of variables are included in dividends smoothing analyses. Here, the main determinants will be covered, the impact of which was confirmed through empirical investigations. The explanation of their impact is based on three theories: information asymmetry, agency problems and investor clientele. Sometimes, these theories give different interpretation and even impact on speed of adjustment. The results of previous investigations are presented in the appendix (Table 12).

### Firm maturity

The determinant of firm maturity is the size of the firm. The size is equal to the natural logarithm of a company's assets [24]. The reason for the choice of the firms' maturity characteristic is that more mature firms experience less information asymmetry, since they are better known for all market participants. As was explained above, low information asymmetry is associated with a higher speed of adjustment, so the correlation between firm maturity and the speed of adjustment is expected to be *positive*.

### Growth opportunities

There are some different approaches towards estimating growth opportunities, but the majority of articles include the market-to-book ratio[2] as the measure. It is clear that growth opportunities tend to be much easier determined by managers of a company in comparison with outside market participants. Therefore, the higher the growth opportunities, the higher the information asymmetry should be, and as a result, the *lower* the speed of adjustment.

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[2] Firm's market value divided by book value.

On the other hand, Leary and Michaely [25] relied on agency problems and came to the conclusion that the relationship is *positive*. The authors assume that higher investment opportunities define the dividends, so such firms will pay less and smooth less. According to this theory, higher growth opportunities lead to a *higher* speed of adjustment. It seems to be clear that firms with higher growth opportunities tend to have fewer problems with the allocation of high free cash flows. The availability of good investment projects and low free cash leads to lower agency conflicts. In such cases, there is no need to restrict the role of dividends.

## Assets tangibility

The explanation of the impact of assets tangibility[3] seems to be the same as the impact of firm maturity. It is well known that firms with higher proportions of tangible assets have lower information asymmetry. Therefore, the dependence of the speed of adjustment on assets tangibility should be *positive* [25].

## Volatility of earnings

The volatility of returns is another measure of information asymmetry. Firms with higher volatility of earnings always have a risk of obtaining low net income. In some cases, this base for dividends payout can be too low; therefore, these companies are reluctant to increase dividends and prefer to smooth it. Therefore, it can be seen that firms with high returns volatility have a *lower* speed of adjustment.

## Risk

The returns volatility can be a proxy for company's risk measure as well as a measure of information asymmetry [25]. It is argued that a higher return volatility is connected with higher uncertainty, and as a result, with higher information asymmetry. We anticipate that risk negatively correlates with dividend smoothing and positively correlates with the speed of adjustment.

## Institutional holders

The percentage of institutional holders also can be a good determinant for the speed of adjustment. From an information asymmetry point of view the relationship between institutional holders and the speed of adjustment should be *positive*. It can be explain by the fact that institutions are expected to lower information asymmetry between insiders and other participants due to their better skills in gathering information [26]. Moreover, they are usually involved in activism[4], which also reduces the informational asymmetry [27]. Other research [25] points out that the dependence of dividends smoothing on institutional holdings should be negative, and therefore the correlation with the speed of adjustment is expected to be *positive*.

This argument is based on agency theory. According to this theory, institutional holders will lower agency costs due to their high negotiating power and corporate behavior. In such cases, companies will not smooth dividends to decrease the agency costs.

However, there is another point of view. According to Jeong [24], firms with a higher percentage of institutional investors tend to smooth dividends more, due to their tax advantage. So, according to the clientele theory, the relationship between the speed of adjustment and the percentage of institutional holders is predicted to be *negative*.

## Ownership concentration

The ownership concentration is usually estimated as the number of shares held by the largest holders divided by all outstanding shares, but there are some variations in formulas. According to the majority of studies, the correlation between the speed of adjustment and ownership concentration is predicted to be *positive* from the agency point of view. Jeong [24] supposes that more closely held firms have less agency problems in comparison with dispersed ownership. In addition, large individual holders will have more negotiation power and higher ability of monitoring. Therefore, it should be forecast that companies with a higher concentration of ownership would not need to pay out and smooth as much as firms with dispersed ownership. Moreover, many companies which are held by several large investors are family firms (especially in developing markets). Such firms usually have a very low level of information asymmetry between managers and owners, so from this point of view the impact on the speed of adjustment should be *positive*.

## Investment horizon

Some investigations [28] argue that the investment horizon of stockholders also can affect the managers' decision to smooth dividends. The investment horizon is a proxy of the stock turnover, which is estimated as the number of stocks traded in the year, divided by the quantity of all outstanding shares. The explanation of the impact of the high investment horizon is associated with lower information asymmetry and a *higher* speed of adjustment as a result. However, some other investigations [25] have found that correlation between the investment horizon of stockholders and the speed of adjustment tend to be *insignificant*.

## Hypotheses

**Hypothesis №1:** Dividend smoothing is a pertinent phenomenon among public firms.

The phenomenon of dividend smoothing has been widely investigated in the literature [5, 8, 9, 28]. However, some researchers underline the decreasing role of dividends [22]. The determination of dividend smoothing should also be a starting point in further analysis.

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[3] PPE divided by total assets.

[4] "Actions taken by shareholders with the explicit intention of influencing corporations' policies and practices" [11].

**Hypothesis №2:** Internal firm characteristics have an influence on the speed of adjustment in dividend payout decisions.

Those investigations which focused on the determination of parameters driven by the speed of adjustment have had controversial results [24, 25, 28]. Moreover, some studies explain the impact of determinants according to different phenomena, e.g. information asymmetry, theory of clientele, agency theory [24-26, 28].

**Hypothesis №3:** The speed of adjustment to a higher level of dividends is lower in comparison with the speed of adjustment to lower level of dividends.

Research indicates that dividend cuts have a more significant impact than dividend increases [1]. Considering this point, it can be assumed that a dividend decrease is connected with the current problems of a firm. As a result of such current problems, the planning horizon is decreased and a firm adjusts its dividend level to the target level very fast.

By contrast, the decrease of dividends per share can be associated with an increase in the reinvestment rate. This increase can be a signal of growth in the planning horizon and leads to a fall in the speed of adjustment. This point can be supported by the theory of financial constraints [16], outlining the probability of complexity in the use of external financing. According to this theory, dividend smoothing in "good" years can be a driver of future growth due to a reinvestment of earnings. In addition, assuming that managers are reluctant to cut dividends [6], managers should more significantly smooth the falling value of dividends.

## Model's specification

The next step of this work will be devoted to the specification of our analytical model. During the first stage, Lintner's model will be analyzed. The results of the first regression will be used to determine the speeds of adjustments. During the second step, the impact of determinants on the obtained speeds of the adjustments will be tested. Due to the model's specifications the first step allows for the use of panel data, but it cannot be done for the step of analyzing determinants of the speed of adjustment. The speed of adjustment will be obtained for a period of several years, which is why the idea of using panel data here is not applicable. This approach imposes additional limitations, the explanatory variables also should not have changes in time. Therefore, the most appropriate decision is to use median and average values for determinants [25].

First of all, the original Lintner's model should be presented.

$$\Delta DPS_{it} = DPS_{it} - DPS_{it-1} =$$
$$= \beta_{\text{ùùùù}} + \gamma \left( DPS^* - DPS \right) + \varepsilon \quad (1)$$

$DPS_{it}$ refers to dividends per share of firm i in year t. This model is widely used in the literature [20, 24, 25]. Some investigations propose to divide dividends by book value of assets in order to scale it [22]. However, as was

mentioned above [6] the dividend per share is a key measure for payout policy, so the best decision to control the scale is to divide the dividends by the number of outstanding shares. $DPS^*_{it}$ refers to a target dividend in the year t. The formula for this target dividend is:

$DPS^*_{it} = payout * EPS_{it}$ ., where *payout* is a target payout ratio and $EPS_{it}$ is earnings in period t. The calculation of the speed of adjustment is based on an estimation of the coefficient $\hat{\gamma}$. However, this formula should have some adjustments for the determination of the coefficient. So, the revised formula is presented thusly:

$$\Delta DPS_{it} = \beta_0 + \beta_1 DPS_{it-1} + \beta_2 EPS_{it} + \varepsilon_{it},$$
where $\beta_2 = \gamma \cdot Payout$. $\quad (2)$

Of course, earnings in this regression are also controlled by scale. So, $EPS_{it}$ is equal to earnings per share.

This model's specification was widely used in many investigations, including Lintner's one, but in this case it raises some questions. It can be seen that the target payout ratio and speed of adjustment are determined by the regression, and by obtaining the coefficients. This leads to the fact that the speed of adjustment in such cases is just a coefficient, so this model specification does not allow for the analyzing of determinants of the speed of adjustment. So, another method to determine the speed of adjustment should be chosen.

The alternative method to Lintner's model is the use of a two-step procedure. In this case our results will be better, and it allows us to obtain the desired series of values of speeds of adjustment [25]. During the first step, the regressions presented above are built for each company, which allow us to obtain the vector of beta (the number of betas is equal to number of companies in the sample). During the second step the vector of SOA (speed of adjustment) is obtained (SOA for each company is equal to the beta determined in the regression multiplied by -1). The last step will be devoted to estimating the coefficients in the regression (table 1):

$$SOA_i = \alpha_0 + \sum_{i=1}^{n} \alpha_t Z_t + \mu_t$$

where $Z_i$ is the vector of determinants. (3)

**Table 1.** Explanatory variables in model 3

| Explanatory variables ($Z_i$) | |
|---|---|
| MB – the market value of equity plus the book value of assets minus the book value of equity, all divided by the book value of assets | Stock turnover – the annual average of the ratio of monthly traded volume of shares to total shares outstanding |
| Size – natural logarithm of total assets | SD (EBIT) – the standard deviation of EBIT |
| Institutional ownership – the percentage of shares held by institutions | SD (Price) – the average standard deviation of monthly stock returns |

| Explanatory variables ($Z_i$) | |
| --- | --- |
| Ownership concentration – percentage of common shares owned by largest shareholder | Tangibility – net property, plant and equipment (PP&E) scaled by total assets |

The majority of authors [24, 25, 29] propose the use of median value of parameters during the observable period.

The investigation presented above was conducted in some studies devoted to the analysis of payout policy. It should be mentioned that our current study includes up-to-date data and explanatory variables which were not carefully analyzed in previous research. However, the methodology of this investigation was used in some significant articles. So, the novelty of the current work will be described in more detail below.

The third step of the analysis will be devoted to the investigation of the difference in the speed of adjustment. First, the dummy variable will be generated:

$$A = \begin{cases} 1, \; if \; \Delta DPS_{it} < 0 \\ 0, \; if \; \Delta DPS_{it} \geq 0. \end{cases} \quad (4)$$

The inclusion of the dummy variable allows for the identification of the difference in the speed of adjustment to lower dividend levels and to higher dividend levels. The reason for applying such a parameter is as follows: previous studies investigated and compared the effects of an increase and decrease of dividends on share price [1]. The current study allows for the identification of the difference in the speed of adjustment.

The new model is a modified Lintner's model with the inclusion of a dummy variable:

$$\Delta DPS_{it} = \beta_0 + \beta_1 DPS_{it-1} + \beta_2 EPS_{it} + \beta_3 A_{it} + \varepsilon_{it}. \quad (5)$$

However, the aim of using a dummy variable is much more significant. The inclusion in the model of a new variable equal to lagged DPS multiplied by dummy $A_{it}$ allows not only for identifying the difference in the speed of adjustment, but also allows for the measuring of this difference:

$$\Delta DPS_{it} = \beta_0 + \beta_1 DPS_{it-1} + \beta_2 EPS_{it} +$$
$$+ \beta_3 \left( A_{it} \cdot DPS_{it-1} \right) + \varepsilon_{it}. \quad (6)$$

As the new model is used, new values of SOA will be obtained. There is no difference in the speed of adjustment in the case of a dividends increase, because dummy $A_{it}$ is equal to 0 in this case, so the SOA = $-\beta_1$. On the other hand, the speed of adjustment in the case of a dividends cut will change, because dummy A is equal to 1, so SOA = $-(\beta_1 + \beta_3)$. Summarizing the above, the following values of SOA are obtained:

$$SOA = \begin{cases} -(\beta_1 + \beta_3), \; if \; \Delta DPS < 0 \\ -\beta_1, \; if \; \Delta DPS \geq 0. \end{cases} \quad (7)$$

Another one important point to mention is that in this analysis the Arellano-Bond's method is used. Since in the model the dependent variable is dividend per share in year $t$ and the explanatory variable is dividend per share in year $t–1$ the random error has significant correlation with dividend per share in year $t–1$. In this case the parameters' estimations become inconsistent and the standard panel regression analysis is impossible.

The problem explained above could be solved with two methods: the method of instrumental variable, and the generalized method of moments (GMM). In this work the second method will be implemented. This method was carefully explained in the article written by Arellano and Bond in 1991 [30] and allows for making the estimations of the parameters consistent.

The last step of the model's specification is also devoted to the analyzing of the difference in the speed of adjustment. During this step, the indicative variable will be included instead of the dummy. This modification allows us to divide the sample by several groups depending on the changes in DPS in percentages and identifying the difference in the speed of adjustment between these groups. The obtained model is presented as follows:

$$\Delta DPS_{it} = \beta_0 + \beta_1 DPS_{it-1} + \beta_2 EPS_{it} + \beta_3 I + \varepsilon_{it},$$

where I – indicator. (8)

**Table 2.** Factor variable composition

| $\dfrac{\Delta DPS_{it}}{DPS_{it-1}} \, (X)$ | Factor variable (I) |
| --- | --- |
| $X < -0.25$ | 1 |
| $-0.25 \leq X < -0.1$ | 2 |
| $-0.1 \leq X < 0$ | 3 |
| $X = 0$ | 4 |
| $0 < X \leq 0.08$ | 5 |
| $0.08 < X \leq 0.26$ | 6 |
| $0.26 < X$ | 7 |

The ranges of factor variables are based on number of observations in each group (table 2). The number of observations in each group with positive changes of DPS is approximately equal. The same is true for group with negative changes of DPS.

Summarizing the above, the models include analysis of the speed of adjustment, parameters which determine speed of adjustment, and differences in the speed of adjustment in cases of dividends' growth and cut. It should be also mentioned that this investigation shows the difference in the speed of adjustment among the developed and emerging countries and among economic sectors.

**Table 3.** Sample allocation by sectors

| Sector | Number of firms | Percentage | Cumulative |
|---|---|---|---|
| Consumer discretionary | 917 | 19.7 | 19.7 |
| Consumer staples | 491 | 10.55 | 30.25 |
| Energy | 141 | 3.03 | 33.28 |
| Healthcare | 244 | 5.24 | 38.52 |
| Industrials | 1 207 | 25.93 | 64.45 |
| Information technology | 512 | 11 | 75.45 |
| Materials | 580 | 12.46 | 87.91 |
| Real estate | 358 | 7.69 | 95.6 |
| Telecommunication services | 48 | 1.03 | 96.63 |
| Utilities | 157 | 3.37 | 100 |

**Table 4.** Results of regression (model 2)

| Variables | All countries | Developed | Emerging |
|---|---|---|---|
| $DPS_{it-1}$ | -0.648*** | -0.607*** | -0.99*** |
| $EPS_{it}$ | 0.327*** | 0.322*** | 0.359*** |

p-values are: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

| Tests | p-values | | |
|---|---|---|---|
| Sargan | 0.1620 | 0.3352 | 0.060 |
| Arellano-Bond | 0.0908 | 0.1857 | 0.2709 |
| | 0.9206 | 0.8693 | 0.9459 |
| | 0.5847 | 0.2381 | 0.0843 |

# Data and sample selection

The data for analysis were obtained from the Capital IQ database. Since the investigation was devoted to the payout policy it was required that each firm should have data about dividends payment available from 2007 to 2016. Due to certain special requirements, financial firms were excluded from the sample. To carefully calculate the speed of adjustment only those firms with 10 years of continuous, non-missing data for earnings and dividends per share were included. It is also required for firms to have at least 5 years of available accounting data downloaded from the Capital IQ database. Since this work presents an international analysis of dividend smoothing, it was required for all countries to have at least 5 companies in the sample, so the other observations were excluded. As a result, the final sample consists of 4655 companies from 19 developed and 21 emerging countries.

Approximately three quarters of companies in the final sample are from developed countries. The most significant number of observations are from Japan (1373 companies), the United States (589 companies), and the United Kingdom (216 companies). Among the emerging countries India, China, and Malaysia have the most significant number of firms in the sample (201, 177, and 162 companies respectively). The allocation of companies by countries is presented in the appendix (Table 13).

The data also include information about the primary sectors of companies. The majority of firms in the final sample operate in the consumer discretionary sector and the industrial sector, while the telecommunication services sector is the smallest one. The allocation of companies according to 10 groups by sectors is presented below in the table 3.

The correlation matrix is presented in the appendix (Table 14). The matrix shows that probability of multicollinearity is rather low, but the variance inflation factor (VIF) will be calculated and presented as part of a robustness check.

**Table 5.** Results of regression by sectors (model 2)

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| $DPS_{it-1}$ | -0.967*** | -0.426*** | -0.599*** | -0.100*** | -0.957*** | -0.437*** | -0.248*** | -0.116*** | -0.131*** | -0.115*** |
| $EPS_{it}$ | 0.369*** | 0.235*** | 0.210*** | 0.019*** | 0.680*** | 0.336*** | 0.137*** | 0.074*** | 0.085*** | 0.013*** |

p-values are: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

| Tests | p-values | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sargan | 0.302 | 0.005 | 0.215 | 0.040 | 0.018 | 0.085 | 0.146 | 0.025 | 0.534 | 0.003 |
| Arellano-Bond | 0.117 | 0.051 | 0.087 | 0.013 | 0.190 | 0.132 | 0.128 | 0.020 | 0.058 | 0.068 |
| | 0.986 | 0.350 | 0.067 | 0.525 | 0.476 | 0.371 | 0.120 | 0.220 | 0.224 | 0.636 |
| | 0.205 | 0.449 | 0.844 | 0.460 | 0.307 | 0.389 | 0.203 | 0.422 | 0.274 | 0.266 |

1 – Consumer Discretionary

2 – Consumer Staples

3 – Energy

4 – Healthcare

5 – Industrials

6 – Information Technology

7 – Materials

8 – Real Estate

9 – Telecommunication Services

10 – Utilities

**Table 6.** Results of regression (model 6)

| Variables | All countries | Developed | Emerging |
|---|---|---|---|
| $DPS_{it-1}$ | -0.598*** | -0.540*** | -0.241*** |
| $EPS_{it}$ | 0.310*** | 0.296*** | 0.319*** |
| $Dummy \cdot DPS_{it-1}$ | -0.051*** | -0.054*** | -0.764*** |

p-values are: *** p<0.01, ** p<0.05, * p<0.1.

| Tests | p-values | | |
|---|---|---|---|
| Sargan | 0.410 | 0.740 | 0.000 |
| Arellano-Bond | 0.092 | 0.192 | 0.253 |
| | 0.750 | 0.547 | 0.612 |
| | 0.491 | 0.188 | 0.051 |

# Empirical analysis

## Lintner's model

As was shown in the section on our model specifications, the first step will be devoted to the analysis of the standard Lintner's model. This step allows for the obtaining of an overall understanding of collected data and allows for the comparing of current results with previous results.

We showed above that in the data analysis, the generalized method of moments is more applicable. So, during the first step of the investigation the GMM was applied for the Lintner model. This part of the sample also was divided by two groups. In the first group, the companies from emerging countries were included, and in the second, developed countries were included.

First of all, the significance of parameters should be mentioned. All parameters are significant at a 1% level of significance. Moreover, all parameters have anticipated signs. The analysis of GMM also indicates that instruments are valid (with the exception of regression built on emerging countries) and there is no autocorrelation. All data presented above show that the parameters' estimations are consistent.

As can be seen from the table 4, the speed of adjustment for all companies in the sample is equal to 64.8%. Approximately two thirds of the companies are from developed countries, so it is not surprising that overall SOA is closer to SOA of developed countries in comparison with emerging ones.

The speeds of adjustment of developed and emerging countries are 60.7% and 99% respectively. That means companies in developing countries adjust their dividends to the target level much faster. These results, indicating such differences in SOA between developed and emerging

countries were also obtained in the majority of previous investigations [10, 28]. The higher speed of adjustment shows that companies in emerging countries have a very fast adjustment to dividend levels and very low dividend smoothing. This parameter indicates that only 1% of previous earnings were not reflected in dividends. It further indicates that firms in emerging countries have a significantly lower planning horizon.

During the analysis of Lintner's model, the sample was divided not only by developed and emerging countries but also by the primary sectors of companies. The results of this analysis are presented in the table 5.

As can be seen from the table 6, all parameters in the regressions are significant. The results also show that there is a difference in the speed of adjustment in different economic sectors. The highest values are in the consumer discretionary sector and in the industrial sector (96.7% and 95.7% respectively). It is interesting that these two groups of companies are the biggest, which is why the overall sample has a rather high speed of adjustment (the speed of adjustment in the other eight groups is lower than in the overall sample).

The overall results show that dividend smoothing is the pertinent phenomenon among public firms. So, the first hypothesis can not be rejected.

## Lintner model with dummy variable

The second step of the analysis is devoted to the modification of Lintner's model. As was previously explained, at the first stage a dummy variable will be added. The inclusion of the dummy variable allows for an analysis of the difference in the speed of adjustment to a lower dividend level in comparison with the speed of adjustment to a higher dividend level. The dummy variable included in

the regression is equal to 1 if dividend per share of year t is higher than dividend per share of the previous year, and equal to 0 otherwise.

However, the importance of a dummy variable will be more significant in the case of using a new variable equal to the dummy multiplied by the lagged dividend per share. This model allows not only for the depicting of the difference in speed of adjustment but also allows for measuring this difference. The results of the regression analysis are presented in the table 6.

The regression analysis shows that there is a significant difference in the speed of adjustment in the case of dividend growth in comparison with a dividend cut. The analysis of the overall sample indicates that speed of adjustment in case of DPS growth is equal to 59.8% and the speed of adjustment in case of DPS decrease is equal to 64.1% (sum of betas of lagged variables).

The obtained difference in the speed of adjustment can be explained by the different mechanisms of decision-making in these cases. The majority of investigations argue that a cut in the dividend indicates the financial instability of a firm and becomes a bad signal to the market. That is why in good years managers prefer to smooth the dividend to be sure that the current level of dividends can be possible for future years. So, the payout policy in case of dividends growth has a long planning horizon.

By contrast, the dividend cut can be perceived as the last resort of the firm because in this case the bad signal

for the market is unavoidable. In this case, the company solves current problems and the planning horizon becomes shorter, which leads to a decrease in dividend smoothing and a higher speed of adjustment.

It is interesting that a difference in the speed of adjustment to the higher and to the lower dividend levels on the emerging market is significantly higher. It is not surprising that the speed of adjustment in case of dividend cuts is higher in comparison with the values displayed in developed markets. However, the results show that in the case of dividend growth, the dividend smoothing in developing markets is higher.

The results presented above indicate that the speed of adjustment to a higher level of dividends is significantly lower in comparison with the speed of adjustment to a lower level of dividends. So, the third hypothesis can not be rejected.

## Lintner model with factor variable

The third step in the analysis is devoted to a modification of the previous model. Since the model includes the factor variable, the generalized method of moments (GMM) is not applicable. However, this problem will be solved in this case by including factors as a number of dummies. It should be underlined that a standard regression analysis of panel data is not applicable due to the impossibility of using Wooldridge and Pesaran tests with factor variables included. The results obtained are shown in the table 7.

**Table 7.** Results of regression (model 8)

| Variables | All countries | Developed | Emerging |
|---|---|---|---|
| $DPS_{it-1}$ | -0.642*** | -0.605*** | -0.987*** |
| $EPS_{it}$ | 0.325*** | 0.321*** | 0.359*** |
| Factors (I) | | | |
| 2 | 0.120*** | 0.108*** | 0.162*** |
| 3 | 0.113*** | 0.092*** | 0.167*** |
| 4 | 0.112*** | 0.111*** | 0.159*** |
| 5 | 0.134*** | 0.116*** | 0.177*** |
| 6 | 0.115*** | 0.088*** | 0.136*** |
| 7 | 0.102*** | 0.073*** | 0.232*** |

p-values are: *** p<0.01, ** p<0.05, * p<0.1.

| Tests | p-values | | |
|---|---|---|---|
| Sargan | 0.021 | 0.083 | 0.000 |
| | 0.092 | 0.186 | 0.269 |
| Arellano-Bond | 0.929 | 0.867 | 0.949 |
| | 0.606 | 0.241 | 0.078 |

**Table 8.** Results of regression (model 8)

| Variables | All countries | Developed | Emerging |
|---|---|---|---|
| $DPS_{it-1}$ | -0.642*** | -0.605*** | -0.987*** |
| $EPS_{it}$ | 0.325*** | 0.321*** | 0.359*** |
| Factors (I) | | | |
| 1 | -0.112*** | -0.111*** | -0.161*** |
| 2 | 0.007 | -0.002 | 0.003 |
| 3 | 0.001 | -0.018 | 0.008 |
| 5 | 0.022 | 0.005 | 0.010* |
| 6 | 0.002 | -0.022 | -0.017*** |
| 7 | -0.009 | -0.038* | 0.076*** |
| p-values are: *** p<0.01, ** p<0.05, * p<0.1. | | | |

**Table 9.** Results of regression with dummy indicating difference in SOA based on DPS changes

| Variables | $\Delta DPS < -25\%$ | $\Delta DPS \geq -25\%$ |
|---|---|---|
| $DPS_{it-1}$ | -1.058*** | -0.372*** |
| $EPS_{it}$ | 0.305*** | 0.221*** |
| p-values are: *** p<0.01, ** p<0.05, * p<0.1. | | |

| Tests | p-values | |
|---|---|---|
| Sargan | 0.101 | 0.132 |
| Arellano-Bond | 0.326 | 0.001 |
| | 0.356 | 0.635 |
| | 0.711 | 0.202 |

According to the obtained results presented above, there is a significant difference between groups of companies with different DPS changes. However, such model specification allows for comparing groups from second to seventh, but only in the first group. Moreover, the difference between betas in the majority of groups is not so high. That is why it is necessary to change the basic group and compare the betas therein. It is logical to choose the fourth group to be the base group.

The results of the GMM with the fourth base group are presented in the table 8. It is not necessary to present Sargan and Arellano – Bond tests, since there are no changes in this part.

As can be seen from the table 9, the results in different groups, excluding the first one, display insignificant differences. By contrast, the speed of adjustment in the first group is significantly higher in comparison with others.

## Results of the Lintner model

The results obtained in the second step indicate that the speed of adjustment in cases of dividend decrease are significantly higher in comparison with the speed of adjustment in cases of dividend growth. During the third step, the sample was divided by groups based on the percentage change of the company's dividend per share in year *t*. However, the results show that only one group has a significant difference compared to others. This group includes observations with the most significant decrease of dividend per share (with fall of DPS less than 25%). So, at the next step it seems to be logical to compare the speed of adjustment in this group (first group), and to compare all samples with each other (excluding the first group). The results of this analysis are presented in the table 10.

**Table 10.** Results of regression (model 3)

| Variables | Proxy for | All countries | Developed | Emerging |
|---|---|---|---|---|
| Size | Firm maturity | 0.017*** | 0.023*** | 0.060*** |
| Tang | Assets tangibility | -0.034 | -0.024 | 0.135* |
| MB | Growth opportunities | 0.001 | 0.014 | 0.013 |
| SD (EBIT) | Volatility of returns | -0.001*** | -0.004*** | -0.001*** |
| SD (PRICE) | Risk | 0.001** | 0.001** | -0.003 |
| STOCK TURN | Investment horizon | -0.075** | -0.072** | -0.073 |
| INST OWN | Institutional ownership | -0.065* | -0.073* | 0.193** |
| OWN CONC | Ownership concentration | 0.003*** | 0.003*** | 0.004*** |

p-values are: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

The results indicate that in case of significant DPS fall, the speed of adjustment is approximately equal to 1 (105.8%). That means the companies adjust their dividends to target levels very fast and it can be said that there is no dividend smoothing in such cases. The results of another group show a moderate speed of adjustment (37.2%) and indicate the presence of dividend smoothing.

The difference in speed of adjustment between these two groups can be explained by changes in the planning horizon. As was mentioned in the literature review, a dividend cut is usually perceived as a bad signal by the market. For example, the investigation provided by Grullon et al. in 2002 [1] shows that an increase in dividend level by 10% is associated with a share price growth of 1.34% and the decrease in dividend level by 10% is associated with fall in share prices by 3.71%. Moreover, J. Tirole [13, pp. 311–314) also explains why firms' managers tend to smooth dividends.

To provide an explanation, first we divide the second group into two, with positive and negative changes of dividend per share. In case of positive changes of DPS, firms smooth dividends because of uncertainty in the future level of income. The explanation of such a mechanism was explained in the literature review. In case of a slight decrease in income, companies try to send a positive signal to the market and smooth the dividends (so the cut of dividends is less than decrease of earnings). In both cases the firms have a long planning horizon and consider the future effect of dividend changes.

By contrast, a significant fall in dividends per share (less than 25%) can be associated with substantial losses of income and crisis in the firm. In such cases, the decision-making process will be based on the current situation in the company and the planning horizon will be lower. Moreover, the crisis in the firm can be obvious to the markets, and maintenance of the DPS level may be argued as being an inefficient payout policy.

## Determinants of speed of adjustment

As was explained our model specification evaluation, the last step in the analysis will be devoted to a determination of parameters affecting the speed of adjustment. To provide this analysis, a two-stage approach should be realized. During the first stage, the vector of speed of adjustment (SOA$_i$)for each company was obtained. The next step will be devoted to a determination of parameters' significance. Since the first regression is built for each company by years, during the second stage panel regression analysis is not applicable. So, impact on the speed of adjustment is investigated with OLS regression. The results of the analysis are presented in the table 10.

As can be seen from the table 10, all variables (excluding risk measure) have anticipated signs. The proxy for growth opportunities was the only one insignificant variable in the regressions. However, it should be underlined that the economic significance of volatility of return, risk, and ownership concentration is rather low, due to relatively low betas.

An overall appraisal of the determinants of the speed of adjustment confirms the negative influence of information asymmetry. Firms' size, asset tangibility, institutional ownership, and ownership concentration are all associated with low information asymmetry. The opposite point is true for volatility of returns and the investment horizon. The confirmation of this influence is very important due to the fact that the theory of dividend smoothing is based on information asymmetry [13].

The results presented in this part of the investigation prove that the internal characteristics of firms have a substantial influence on the speed of adjustment in dividend payout decisions. So, the second hypothesis can not be rejected.

## Robustness check

In this part, we present the results of tests of the regression and the variables. First of all, it should be mentioned that the sample is rather big, so according to the central limit theorem there is no problem with normality. Other potential problems of the model were also tested as will be discussed below.

In the analysis, the Breusch-Pagan / Cook-Weisberg test for heteroskedasticity was applied. According to this test, the hypothesis about constant variance should be rejected, so there is heteroskedasticity in the model. To solve this problem, the White method was used (robust analysis).

To check for functional form misspecification, the Ramsey's specification error test was utilized. The results of the test show that there are no omitted variables and the model is correctly specified.

To control for multicollinearity, the variance inflation factor (VIF) for each variable was calculated. The results obtained are presented in the table 11.

**Table 11.** VIFs of explanatory variables

| Variable | VIF | 1/VIF |
|---|---|---|
| Size | 1.20 | 0.833110 |
| Tang | 1.04 | 0.958661 |
| MB | 1.07 | 0.938003 |
| SD (EBIT) | 1.06 | 0.940259 |
| SD (PRICE) | 9.68 | 0.103296 |
| STOCK TURN | 9.75 | 0.102524 |
| INST OWN | 1.19 | 0.837742 |
| OWN CONC | 1.06 | 0.945486 |

As we can see from this table, VIFs for all variables are less than 10, which means the absence of multicollinearity.

Since the generalized method of moments was used in this work, Sargan and Arellano -Bond tests were provided for each regression. The results of these tests are displayed below the results of the regressions' estimation.

## Conclusion

This study is devoted to an analysis of the speed of adjustment in payout policy decisions. We include a systematized review of previous investigations devoted to dividend smoothing. Our research uses an international sample which includes 40 countries and more than 4000 companies. Our findings indicate that dividend smoothing is an international phenomenon. The analysis of the overall sample illustrates an average speed of adjustment equal to 64.8%. It was also found that there is significant difference in speeds of adjustment between different groups.

Our analysis shows that the speed of adjustment in emerging-economy countries is substantially higher than speed of adjustment of those with developed economies. These findings are also confirmed by previous studies. We also underline the difference in speed of adjustment depending on primary economic sector. It was shown that the highest SOA was estimated at the consumer discretionary and the industrial sectors.

The second part of the study analyzes the difference between speed of adjustment towards the lower and the higher dividend levels. Our results indicate that the speed of adjustment in case of dividend decreases is significantly higher.

The results obtained through analysis of the sample, including an analysis on groups depending on percentage changes of dividend per share, revealed that the speed of adjustment in groups with a dividend fall lower than 25% significantly differs from the whole sample. So, the speed of adjustment in the first group is approximately equal to 100%, and in the whole sample (excluding the first group) the speed of adjustment is equal to 37%. The findings indicate that in case of a significant dividend cut, a company's planning horizon decreases and it adjusts dividend levels to the target level very fast. In other cases, dividend smoothing and long planning horizon is preferable.

Our work also investigates the impact of internal firm characteristics and governance structure on the speed of adjustment. The results show that speed of adjustment is driven by information asymmetry, which was argued for in the majority of previous articles devoted to payout policy.

In consideration of our results and the status of current research in the field, future research on this topic should conceivably be directed towards an investigation into the reasons for the difference in the speed of the adjustment to lower and higher level of dividends.

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# Appendices

**Table 12.** Determinants of speed of adjustment in previous investigations

|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| Firm maturity | ins | – | – | ins | + | – | + |
| Growth opportunities | + | + | + | + | + | + |  |
| Assets tangibility |  | – |  | ins | + | – |  |
| Earnings volatility | ins | ins | – | – | – |  |  |
| Price volatility |  | + |  | + | – | + |  |
| Institutional ownership | ins | + |  | – |  | ins |  |
| Ownership concentration |  |  | – | + |  | ins | ins |
| Investment horizon |  | + |  | + | – | + |  |

ins – insignificant,  + positive, – negative.

1)      Korkeamaki et al, 2009.
2)      Leary & Michaely, 2011.
3)      Jeong, 2013.
4)      Javakhadze et al., 2014.
5)      Larkin et al., 2016.
6)      Muller & Svensson, 2016.
7)      Fernau & Hirsch, 2017.

**Table 13.** Sample selection (Geographical description)

| Country | Number of firms | Percentage | Cumulative |
|---|---|---|---|
| Australia | 109 | 2.56 | 2.56 |
| Belgium | 14 | 0.33 | 2.89 |
| Bermuda | 90 | 2.11 | 5 |
| Brazil | 17 | 0.4 | 5.4 |
| Canada | 140 | 3.29 | 8.68 |
| Cayman Islands | 37 | 0.87 | 9.55 |
| Channel Islands | 9 | 0.21 | 9.76 |
| Chili | 27 | 0.63 | 10.4 |
| China | 177 | 4.15 | 14.55 |
| Denmark | 14 | 0.33 | 14.88 |
| Finland | 34 | 0.8 | 15.68 |
| France | 99 | 2.32 | 18 |
| Germany | 37 | 0.87 | 18.87 |
| Hong Kong | 58 | 1.36 | 20.23 |
| India | 201 | 4.72 | 24.95 |

| Country | Number of firms | Percentage | Cumulative |
|---|---|---|---|
| Indonesia | 25 | 0.59 | 25.53 |
| Ireland | 14 | 0.33 | 25.86 |
| Israel | 30 | 0.7 | 26.57 |
| Japan | 1373 | 32.22 | 58.79 |
| Malaysia | 162 | 3.8 | 62.59 |
| Mexico | 6 | 0.14 | 62.73 |
| Netherlands | 22 | 0.52 | 63.25 |
| New Zealand | 34 | 0.8 | 64.05 |
| Nigeria | 5 | 0.12 | 64.16 |
| Norway | 11 | 0.26 | 64.42 |
| Philippines | 20 | 0.47 | 64.89 |
| Poland | 8 | 0.19 | 65.08 |
| Saudi Arabia | 5 | 0.12 | 65.2 |
| Singapore | 90 | 2.11 | 67.31 |
| South Africa | 56 | 1.31 | 68.62 |
| South Korea | 100 | 2.35 | 70.97 |
| Spain | 28 | 0.66 | 71.63 |
| Sri Lanka | 34 | 0.8 | 72.42 |
| Sweden | 48 | 1.13 | 73.55 |
| Switzerland | 56 | 1.31 | 74.87 |
| Taiwan | 135 | 3.17 | 78.03 |
| Thailand | 126 | 2.96 | 80.99 |
| Turkey | 5 | 0.12 | 81.11 |
| United Kingdom | 216 | 5.07 | 86.18 |
| United States | 589 | 13.82 | 100 |

**Table 14.** Correlation matrix

| | size | tang | MB | SD (EBIT) | SD (PRICE) | STOCK TURN | INST OWN |
|---|---|---|---|---|---|---|---|
| size | 1 | | | | | | |
| tang | 0.129 | 1 | | | | | |
| MB | -0.0847 | -0.0789 | 1 | | | | |
| SD (EBIT) | 0.2544 | 0.0652 | -0.0547 | 1 | | | |
| SD (PRICE) | 0.0209 | -0.0121 | 0.038 | -0.0042 | 1 | | |
| STOCK TURN | 0.1114 | 0.0116 | 0.0207 | 0.021 | 0.9444 | 1 | |
| INST OWN | 0.3737 | 0.0716 | 0.0304 | 0.0478 | -0.0079 | 0.1275 | 1 |
| OWN CONC | -0.2553 | -0.0656 | -0.0205 | -0.083 | -0.0068 | -0.0395 | -0.2755 |

# Do Overconfident CEOs Pay More to Shareholders? Evidence from the US Market

**Artem Anilov**
Senior Expert
ORCID
E-mail: aeanilov@gmail.com

PJSC LUKOIL, Moscow, Russia

### Do Overconfident CEOs Pay More to Shareholders? Evidence from the US Market

## Abstract

This paper aims to discover evidence on the possible impact of CEO overconfidence on payout policy, and the role of corporate boards in offsetting the possible negative effects of this overconfidence. Our investigation demonstrates the effect of overconfidence on the choice of payout method, specifically regarding the repurchases-dividends mix. We also evaluate the ability of corporate governance mechanisms to reduce or even eliminate the negative effects of CEO behavior on payout decisions.

This study is conducted using a sample of 671 non-financial companies from the US for the period of 2007–2016. We apply  probit regressions to study different aspects of payout decisions, and use a panel GMM estimator to check for possible endogenous effects. Using a corporate governance quality index, we test the ability of boards of directors to reduce negative effects of CEO's overconfidence on the payout decisions.

Our findings confirm the hypothesis that overconfident CEOs tend to increase the levels of payout in the form of repurchases, while the levels of cash dividends are unaffected by this type of CEO behavior. Moreover, an overconfident CEO is more likely to initiate repurchases if this has not been done already. The results further illustrate that overconfident CEOs not only pursue higher levels of repurchases, but also switch more often from cash dividends to repurchases. However, it is also shown, in contract to previous research in the field, that efficient boards of directors have very limited power in eliminating the negative effects of CEO overconfidence.

This paper contributes to the existing literature by analyzing the specific area of CEO overconfidence using data from the United States, and follows specific lines of inquiry which have not been deeply studied. Further possibilities to explore the implications of this research exists particularly in the consideration of its apparent contradiction of previous research. There is yet scope to determine applicable tools of reducing the negative effects of specific CEO behaviors. It is possible to identify and investigate other relevant behavioral characteristics that may influence payout decisions. Further, these characteristics may be evaluated to see if the operation of these interrelations reproduce alternative results in terms of the effect of corporate governance, both in the US and in other markets.

## Introduction

Recent studies have shown that CEO overconfidence might significantly affect a company's choice of payout policy [1]. For example, if a CEO is overconfident, he or she will pay fewer dividends [2]. In addition, it has been shown that overconfident CEOs tend to overinvest, so they are left with fewer funds to distribute among shareholders [3, 4]. However, such behavior may stimulate CEOs to repurchase stocks, as they tend to treat the company's shares as undervalued [5, 6]. Therefore, the effect on the total payout may be mixed depending on the fraction of repurchases in total payout.

Despite a significant amount of focus on CEO overconfidence *vis-à-vis* the relationship to payout policy, there are still some limitations in the current state of analysis on this. First, no evidence has been found as to whether or not overconfidence affects decisions about payout initiations. Second, it is not clear if overconfidence has any effect on the choice of the payout channel (e.g. payouts through repurchases versus payouts through cash dividends). Third, although it has been shown that in some cases the corporate governance mechanisms (for example, boards of directors) may be used to increase payout levels [7], there were no prior tests to provide evidence that corporate governance may eliminate or even reduce the negative impact of CEO's overconfidence on strategic decisions, including payout decisions.

To fill these informational gaps, we propose to use two specifications to measure overconfidence in this study: the level of exercisable options, and the level of exercised executive options. We also develop an index of corporate governance quality in order to assess the ability of boards of directors to reduce the negative effects of CEO overconfidence.

First, we show that overconfidence has a significant positive influence on repurchases. This means that a more overconfident CEO pays out more in the form of repurchases. Still, there is no evidence found for the effects of overconfidence on the dividends level.

Second, the level of exercisable options has a significant positive effect on the decision to initiate repurchases and on the fraction of repurchases in the total payout. This means that more overconfident CEOs are more likely to start paying out in the form of repurchases.

Third, we show that overconfident CEOs tend to switch from cash dividends to repurchases so that overall they maintain higher levels of repurchases in total payout to shareholders.

Fourth, to investigate the ability of corporate governance to counter the negative effects of CEO behavior on the payout decisions, we construct an index of corporate governance quality, which accounts for the size of the board of directors, the number of women and independent directors, CEO duality, and the frequency of relevant meetings. Unfortunately, we have not found any evidence supporting the ability of corporate governance mechanisms to eliminate or reduce the adverse effects of CEO overconfidence.

The second section of the paper presents a review of the literature on CEO overconfidence. In the third section we formulate the hypotheses based on the reviewed literature and develop our research model. The fourth section presents the discussion of our findings. The fifth section concludes our analysis and proposes questions for further research.

## Literature review

The traditional theories of dividend policy (signaling theory, agency theory, catering theory) are all based on the assumption that economic agents (for instance, managers, investors, shareholders) are fully rational. However, in 1979 Kahneman and Tversky showed that people are subject to several biases (overconfidence, hindsight, anchoring and so on) which affect their decisions [8]. This idea was subsequently implemented in financial theories and academics started to take irrationality into account. Researchers added the behavioral characteristics of CEOs to the variable factors for the analysis of strategic decisions about payout, capital structure and investment policy. Among these characteristics the most widespread were risk-preferences and overconfidence. In this research, we focus on overconfidence.

The trickiest part in analyzing the behavioral patterns of CEOs and their impact in strategic decisions is quantifying these behavioral characteristics. One approach to this is to measure the option holding period [2, 9, 10]. For example, if the CEO does not exercise the executive stock option until the year of expiration, even if it is already in the money, then it can be assumed that this particular CEO hopes that stock price is going to rise further. Such behavior can be considered as a sign of overconfidence because the CEO is confident that the price will be rising continually.

The second approach to determine the level of CEO overconfidence is to search for certain keywords in interviews with CEOs and in media publications. Such words can include "overconfident", "optimistic" and their synonyms [6, 11]. This approach can prove reliable but takes more time and effort. However, it can be affected by subjectivity of interviewers or media persons.

The third approach to approximate the level of a CEO's overconfidence is to measure the volatilities of the price and trading volume of a company's shares [12]. It is assumed that an overconfident CEO can attract short-term investors and noise traders who are willing to accept higher risks. This can be done through optimistic statements about a company's future and about the prospects of investment projects, or by the acceptance of risky projects. Such investors may increase volatility in stock prices. Moreover, overconfident managers can trade stock on their own, increasing trading volumes and volatility. In this paper we use the first approach as it has proven to be efficient in previous studies [9, 10], and is easier to utilize in terms of implementation and interpretation of results.

Using these approaches researchers have shown that overconfident managers were likely to boost investments, especially high-risk investments, and research and development expenses [1, 2, 4, 5]. As a result, there was little spare cash left to distribute among shareholders and both dividends and repurchases decreased. On the contrary, some researchers have shown that despite the fact that overconfident CEOs on average pay fewer cash dividends, they tend to increase payouts in the form of repurchases [6, 13]. This may happen because they think that a company's shares are undervalued and are going to appreciate. Given this fact, it can be assumed that the effect of overconfidence for the total payout (sum of dividends and repurchases) can be either positive or negative.

Despite the controversy about the impact that overconfidence has on the level of repurchases, researchers agree that CEO overconfidence does not always help shareholders with building up their wealth. How could shareholders then be protected against the negative effects of CEO's overconfidence? One approach to this problem is setting the level of dividend protection according to the level of the CEO's compensation [14]. This means that the CEO's compensation is developed in such a way that prevents the decrease in value of the CEO's holdings in case of a dividend payout.

A CEO's compensation is set by the board of directors. This, as an agent of corporate governance, is an entity that represents the shareholders' interests in the company and aims to minimize agency conflicts. It has been empirically proven that the more efficient the corporate governance is, the more the company pays out [7, 15, 16] and therefore the higher profitability a company achieves [17, 18]. The efficiency of corporate governance may be measured by the size of the board, by the number of independent directors, the length of membership, the representation of government on the board, and other characteristics taken together as an index or separately. Gender diversity also may be a measure of efficiency as it has been shown that female directors may decrease the level of CEO overconfidence [19]. However, there is also evidence that in some markets an increase in the number of independent directors may lead to an increase in R&D investments [20], which are associated with high risk and overconfidence.

Given the findings of previous research, it may be asserted that an overconfident CEO's behavior may affect corporate decisions, and corporate governance tools are possibly able to reduce the negative effects. However, there are some limitations in the current analysis. First, there are no clear data regarding payouts in the form of dividends. Second, there are no clear results as to the impact of a CEO's overconfidence on the decision to *start* paying out and on the fraction of repurchases in the total payout. Third, there are still some measures of overconfidence that were not studied in the context of payout policy. Fourth, there is very limited direct evidence on the ability of corporate governance to eliminate the negative effects of CEO's overconfidence.

To overcome these limitations, and to further boost the research in behavioral corporate finance, we address these issues and provide empirical evidence based on an evaluation of a sample of US companies.

## Hypotheses development and model

Having analyzed previous research on CEO overconfidence, we may conclude that the behavior of a CEO can significantly influence his or her corporate decisions. If this is the case, the shareholders' wealth may be damaged. It is assumed that corporate governance may be used to overcome the negative effects of a CEO's behavior.

In this paper the following hypotheses are tested:

1) The **higher** the level of overconfidence of the CEO, the **higher** the **level** of payout in the form of repurchases. This proposition is based on the assumption that an overconfident CEO treats the company's shares as undervalued and tends to repurchase them at what is thought to be a low price [5];

2) The **higher** the level of overconfidence of the CEO, the **higher** the probability of **initiating the repurchase** [5];

3) The **higher** the level of overconfidence of the CEO, more funds are distributed through repurchases than through dividends [5];

4) High-quality corporate governance has an ability to reduce the negative effects of a CEO's overconfidence.

To test these hypotheses we applied several techniques. To address the possible issues of endogeneity we applied general method of moments (hypotheses 1 and 3). Additionally, to test Hypothesis 2 we used a panel probit regression, as the dependent variable is a binary one.

We develop the following models to test the hypotheses:

$$\text{Payout}_{i,t} = \alpha + \beta_1 \cdot \text{Payout}_{i,t-1} + \beta_2 \cdot \text{Age}_{i,t} +$$
$$+ \beta_3 \cdot \text{Overconf}_{i,t} + \sum_{k=4}^{11} \beta_k \cdot \text{Control}_{i,t,k} + \theta_i + \delta_t + \varepsilon_{i,t} \quad (1)$$

$$\text{pr}(\text{DTP}_{i,t} = 1) = \varphi\{\mu + \gamma_1 \cdot \text{DTP}_{i,t-1} + \gamma_3 \cdot \text{Age}_{i,t} +$$
$$+ \gamma_3 \cdot \text{Overconf}_{i,t} + \sum_{k=4}^{11} \gamma_k \cdot \text{Control}_{i,t,k} + \theta_i + \delta_t\} \quad , \quad (2)$$

where $\text{Payout}_{i,t}$ – is the one of the three "Payout" variables; $\text{DTP}_{i,t}$ – is one of the two "Decision to pay" variables; $\text{Overconf}_{i,t}$ – is one of the two "Overconfidence" variables; Age – is the age of the CEO; $\text{Contlol}_{i,t}$ – is the set of control variables; $\varphi\{x\}$ is the standard normal cumulative distribution function; $\alpha, \beta_k, \mu, \gamma_k$ are coefficients for regressions; $e_{i,t}$, are normally distributed error terms; $\theta_i$ are individual effects; $\delta_t$ are the year's effects; i is the company index; and t is the year index.

Two specifications of CEO overconfidence are used. The first one is the ratio of value of exercisable executive options to the value of all executive options that the CEO owns.

**Table 1.** The variables

| Variable type | Variable name | Measure |
|---|---|---|
| Payout | Dividend ratio | The ratio of cash dividends on common and preferred stocks to total assets |
| | Repurchase ratio | The ratio of repurchases to total assets |
| | Fraction of repurchases | The ratio of repurchases to total payout |
| Decision to pay | Decision to pay dividends | 1 if cash dividends take place, 0 otherwise |
| | Decision to repurchase | 1 if repurchases take place, 0 otherwise |
| Overconfidence | CEO exercisable options | The ratio of value of exercisable executive options to the value of all the CEO's executive options |
| | CEO exercised options | The ratio of exercised executive options to the value of exercisable executive options at the beginning of the year |
| Age | CEO Age | Age of the CEO |
| Control variables | Cash | The ratio of cash holdings to total assets |
| | Tobin's Q | The ratio of market value of equity to book value of equity |
| | Debt to equity | The ratio of book value of debt to equity |
| | Capital expenditures | The ratio of capital expenditures to total assets |
| | Research and development | The ratio of R&D expenses to total assets |
| | Long-term debt | Long-term debt to total debt |
| | Return on assets | The ratio of net income to total assets |
| | Size | Natural logarithm of total assets |

**Table 2.** Expected signs of the impact of overconfidence on the payout ratios

| Overconfidence | Expected impact on the dividend ratios | Expected impact on the repurchase ratios |
|---|---|---|
| CEO exercisable options | – | + |
| CEO exercised options | + | – |

It is assumed that if this ratio is high then the CEO postpones the exercising of options. Such a CEO is treated as overconfident because he or she believes that the company's shares will keep increasing in value and the CEO will be able profit more. The second measure is the ratio of exercised executive options to the value of exercisable executive options at the beginning of the year. It is assumed that if this ratio is low then the CEO is not willing to exercise his or her options. Again, such a CEO is treated as overconfident for the same reason.

The CEO's age also can be a measure of CEO behavior because it is assumed that older people are more cautious and less willing to take certain risks.

The definitions of the variables for Models (1) and (2) are presented in Table 1.

The predictions about the impact of independent variables on the payout are summarized in Table 2.

As stated earlier, overconfident CEOs may prefer repurchases to dividends. That is why we believe that the impact of overconfidence on repurchases and dividends will be opposite.

Taking into account the strategic role of the board of directors in protecting shareholders' interests, we study its power to reduce the negative effects of CEO overconfidence.

We therefore develop the corporate governance quality index (CGQI) based on the following board characteristics which were studied in previous research [21]:

1) The presence of women [19, 22].
2) The percentage of independent directors [23].
3) CEO duality [24].
4) The frequency of board meetings [25].
5) The size of the board [26].

We apply a value of 1 or 0 to each characteristic and present an index value from 0 (poor corporate governance quality) to 5 (excellent corporate governance quality). We create a dummy variable $D_{i,t}$ for companies that have a value of CGQI from 4 to 5 (efficient corporate governance), which is strictly above the mean value for the sample (see Table 3 below).

To test Hypothesis 4, we add a dummy variable for high-quality corporate governance. Thus, we extend Models (1) and (2) and assess Models (3) and (4):

$$\text{Payout}_{i,t} = \alpha + \beta_1 \bullet \text{Payout}_{i,t-1} + \beta_2 \bullet \text{Age}_{i,t} + \beta_{12} \bullet$$
$$\bullet \text{Age}_{i,t} \bullet D_{i,t} + \beta_3 \bullet \text{Overconf}_{i,t} + \beta_{13} \bullet \text{Overconf}_{i,t} \bullet$$
$$\bullet D_{i,t} + \sum_{k=4}^{11} \beta_k \bullet \text{Control}_{i,t,k} + \theta_i + \delta_t + \varepsilon_{i,t} \qquad (3)$$

$$\text{pr}(\text{DTP}_{i,t} = 1) = \varphi\{\mu + \gamma_1 \bullet \text{DTP}_{i,t-1} + \gamma_2 \bullet \text{Age}_{i,t} +$$
$$+ \gamma_{12} \bullet \text{Age}_{i,t} \bullet D_{i,t} + \gamma_3 \bullet \text{Overconf}_{i,t} + \gamma_{13} \bullet$$
$$\bullet \text{Overconf}_{i,t} \bullet D_{i,t} + \sum_{k=4}^{11} \gamma_k \bullet \text{Control}_{i,t,k} + \theta_i + \delta_t\} \quad , (4)$$

where $D_{i,t}$ is the dummy variable for high-quality corporate governance; $\beta_{12}$, $\beta_{13}$ and $\gamma_{12}$, $\gamma_{13}$ are the coefficients for companies with high-quality governance.

First of all, we check whether the coefficients $\beta_2$, $\beta_3$, $\gamma_2$, $\gamma_3$ and $\beta_{12}$, $\beta_{13}$, $\gamma_{12}$, $\gamma_{13}$ are significant. If they are not, then the corporate governance does not have an ability to eliminate the negative effects of the CEO's overconfidence. If they are significant, we move to the next step.

If corporate governance eliminates completely the impact of the CEO's overconfidence on their decisions, then the following equations should hold:

$\beta_2 = -\beta_{12}$ and $\gamma_2 = -\gamma_{12}$;

$\beta_3 = -\beta_{13}$ and $\gamma_3 = -\gamma_{13}$.

We use Wald statistics to check whether these equations are true.

In addition to these variables and based on previous research (see Table 2), we add a set of control variables (Cash holdings, Tobin's Q, Debt-to-Equity ratio, Long-term Debt ratio, Capital and R&D expenditures, ROA and Size) representing the financial position of the company. To capture possible effects, we also include company dummies and year dummies.

To sum up, unlike previous studies, we include in our analysis the relationship between overconfidence and the repurchases-dividends mix, the impact of overconfidence on the decision to initiate payouts in different forms, and the power of corporate governance.

The research is conducted on a sample of 671 non-financial and non-utilities companies from the USA for the period of 2007-2016. To build the sample, we take companies from S&P 1500 Index. The sample is further restricted to companies that had positive payouts at least once during the period. After adjusting for the missing data and outliers, we come up with a final sample of 671 companies. The data was obtained from the S&P Capital IQ and Bloomberg databases.

To assess Models (1) and (3), we use the dynamic panel data method, namely the Arellano-Bond estimator. We do so to address lagged variables. We also run Arellano-Bond tests for autocorrelation, and the Hansen test for instruments validity. To address the initial conditions problem, for Models (2) and (4) a panel probit model regression has been applied [27]. For all models the robust standard errors at firm level and standardized variables have been used.

The next section discusses the obtained results.

## Results

We start with the discussion of descriptive statistics that are presented for the non-standardized variables.

Table 3 reports that CEOs in the sample have different characteristics: some of them exercised all available options and some of them did not exercise any of them. The total payout variable mostly consists of repurchases in US companies. As previously mentioned, this fact should be considered pertinent when interpreting results and conclusions.

Table 4 summarizes the results of Models (1) and (2) testing. The results show coefficients for the standardized variables for all Models.

**Table 3.** The descriptive statistics

| Variable | Mean | Standard Deviation | Min | Max |
|---|---|---|---|---|
| CGQI | 3.642 | .809 | 1.000 | 5.000 |
| CEO exercisable options | .479 | .413 | .000 | 1.000 |
| CEO exercised options | .258 | .359 | .000 | 1.000 |

| Variable | Mean | Standard Deviation | Min | Max |
|---|---|---|---|---|
| CEO age | 57.729 | 6.187 | 36.000 | 86.000 |
| Dividend ratio | .014 | .024 | .000 | .316 |
| Repurchase ratio | .035 | .062 | .000 | .880 |
| Fraction of repurchases | .494 | .420 | .000 | 1.000 |
| Cash | .118 | .112 | .000 | .880 |
| Tobin's Q | 1.927 | 1.800 | .000 | 53.170 |
| Debt to equity | .353 | .439 | .000 | 4.036 |
| Capital expenditures | .048 | .051 | .000 | .460 |
| R&D expenses | .022 | .043 | .000 | .580 |
| Long-term debt | .694 | .386 | .000 | 1.000 |
| Decision to pay dividends | .595 | .491 | .000 | 1.000 |
| Decision to repurchase | .692 | .462 | .000 | 1.000 |
| Return on assets | .054 | .089 | -1.260 | .560 |
| Size | 7.849 | 1.619 | 3.892 | 13.590 |

**Table 4.** Results of testing Hypotheses 1, 2 and 3[1]

| | Dependent variables | | | | |
|---|---|---|---|---|---|
| | Repurchase ratio | Dividend ratio | Repurchase fraction | Decision to repurchase | Decision to pay dividends |
| CEO exercisable options | 0.164* | -0.002 | 0.132** | 0.069*** | 0.075** |
| | (1.95) | (-0.05) | (2.25) | (3.40) | (2.11) |
| CEO exercised options | 0.297* | -0.030 | 0.209* | 0.034* | 0.025 |
| | (1.68) | (-0.37) | (1.73) | (1.74) | (0.65) |
| CEO age | 0.542 | 0.160 | 0.181 | 0.014 | 0.033 |
| | (1.30) | (0.97) | (1.09) | (0.54) | (0.89) |
| Dependent variable (t-1) | 0.230*** | 0.481*** | 0.369*** | 1.323*** | 3.653*** |
| | (4.82) | (3.45) | (12.74) | (28.62) | (44.82) |
| Cash | 0.312 | -0.114* | 0.095 | 0.018 | 0.001 |
| | (1.59) | (-1.75) | (0.83) | (0.69) | (0.02) |
| Tobin's Q | 0.209 | 0.301** | -0.120 | -0.001 | 0.024 |
| | (0.59) | (2.47) | (-0.84) | (-0.06) | (0.76) |

[1] This table presents results from the Arellano-Bond two-step GMM estimator and panel probit regressions for the complete sample. All regressions include intercept and dummies for companies. z-Statistics for Arellano-Bond and for probit are reported in parentheses below each coefficient estimate. P-values for Wald stat., Hansen test and the Arellano-Bond tests are reported in the parentheses below each statistics. *, **, and *** denote statistical significance at the 10%, 5% and 1% levels, respectively.

| | | | | |
|---|---|---|---|---|
| Debt to equity | 0.098 | -0.087 | -0.162 | -0.032 | -0.068* |
| | (0.24) | (-0.38) | (-0.65) | (-1.18) | (-1.84) |
| Capital expenditures | -0.173* | 0.010 | -0.091 | -0.014 | 0.006 |
| | (-1.86) | (0.25) | (-1.08) | (-0.52) | (0.12) |
| R&D expenses | 0.288* | 0.009 | 0.086 | 0.060** | -0.045 |
| | (1.95) | (0.15) | (1.04) | (2.31) | (-1.16) |
| Long-term debt | 0.724** | 0.030 | 0.117 | 0.041* | 0.048 |
| | (2.15) | (0.18) | (0.59) | (1.63) | (1.08) |
| ROA | 0.066* | -0.013 | 0.089*** | 0.156*** | 0.166*** |
| | (1.66) | (-0.57) | (2.96) | (6.57) | (4.00) |
| Size | -0.718 | -0.183 | -0.245 | 0.123*** | 0.179*** |
| | (-1.33) | (-0.67) | (-1.01) | (4.26) | (3.75) |
| Year 2009 | -0.368*** | -0.050** | -0.341*** | -0.637*** | -0.230** |
| | (-5.37) | (-2.49) | (-6.33) | (-10.63) | (-1.99) |
| Year 2012 | -0.130*** | 0.024 | -0.088** | -0.064 | 0.221** |
| | (-3.49) | (1.60) | (-2.43) | (-1.21) | (2.13) |
| Intercept | Yes | Yes | Yes | Yes | Yes |
| Individual effects | Yes | Yes | Yes | Yes | Yes |
| Num. of observations | 6039 | 6039 | 6039 | 6039 | 6039 |
| Method | Arellano-Bond GMM | Arellano-Bond GMM | Arellano-Bond GMM | Panel Probit regression | Panel Probit regression |
| Wald stat (chi_sq) | 140.88 | 166.89 | 353.84 | 1130.74 | 2776.70 |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| Hansen test | 44.74 | 53.35 | 46.47 | – | – |
| | (0.48) | (0.18) | (0.41) | | |
| AB test (AR 1) | -5.49 | -2.94 | -14.99 | – | – |
| | (0.00) | (0.00) | (0.00) | | |
| AB test (AR 2) | -0.62 | 1.06 | -0.12 | – | – |
| | (0.53) | (0.29) | (0.90) | | |

In line with the predictions from Table 2, the level of exercisable options has a significant positive effect on the level of repurchases. This result is also robust for all specifications of payout policy except at the level of dividends analysis. This means that more overconfident CEOs tend to repurchase more. It proves our suggestion that overconfident CEOs consider company's stocks as undervalued. However, it cannot be said that it has any significant influence on the level of cash dividends. We can conclude that the level of dividends is determined by the financial situation in a company rather than by the CEO's overconfidence.

Overconfident CEOs also prefer repurchases to dividends as the exercisable options variable has a positive impact on the fraction of repurchases. It means that overconfident CEOs not only pursue higher levels of repurchases, but also switch more to repurchases from cash dividends. Exercised options have limited influence on the payout variables, though the CEOs that exercise more options tend to set higher levels of repurchases, and also prefer repurchases as opposed to dividends. These CEOs may still pursue the goal of increasing stock price and signal to the market that the stocks are undervalued and they believe in future stock price increases.

We can also see that the CEO's age has no influence on the payout decisions.

The same is true for initiations of repurchases: the higher the level of exercisable options, the higher the probability of repurchase initiations. It means that overconfident CEOs are more likely to initiate repurchases than dividend payouts. Marginal effects can be checked in Table 5. It can be seen that overconfident CEOs increase the probability of initiating repurchases by 2.2%, and dividends by 2.6%.

The results in Tables 4 and 5 show that overconfidence of the CEO may significantly affect his or her decisions about the payout policy, namely the decisions about initiation, level, and fraction of repurchases. We also show that return on assets has a positive impact on these decisions, while the crisis year of 2009 sees some negative impact, which is expected.

To verify Hypothesis 4 we run Models (3) and (4) and use Wald statistics to check the equality of behavioral coefficients. To obtain reliable results, both coefficients (with and without dummy $D_{i,t}$) should be significant. The tests results are summarized in Table 6.

Coefficients of interest in Models (3) and (4) are not significant and we have not found any support for Hypothesis 4. This indicates that efficient corporate governance cannot eliminate or reduce the negative effects of the CEO's overconfidence. Further research is needed to prove corporate governance efficiency in terms of its ability to reduce the negative effects of CEO behavior. The predictions from previous sections should be tested, along with other measures of corporate governance efficiency, for instance, term length of membership, connections to government, personal characteristics of the board members, etc.

**Table 5.** Marginal effects for Model (2) at average[2]

| | Dependent variables | |
|---|---|---|
| | Decision to repurchase | Decision to pay dividends |
| CEO age | 0.004<br>(0.54) | 0.011<br>(0.89) |
| CEO exercisable options | 0.022***<br>(3.39) | 0.026**<br>(2.10) |
| CEO exercised options | 0.011*<br>(1.74) | 0.008<br>(0.65) |

**Table 6.** Results of testing Hypothesis 4[3]

| | Dependent variables | | | | |
|---|---|---|---|---|---|
| | Repurchase ratio | Dividend ratio | Repurchase fraction | Decision to repurchase | Decision to pay dividends |
| CEO exercisable options | 3.71*<br>(0.05) | 1.38<br>(0.24) | 1.34<br>(0.25) | 4.89**<br>(0.03) | 1.10<br>(0.29) |
| CEO exercised options | 3.34*<br>(0.07) | 0.64<br>(0.43) | 3.97*<br>(0.05) | 0.45<br>(0.50) | 0.05<br>(0.83) |
| CEO age | 0.12<br>(0.73) | 0.61<br>(0.44) | 0.080<br>(0.37) | 1.56<br>(0.21) | 0.15<br>(0.70) |

[2] This table presents at average marginal effects for the probit estimations. z-Statistics are reported in parentheses below each effect estimate. *, **, and *** denote statistical significance at the 10%, 5% and 1% levels, respectively.

[3] This table presents chi2 statistics for the tests of H0. P-Values are reported in the parentheses. *, **, *** represent that H0 can be rejected at the 10%, 5%, 1% levels respectively.

## Conclusion

This paper is aimed at establishing a deeper understanding of the influence of CEO overconfidence on three payout decisions: the decision to initiate payout to shareholders; the decision about the level of payout; and the decision about repurchases-dividends mix. We also aim to find support for the suggestion that corporate governance has the power to reduce or even eliminate the negative effects of a CEO's overconfidence.

Our study proves that the overconfidence of a CEO may significantly affect decisions about the choice of corporate payout policy. As in [5, 6], we found that more overconfident CEOs tend to repurchase more stocks. In addition, it has been proven that such CEOs are more likely to initiate repurchases and generally prefer repurchases to dividends. It proves the hypothesis that overconfident CEOs tend to believe in stocks' undervaluation by market participants.

Contrary to previous research [22], however, we found no support for the hypothesis that efficient corporate governance may eliminate or reduce negative effects of a CEO's behavior - overconfidence in this case.

It has to be pointed out that these results are sensitive to the way in which overconfidence is measured: one of the specifications (the level of exercised options) does not significantly influence payout decisions. It means that more information is needed about the most appropriate measures of CEO overconfidence.

There are still some blind spots in the investigation of the impact of CEO behavior on payout decisions. Further research is needed to determine other tools of reducing the negative effects of CEO behavior. This will involve finding other behavioral characteristics that may influence payout decisions, checking whether behavioral characteristics of other top-managers (CFO or COO) can influence these decisions, and checking the operation of these interrelations in other markets.

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# Do Political Connections Influence Investment Efficiency in Russian Companies?

**Victoria Cherkasova**
PhD, Associate Professor
ORCID
E-mail: vcherkasova@hse.ru

School of Finance, National Research University Higher School of Economics, Moscow, Russia

**Anna Ivanova**
Master of Economic Sciences, Researcher, Senior Analyst
ORCID
E-mail: avivanova13@gmail.com

Accenture PLC, Moscow, Russia

## Do Political Connections Influence Investment Efficiency in Russian Companies?

# Abstract

The question as to whether political influence can benefit the commercial activity of companies, and the related questions surrounding political corruption that arise, are of perennial fascination for persons at every level of society and in every country. With this in mind, this article seeks to explore the relationship between political connections in commercial firms and investment efficiency. This relationship will be studied on an empirical basis, and will shed some light on the actual parameters, mechanisms, and effects of political influence in the business sphere in the Russian Federation.

In this research, we consider only direct relations between business operators and the members of Russian ministries, councils, political parties, heads of the regions and cities. These relationships are categorised as being politically influential depending on the status of the politician, and whether they are active at a federal, regional or municipal level. Connections with such politicians are examined where there is evidence of direct links with company CEOs and chairmen of the boards of directors of companies.

This research is carried out on the sample of 106 Russian non-financial companies for the period 2010–2015. 44 companies from the final sample were considered as politically connected on at least one level. Some firms have connections more than at one level (11 companies). Companies have politically connected chairman of the board (36 companies) more often than connected CEO (26 companies). Using regression analysis, we determined whether the political ties in Russia have a positive or a negative impact on the investment expenditures of companies.

Interestingly, and perhaps contrary to popular belief, we identified a negative relationship between political ties and the efficiency of investment decisions for individual companies. The presence of politically-connected CEOs at federal and regional levels is seen to have a significant negative impact on investment efficiency. However, our results also indicate that the presence of politically-connected chairmen of the board which are active at the municipal level is correlated with efficient investment activity. This indicates that political influence at this level may be responsible for more prudent recommendations regarding commercial and investment decisions. Overall, it can be seen that in this sample of companies from the Russian Federation, the presence of state-tied representatives may be aligned with a tendency for companies to follow targets that are favourable for its government connections and not for the firm itself.

Although political connections have a mixed impact on the company's value, the relation with investment efficiency is primarily negative. Thus, we may reason that the government has a strong power over politically-related companies. Such influences are linked with a tendency for companies to deviate from their primary goal of value maximisation.

These results may indicate the influence of undue pressure from a government which strives to reach its own goals through the mechanism of commercial activity, or perhaps the opportunistic behaviour of individuals in management positions who are motivated towards personal political gain at the expense of the company. Political connections have a mixed effect on the company's performance and investment efficiency, and we postulate that firms establish relationships with government officials pursuing the goal to obtain more advantageous position. The links between political operators and business activity demonstrated in this research undoubtedly highlight some uncomfortable areas of discourse in the commercial sphere. On a granular level, further research into specific transactions and motivations may seem more a research area for journalists or law enforcement investigators, but this may be simply a popular prejudice. There is certainly ample opportunity for expanding the scope of this study's results. Beyond the interests of political, sociological and legal researchers, the data presented herein will be of immediate interest to persons operating in the commercial, business, and economic spheres of the Russian Federation and internationally.

## Introduction

Political connections have a negative influence on the investment efficiency of a company. The main reason for this state of affairs is the significant power of the state. The government encourages firms to act in its interests and to reach goals favourable to it through the company's management and board of directors. However, opportunistic behaviour by top executives may also be considered a cause of inefficiency-related problems. This takes place when they do not follow the firm's primary aim of value maximisation and instead use existing corporate opportunities to gain personal benefits or to build an empire.

At the same time, political connections have a mixed effect on the company's performance and market share. Thus, firms seek to establish relationships with government officials when pursuing a goal of obtaining a more advantageous position. Moreover, some executives even become politicians themselves in order to reach this target.

The role of political connections cannot be overestimated, especially in the Russian Federation. Doing business in Russia often requires both formal and informal support from the authorities. Taking into consideration current examples of the most successful Russian entrepreneurs, we may confidently conclude that close relationships with politicians play a crucial role in the development of business projects and relationships all over the country.

The impact of political connections on a company's investment efficiency has been investigated in many empirical studies. However, even if the strength of such relations has been analysed, the level of the related government officials or politician has not been formally taken into account. It is important to emphasise that depending on the level of influence in question, the consequential experience varies. Moreover, there are, naturally, some differences in the ultimate intended goals of the politicians, and the extent of control exerted over them.

The main aim of this research is to estimate the impact of political connections on companies' investment efficiency.

Many of the existing studies in the literature focus on certain categories. Those conducted by Fisman (2001) [1], Faccio et al. (2006) [2], Faccio (2010) [3], Bao et al. (2016) [4] and Su and Fung (2013) [5] analysed political connections and their influence on different parameters. The studies looked at study investment efficiency factors and ways of its measurement; Chen et al. (2009) [9], Deng et al. (2012) [10] and Pan et al. (2017) [11] who devoted their investigations to the identification of the relationship between political ties and efficiency of a company's investment decisions.

Most of the described papers are devoted to the investigation of political connections and their influence on company's performance, value, capital access and other determinants in China [4, 5, 12, 13]. This is because government in that country plays a great role there in every sector of the market, and a large amount of infor-

mation about political ties is recorded in local databases. These factors make the research on the Chinese market more compelling. However, political connections are also examined in Taiwan [14, 15], Thailand [16], Indonesia [1], Pakistan [17], Vietnam [18], Russia [19], and other countries [2, 3]. Thus, the current topic is most valuable with reference to emerging countries, where markets and the economy are still developing, and the government has an opportunity to influence that process.

In contrast to previous research, in this study we determine the direct political connections of Russian public companies, and estimate the influence of political connections via the figures of the CEO and the chairman of the board of directors separately. Nevertheless, we consider three types of political connections – at the federal, regional and municipal levels. We estimate the impact of these political ties on the company's investment efficiency and test the methodology on a sample of Russian companies.

This paper has the following structure. Section 1 provides the theoretical basis of political connections, investment efficiency and the relationship between them. In Section 2, we determine the hypotheses for further verification, we articulate the research design, and conduct a sample selection. Section 3 contains the main results of our research.

## Relationship between political connections and investment efficiency

One of the most important factors for firms' successful development is the effective development of their investment decisions. Investment inefficiency may lead to disappointing results: a decrease in a company's value, reputational damage, and poor performance in general. Moreover, it may be represented in a form of under- and overinvestment. However, several determinants have an influence on such deviations and one of them is the effect of the political connections that are maintained by the firm's top executives, directors or large shareholders. Relationship with government officials may bring an advantageous position to the company, as well as creating pressure to take commercial and other decisions which are favourable to the state. Because of the mixed outcomes, the influence of the presence of political ties on company's potential investment efficiency remains a valuable matter for examination.

Most of the previous researchers focus on the relations between the existence of political ties and firm performance, while the impact of political connections on the company's investment efficiency is a relatively new topic for investigation [20]. However, this relationship can be crucial, especially for companies those operate in countries with poor legal protections, weak rule of law, and a high level of control from the government. It is important to emphasise that constituent individuals within the firm's ownership structure also have a specific effect on the outcomes of the intervention of political connections.

For the most part, political connections negatively influence the investment efficiency of private firms, while the opposite results hold true for state-owned firms. For example, Chen et al. (2017a) [21] investigate the impact of ownership structure on the investment efficiency of a sample of companies from 64 countries in 1981–2008. They focus on the state- and foreign- types of ownership and identify that state-owned kind is associated with investment inefficiency, while there is positive correlation between the existence of foreign ownership and a company's investment efficiency. The results may be summarised in the following way: state ownership leads to an increase in agency problems and information asymmetry, while foreign ownership reduces these effects and contribute to better corporate governance. Moreover, Chen et al. detect 31.6% of politically tied firms in the sample of 506 non-financial privatised companies. The results show that the presence of political connections leads to a higher level of investment expenditure while the efficiency of these investments decreases. The authors consider a company as 'politically related' if its CEO or chairman of the board is a current or former member of local or central government or the military. State ownership is defined as indicating possession of a controlling stake in the company by the government through its agencies, ministries, state companies and bureaus. For state-owned enterprises (SOEs) that operate in the transportation, mining, and electricity industries, the percentage of politically related companies is the highest, while for private enterprises sectors the largest share of connected firms are transportation, agriculture, and manufacturing industries. These results are robust even considering the differences in institutional deployment across Chinese regions. Besides this, having a politically connected chairman or CEO in a private firm can help to check overinvesting, especially when investment opportunities are growing. On the other hand, SOEs are more likely to overinvest if the company is controlled by the local government. However, overinvestment reduces firms' values for both clusters.

Investment inefficiency of state-owned enterprises may develop due to government pressure on the company. By acting as a major stakeholder, or through the organs of management, the government can force a firm to deviate from its goal of value maximisation and to act primarily in the interests of the state. However, government does not have a direct influence on non-state-owned or politically unconnected companies. For this reason, the opposite relation exists for such enterprises. Such a finding was indicated by Chen et al. (2011b) [6] who studied the effect of government interference on companies' investment decisions in the period 2001 to 2006. Such interference was studied through the lens of the degrees of government ownership and the political background of the firms' top executives. Nevertheless, unlike Chen et al. (2009) [9], for the purpose of measurement of investment efficiency, the sensitivity of a firm's investments to Tobin's Q was implied.

However, the strength of the political connection in question is also a valuable parameter that needs to be considered. Ling et al. (2016) [22] concentrate on those Chinese companies that operate in the real estate sector from 1998 to 2012. They reflect political connections in the empirical model not as a dummy variable, but as an index that shows the strength of such relations. The main results of this investigation demonstrate a stronger relation between political connectedness and the inefficiency of a firm's investment decisions for those organisations with higher political scores. It was found that such firms are more likely to overinvest and show poorer performance overall. The authors attributed those results to the managerial overconfidence that occurs from the government intervention.

On the other hand, Liu et al. (2012) [23] consider politically motivated investments that were made by Chinese companies in 1994–2010. The authors emphasise several reasons for such kind of investments. First of all, it is related to the fact of the participation of a firm's executives in the elections to the Chinese political parties. To impress the government and to show their bona fides, chairmen and CEOs usually make inefficient investments for the company. Such investments are not intended for the purpose of value maximisation. Thus, significant overinvestment takes place for the firms with politically motivated executives. Moreover, private companies seek political relations in order to reach better position through easier access to financing and other privileges. The researchers highlight the fact that that overinvestment is more critical for non-state-owned enterprises. However, after the election, the level of investments for companies decreases regardless of the ownership structure. These results are opposite to the ones obtained by Chen et al. (2009) [9].

Not only the presence, but also the termination of political ties affects a company's investment efficiency. Pan et al. (2017) [11] analyse the consequences of the elimination of a company's connections with corrupt government officials. The authors consider this process for a sample of privately-owned and state-owned firms. The opposite results were obtained for different clusters of organisations. For example, the efficiency of investment decisions of SOEs involved in a relation with corrupted politicians increased after the termination of such connections, while the opposite effect is exhibited for non-state-owned enterprises. The explanation for the positive correlation observed in state-owned firms is that without additional pressure from the government, companies can focus on value maximisation and not on the acquisition of personal benefits for executives and directors or those investments that are favourable for the state. Nevertheless, in such circumstances, privately-held firms lose political ties that help them to obtain advantageous positions in the market, and the investment efficiency of such firms declines.

Investment inefficiency can be reflected in a form of under- and overinvestments. That is why many investigators focus on the determination of such deviations. Thus, Xu et al. (2013) [24] analyse family firms in China over the from period 2000 to 2007, and identify 12% of politically connected companies from the sample of 485 entities. The

researchers define a firm as underinvesting if the relation between its cash flow sensitivity to investment expenditures and the level of its financial constraints is positive. If such a relation is not positive, a company is referred to the overinvesting group. Finally, the authors demonstrate that family firms are generally subject to underinvestment rather than overinvestment, and that the presence of political connections is a useful tool to address such investment inefficiency, especially for financially constrained enterprises. Zhao et al. (2013) [25] study the effect of political connections through government officials and members of the Chinese People's Political Consultative Conference (CPPCC) on the efficiency of firms' capital allocation. Ties with members of CPPCC negatively influence the investment efficiency in both ways while other types of political ties encourage only excessive investment expenditures. It was also found that after one year from the issuance of bonds, firms related to government officials decrease the level of overinvestments, and firms connected to CPPCC start to underinvest more. Another study investigating this topic was conducted by Geng (2013) [26] who determined that there is no positive correlation between the existence of political connections and access to external finance for private companies. Moreover, in case of good investment opportunities firms invest more when internal funds measured as cash flows increase, regardless of the presence of political connections. However, it was found that firms related to the government tend to invest more even when investment opportunities are poor and internal funds shrink. Indeed, the latter case may be the reason for the problem of overinvestment among politically connected companies that follow the interests of the government in the first place.

Overall, political connections decrease investment efficiency. This especially holds true for state-owned enterprises, while non-state-owned entities are trying to obtain different benefits through the establishment of political ties. Overinvestment is a more common deviation from the optimal efficient level of investments, however, the existence of mixed results demand further investigation of this topic.

## Research design

### Hypotheses development

As we proceed to further analysis, several hypotheses shall be articulated on the basis of the literature review.

There are many factors that have an influence on the efficiency of investment decisions of a company, political connections being just one of them. Even though there have been mixed results regarding the influence of the existence of political ties on the company's value and performance, most of the research demonstrates a negative relationship between political connections with politicians and firm's investment efficiency [22, 23, 27, 28]. As discussed, that may be cause by the fact that governments have the power to exert pressure on companies via executives and directors in order to reach goals that

are beneficial for the state. Our study is conducted on a sample of Russian companies, and being of an emerging market country where the government is highly influential, we therefore assume that political connections will be negatively correlated with the efficiency of firms' investment decisions.

*H1: The presence of political connections decreases investment efficiency of companies.*

There are several ways to measure the political connections of the company. The most common one is the existence of a relationship between a firm's executives and members of the board of directors with government officials. For a company to be recognized as politically tied, the connection of a CEO or chairman of the board is sufficient. However, these roles perform different functions and the political relations of each of them can have a different impact on the company's investment efficiency. Moreover, this distinction is important because a CEO must report to the board of directors, and the latter may impose restrictive measures on his actions. We still adhere to the belief that any sort of political connections may diminish investment efficiency, regardless of the status of the related person.

*H2: A politically connected CEO/chairman of the board diminishes the investment efficiency of a company.*

Following on the research of those who have studied the strength of political connections of the company [5, 17, 22, 23] we divide political relations into three categories according to the level of government officials in question: federal, regional and municipal. On the one hand, a company may seek a lower level of connection in order to obtain benefits in the region where the firm operates, but officials at regional and municipal levels have relatively weak power. Thus, they will not bring any advantages to the company and will not be able to exert a strong influence on investment efficiency. On the other hand, officials at the federal level have more power to force the firm to act in their own interests.

Nevertheless, some investigators view the intervention of local government through a different lens. They consider enterprises owned by the local government [6, 9, 23, 29] and have discovered that such political relations have lead to investment inefficiency, especially in the form of overinvestments. For this reason, we suppose that relations with politicians at lower levels will also have a negative impact on the efficiency of a company's investment decisions.

*H3: Political connections at federal/regional/municipal level decrease the investment efficiency of companies.*

Despite the fact that the political connections of a CEO and chairman of the board may have a different influence on a company's investment efficiency, the level of these connections may differ too. Even the ways of empire building and other personal benefits that can be obtained at the expense of the company by a CEO or chairman of the board of directors may vary in relation to different levels of political power [29]. That is why it is important to take into consideration the issue of personal impact.

Hence, H4 and H5 are presented as follows:

**H4:** *The presence of a politically connected CEO at the federal/regional/municipal level aggravates investment efficiency of companies.*

**H5:** *The presence of a politically connected chairman of the board at the federal/regional/municipal level reduces investment efficiency of companies.*

## Methodology

First of all, we need to determine which variables should be taken account of for further consideration. On foot of the existing research, we choose cash flow, leverage, size and the annual revenue growth of the company as control variables for further analysis (table 1). Firms with a higher level of cash flow have more funds available to make investments, thus we expect a positive value of the coefficient before cash flow. 'Leverage' indicates the portion of debt that a company has. Higher leverage indicates that the firm may experience troubles in accessing additional debt financing and it also has to pay more interest [9, 11]. For these reasons, we anticipate a negative relationship between the financial leverage and investment expenditures of the company. Further, there are mixed results regarding the influence of the firm's size on its investments. On the one hand, small companies often suffer from financial constraints that reduce their ability to invest [7, 30]. On the other hand, mature firms have sufficient funds to make preferable financial decisions [6]. Finally, the percentage of annual revenue growth also determines the level of investments. Companies with positive revenue growth anticipate their further development and in order to boost this expansion they start to invest more. Thus, we expect a positive influence of revenue growth on the investment expenditures.

*In step one, in order to* examine the relationship between the presence of political connections and company's investment efficiency we build a model as follows:

$$\text{Inv}_{i,t} = \alpha + \beta_1 Q_{i,t-1} + \beta_2 PC_{i,t} + \beta_3 PC_{i,t} \cdot Q_{i,t-1} +$$
$$\beta_4 CF_{i,t-1} + \beta_5 Size_{i,t-1} + \beta_6 Lev_{i,t-1} +$$
$$+ \beta_7 Growth_{i,t-1} + \varepsilon_{i,t} \quad (1)$$

where *Inv* is company's investment expenditures, Q is Tobin's Q, *PC* represents the existence of political connections and CF, Size, Lev, Growth are the control variables that display the company's cash flow, size, leverage and annual revenue growth respectively. This model will be used to test our first hypothesis.

The point of interest for us is the coefficient $\beta_3$ which reflects the investment efficiency of the company in the presence of political connections. Based on the reviewed literature we anticipate the negative sign of this parameter, which would indicate a decrease in the efficiency of the firm's investment decisions due to the political ties of the top executive or chairman of the board.

For further analysis, we should give a definition of the basic variables. Definitions, as well as anticipated signs of all the other variables are presented in the table below.

**Table 1.** Definition of variables and their anticipated signs

| Variable | Definition | Anticipated sign |
|---|---|---|
| Inv | Investments of the company, measured as the sum of research and development expenditures, capital expenditures and acquisition expenditures minus sales of property, plant and equipment all over lagged total assets | Dependent variable |
| Q | Tobin's Q, determined as the sum of market value of equity, book value of assets minus book value of equity, all over the value of total assets (Jiang et al., 2011) | + |
| PC | A dummy variable that equals 1 if the company is politically related and 0 otherwise | – |
| $PC_{Chairman/CEO}$ | A dummy variable that equals 1 if the company has a politically related chairman of the board/ CEO and 0 otherwise | – |
| $PC_{FED/REG/MUN}$ | A dummy variable that equals 1 if the company has political ties at the federal/ regional/municipal level and 0 otherwise | – |
| CF | Cash flows, represented by net operating cash flows divided by lagged book value of total assets of the company | + |
| Size | Size of the firm, defined as natural logarithm of company's total assets | +/– |
| Lev | Leverage measured as total debt over total equity of the company | – |
| Growth | The percentage of the company's annual revenue growth | + |

*Source*: authors' analysis.

*In the second step* we want to detect the differences in the impact of a politically related chief executive officer and chairman of the board. For this purpose, we switch the variable *PC* that indicates the existence of political connections to the new variables $PC_{Chairman}$ and $PC_{CEO}$ that specify the politically related person. To test our second hypothesis, the following model is implemented:

$$Inv_{i,t} = \alpha + \beta_1 Q_{i,t-1} + \beta_2 PC_{CEO} + \beta_3 PC_{Chairman} +$$
$$+ \beta_4 PC_{CEO} \cdot Q_{i,t-1} + \beta_5 PC_{Chairman} \cdot Q_{i,t-1} + \beta_6 CF_{i,t-1} +$$
$$+ \beta_7 Size_{i,t-1} + \beta_8 Lev_{i,t-1} + \beta_9 Growth_{i,t-1} + \varepsilon_{i,t} \qquad (2)$$

We have a particular interest in the signs and values of coefficients $\beta_4$ and $\beta_5$ which represent the impact that a politically connected CEO and chairman have on the investment efficiency of the firm. We assume a negative influence of political relations and anticipate that the values of the considered coefficients will be less than zero.

The next, *third step* of our research is dedicated to the investigation of the influence of different levels of political connections on the efficiency of a firm's investment decisions. Thus, we divide political ties into 3 levels based on the extent of power and territorial basis: federal, regional and municipal. For each level, we employ a separate dummy variable in our model:

$$Inv_{i,t} = \alpha + \beta_1 Q_{i,t-1} + \beta_2 PC_{Fed} + \beta_3 PC_{Reg} +$$
$$+ \beta_4 PC_{Mun} + \beta_5 PC_{Fed} \cdot Q_{i,t-1} + \beta_6 PC_{Reg} \cdot Q_{i,t-1} +$$
$$+ \beta_7 \cdot PC_{Mun} \cdot Q_{i,t-1} + \beta_8 CF_{i,t-1} + \beta_9 Size_{i,t-1} +$$
$$+ \beta_{10} Lev_{i,t-1} + \beta_{11} Growth_{i,t-1} + \varepsilon_{i,t} \qquad (3)$$

We are interested in the sensitivity of investments to Tobin's Q for political connections at every level, which is represented by the coefficients $\beta_5$, $\beta_6$ and $\beta_7$. We stick to the opinion that political ties diminish the investment efficiency of a company regardless of their strength and level. Further, negative signs for the abovementioned coefficients are anticipated. However, this model is useful to test not only our third, but all three of the remaining hypotheses. To test the relation between different levels of political connections and the investment efficiency of the company, we will run this regression on a sample where political ties at different levels are emphasised. Nevertheless, to analyse the influence of a politically related CEO or chairman of the board at different levels, we separate the presented dummy variables of political connections into politically tied chief executive officer, and politically connected chairman. However, the model remains essentially the same.

## Sample selection

We collected data on financial indicators for 143 Russian listed firms from the Capital IQ database. Only non-financial companies were taken into consideration. Information about political ties of firms' top executives was gathered manually from companies' annual reports and other open sources. The main issue that was met during the data gathering is that companies disclose biographical information about its management and board of directors only for the last 5 years. Thus, data about political connections were obtained mostly from internet search engines. Our sample covers a period from 2010 to 2015. Companies that had no annual reports or available information about their top executives were excluded from the original sample, as well as firms lacking financial information. Thus, only 106 companies were captured for further analysis. Almost 50% of the selected companies operate in the utilities and materials industries, while the rest covers 7 different sectors as represented below (Table 2).

**Table 2.** Primary industries of companies' operations

| Industry | Number of companies |
| --- | --- |
| Industrials | 9 |
| Telecommunication Services | 4 |
| Energy | 13 |
| Materials | 25 |
| Utilities | 31 |
| Consumer Discretionary | 10 |
| Consumer Staples | 9 |
| Real Estate | 2 |
| Healthcare | 3 |
| **Sum** | **106** |

*Source*: authors' analysis.

The primary variable for this study is political connectedness. Following Li et al. (2006) [12], Fan et al. (2007) [13] and Bao et al. (2016) [4] the company is defined as politically tied if its CEO or chairman of the board of directors is a current or former government official. We consider only direct relations with the members of Russian ministries, councils, political parties, heads of the regions and cities. We do not take into account indirect relations, in order to avoid subjective and biased estimations.

**Table 3.** Share of politically connected firms by year, %

| Year | Connected | Non-connected |
| --- | --- | --- |
| 2010 | 33 | 67 |
| 2011 | 30 | 70 |
| 2012 | 28 | 72 |
| 2013 | 24 | 76 |
| 2014 | 30 | 70 |
| 2015 | 30 | 70 |

*Source*: authors' analysis.

Moreover, it is very hard to obtain and collect all the information about family, friends and other persons who are closely related to government officials. Thus, the amount of politically connected companies in the sample was quite stable over the considered period: 29% on average. That aligns with the data collected by other researchers on a sample of companies from Russia and 63% of other countries (Table 3) [7, 21]. The largest share of connected firms was evident in 2010 and the lowest share in 2013. At the same time, 44 companies from the final sample were considered as politically connected at least once over the investigated period. Moreover, 30 of them have political ties at the federal level, 18 at the regional level, and 7 at the municipal level (Table 4). As can be seen, some firms have connections at more than one level that can put them in an advantageous position.

**Table 4.** The presence of political ties over 2010–2015

| Status | Number of companies | Percentage, % |
| --- | --- | --- |
| Non-connected politically | 62 | 58 |
| Connected politically | 44 | 42 |
|    - at federal level | 30 | 28 |
|    - at regional level | 18 | 17 |
|    - at municipal level | 7 | 7 |
| **Overall** | **106** | **100** |

*Source*: authors' analysis.

**Table 5.** The number of companies with politically connected top executives over 2010–2015

| Politically connected | CEO | Chairman of Board |
| --- | --- | --- |
| Overall | 26 | 36 |
|    - at federal level | 10 | 23 |
|    - at regional level | 12 | 10 |
|    - at municipal level | 4 | 3 |

*Source*: authors' analysis.

Finally, overall, companies at the federal level have a politically connected chairman of the board more often than a connected CEO, while at the regional and municipal levels politically related CEOs are more common (Table 5).

The descriptive statistics of the investigated parameters presented in table 6 demonstrate the mean values of variables. It is important to take note that, on average, these companies:

- invest in the amount of 13% of total assets;

- have a cash flow that equals 10% of total assets;

- have a low debt load (total debt is 33% of total assets);

- have an annual increase in revenue of 16%;

- have a good investment opportunities and growth potential (Tobin's Q is higher than 1).

**Table 6.** Descriptive statistics

| Variable | | Mean | Std. Dev. | Min | Max |
| --- | --- | --- | --- | --- | --- |
| Investments | overall | 0.1315169 | 0.1810705 | -0.5667444 | 1.412442 |
| | between | | 0.1056058 | -0.0574078 | 0.5568823 |
| | within | | 0.147729 | -0.4194523 | 1.398692 |
| Cash flow | overall | 0.1034553 | 0.1315818 | -0.4210463 | 0.7101095 |
| | between | | 0.0936104 | -0.1771722 | 0.3830587 |
| | within | | 0.0932716 | -0.3715313 | 0.5714298 |

| Variable | | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Tobin's Q | overall | 1.20186 | 0.7554601 | 0.0594833 | 7.009595 |
| | between | | 0.8257317 | 0.2210095 | 7.009595 |
| | within | | 0.3912746 | -1.003028 | 5.056125 |
| Size | overall | 11.00521 | 1.954596 | 5.608006 | 16.65178 |
| | between | | 1.932205 | 6.387913 | 16.29719 |
| | within | | 0.3367227 | 9.440665 | 12.27576 |
| Leverage | overall | 0.3292781 | 0.3189066 | 0 | 4.576138 |
| | between | | 0.2781524 | 0 | 2.324039 |
| | within | | 0.1567214 | -0.7522612 | 2.581377 |
| Revenue growth | overall | 15.72527 | 80.10551 | -98.1 | 1274.7 |
| | between | | 35.65318 | -23.71057 | 314.7 |
| | within | | 71.84487 | -379.6747 | 975.7253 |

*Source*: authors' analysis.

**Table 7.** Correlation matrix

| | Investments | Cash flow | Tobin's Q | Size | Leverage | Revenue growth |
|---|---|---|---|---|---|---|
| Investments | 1.0000 | | | | | |
| Cash flow | 0.2714* | 1.0000 | | | | |
| Tobin's Q | 0.0444 | 0.2317* | 1.0000 | | | |
| Size | 0.2098* | 0.2875* | -0.1520* | 1.0000 | | |
| Leverage | -0.0790* | -0.2130* | 0.3083* | -0.0197 | 1.0000 | |
| Revenue growth | 0.0916* | 0.0501 | 0.0549 | -0.0332 | 0.0410 | 1.0000 |

* is indicating a significance level at 5%.

*Source*: authors' analysis.

The correlation matrix represented below shows that all the considered variables have a positive relation with the amount of company's investments (Table 7). However, leverage is negatively related with investments, which aligns with the existing literature and our assumptions.

For the purpose of this research we follow Chen et al. (2011b) [6], Xie (2015) [31], Wan et al. (2015) [32], Chen et al. (2017a) [21] and employ the sensitivity of investment expenditures to a company's investment opportunities defined through Tobin's Q as a proxy for the firm's investment efficiency.

## Empirical results

Consistent with *step one* of our research, Table 8 represents the results of our first model. This helps us to inves-

tigate the relationship between political connections and the efficiency of the firm's investment decisions.

The relation between investment expenditures and Tobin's Q is positive and significant at the 1% level of significance. In case of positive investment opportunities, companies boost their investments. That determines the efficiency of their investment expenditures. Similar results were obtained by several other researchers [6, 11, 31]. The relationship between political connections and investment expenditures is positive but insignificant. That means that this kind of connection does not have an influence on the amount of company's investments. However, the coefficient before $PC \cdot Q_{i,t-1}$ is negative and significant at a 5% level. That implies that the presence of political connections decreases the investment efficiency of the firm. Such

relation may be caused by the pressure that government exerts on the company through the related entities. The state has great power in Russia and can force firms to act in its own interests.

**Table 8.** The influence of political connections on the investment efficiency

| Dependent variable | Investments |
|---|---|
| Independent variables | |
| $PC \bullet Q_{i,\,t-1}$ | -0.06060** |
| | (0.02861) |
| $Q_{i,\,t-1}$ | 0.11278*** |
| | (0.02309) |
| $CF_{i,\,t-1}$ | 0.01617 |
| | (0.05736) |
| $Size_{i,\,t-1}$ | 0.01384*** |
| | (0.00523) |
| $Lev_{i,\,t-1}$ | -0.16358*** |
| | (0.03478) |
| $Growth_{i,\,t-1}$ | 0.00004 |
| | (0.00004) |
| $PC_{i,\,t}$ | 0.01074 |
| | (0.03447) |
| Intercept | -0.07046 |
| | (0.06811) |
| N of obs | 551 |
| R-squared | 0.2420 |
| Wald chi2 | 53.52 |
| Prob > F | 0.0000 |

*** *and* ** indicate 1%, 5% significance levels respectively.

*Source*: authors' analysis.

On the other hand, companies can take this initiative on their own to get patronage from the state that will lead them to the advantageous positions. Overall, our *first hypothesis is not rejected* and the obtained results align with previous investigations. Furthermore, cash flow has a positive but insignificant effect on the amount of investments. Lagged value of cash flow does not have an impact on the level of a company's investments in the current period. Thus, financial constraints in the previous year have no valuable effect on the investment expenditures in the considered year. Size is positively related with investment expenditures, which can be explained by the fact that smaller companies invest more prudently because of lack

of available funds for investments while larger companies do not have such barriers and invest more [9, 10, 24]. Financial leverage has a negative and significant impact on the investment expenditures, as was predicted by several researchers [10, 11, 28]. For the most part, it is again related to the financial constraints that companies experience. Larger amounts of debt leads to higher interest payments and a lower ability to obtain additional financing. Moreover, we reveal a positive but insignificant influence of the revenue growth on the level of investments.

*In the second step*, we investigate the impact of the presence of a politically tied chief executive officer or chairman of the board on the investment efficiency of the company separately. The results are presented in the Table 9.

Even though both politically connected CEOs and chairmen have a negative influence on the efficiency of a company's investments, only a relation with the chief executive officer is significant. Such results demonstrate that either the government enforces the firm to act in its interests through the chairman or CEO, but the state achieve its goals only through the latter. Cases of empire building and retrieval of personal benefits may take place. The level of significant impact through the CEO may be caused by the fact that he has a power of decision making in the company, while a chairman of the board has the same limited responsibilities as other directors. In this situation, it is much harder for him to gain personal benefits, while a chief executive officer is more independent in his decisions. Thus, our *second hypothesis is partially confirmed* and the presence of politically tied CEO decreases the investment efficiency of the company.

What is more, the presence of a politically connected CEO is positively associated with the amount of a company's investment expenditures. A firm with a politically related top executive has easier access to external capital, faces less financial constraints and has a better performance overall, which supports its investments. However, the efficiency of such investments decreases, which aligns with the results obtained by Chen et al. (2017a) [21].

**Table 9.** The influence of a politically connected Chairman of the board or CEO on investment efficiency

| Dependent variable | Investments |
|---|---|
| Independent variables | |
| $PC_{chairmav} \bullet Q_{i,t-1}$ | -0.02477 |
| | (0.02371) |
| $PC_{CEO} \bullet Q_{i,t-1}$ | -0.12548*** |
| | (0.03692) |
| $Q_{i,\,t-1}$ | 0.10754*** |
| | (0.02150) |
| $CF_{i,\,t-1}$ | 0.01805 |
| | (0.05575) |

| | |
|---|---|
| $\text{Size}_{i,t-1}$ | 0.01030** |
| | (0.00530) |
| $\text{Lev}_{i,t-1}$ | -0.16379*** |
| | (0.03241) |
| $\text{Growth}_{i,t-1}$ | 0.00004 |
| | (0.00004) |
| $\text{PC}_{\text{chairman } i,t}$ | 0.00503 |
| | (0.03107) |
| $\text{PC}_{\text{CEO } i,t}$ | 0.08946* |
| | (0.05276) |
| Intercept | -0.02827 |
| | (0.06839) |
| N of obs | 551 |
| R-squared | 0.2664 |
| Wald chi2 | 85.71 |
| Prob > F | 0.0000 |

*\*\*\*, \*\*, \* indicate 1%, 5%, 10% significance levels respectively.*

*Source*: authors' analysis.

| | |
|---|---|
| $\text{Lev}_{i,t-1}$ | -0.16407*** |
| | (0.03184) |
| $\text{Growth}_{i,t-1}$ | 0.0000496 |
| | (0.0000428) |
| $\text{PC}_{\text{Fed } i,t}$ | 0.01392 |
| | (0.03547) |
| $\text{PC}_{\text{Reg } i,t}$ | 0.07169 |
| | (0.05080) |
| $\text{PC}_{\text{Mun } i,t}$ | 0.09793 |
| | (0.09943) |
| Intercept | -0.06432 |
| | (0.06673) |
| N of obs | 551 |
| R-squared | 0.2615 |
| Wald chi2 | 76.31 |
| Prob > F | 0.0000 |

*\*\*\*, \*\*, \* indicate 1%, 5%, 10% significance levels respectively.*

*Source*: authors' analysis.

In the *third step* we consider the federal, regional and municipal tiers of the Russian government. Each of these levels might have an individual influence on the amount of investment expenditures and their efficiency as well (Table 10).

**Table 10.** The influence of different levels of political connections on investment efficiency

| Dependent variable | Investments |
|---|---|
| Independent variables | |
| $\text{PC}_{\text{Fed}} \bullet Q_{i,t-1}$ | -0.04462* |
| | (0.02601) |
| $\text{PC}_{\text{Reg}} \bullet Q_{i,t-1}$ | -0.12358*** |
| | (0.04717) |
| $\text{PC}_{\text{Mun}} \bullet Q_{i,t-1}$ | -0.17206* |
| | (0.10245) |
| $Q_{i,t-1}$ | 0.11403*** |
| | (0.02247) |
| $\text{CF}_{i,t-1}$ | 0.01620 |
| | (0.05663) |
| $\text{Size}_{i,t-1}$ | 0.01318*** |
| | (0.00512) |

We confirmed our previous results about the negative relationship between political connections and the investment efficiency of the company. Importantly, this relation is maintained regardless of the level of related government officials. Coefficients of $\text{PC}_{\text{Fed}} \bullet Q_{i,t-1}$, $\text{PC}_{\text{Reg}} \bullet Q_{i,t-1}$ and $\text{PC}_{\text{Mun}} \bullet Q_{i,t-1}$ are all negative and significant. Thus, *consistent with our third hypothesis*, the existence of the political connections at different levels eliminates the efficiency of a company's investment decisions. The level of influence increases with the lowering of the government tier. Relations with the politicians at the federal level have a weaker impact on the investment efficiency compared to politicians at the regional level. Nevertheless, connections with government officials at the municipal level affect the efficiency of investments the most. The reason for that may be the fact that control over municipal politicians is more tenuous and it is easier to hide the fact of enforcement or the pursuing of personal benefits. Companies can achieve smaller goals in support of the local government with less effort in comparison with countrywide aims. As such, we determine that any kind of considered connections does not have an effect on the value of company's investments.

Further, we analyse the same division of government levels in the context of the related person from the company's side. We investigate whether political connections, through a chief executive officer or chairman of the board of directors have an influence on the company's investment efficiency.

As can be seen from Table 11 the presence of a politically related chief executive officer or chairman of the board of directors has a mixed influence on the value of company's investments. Only the existence of a politically connected chairman at the regional level is of consequence. A chairman of the board that is a current or former government official at the regional level has a negative impact on the amount of investments, while there is no effect on their efficiency. The presence of a politically connected chairman at the municipal level is positively related to the efficiency of a company's investments. This may be due to easy access to information and financing, or investment plans of the local government that help firms to make more prudent strategy plans and recommendations for investment decisions. On the other hand, politically connected CEOs at the municipal level do not have any influence on the investment efficiency of the company. At the same time, a chief executive officer's ties with the state at the federal and regional level correlate with a decline in the efficiency of the firm's investment decisions. In this case, we confirmed the results that were obtained earlier that government has an influence on the company mostly through its CEO. A consideration of the politically connected chief executive and chairman of the board separately gives us an understanding that the firm's investment efficiency is affected at any level of the state's representatives.

**Table 11.** The impact of CEO's/Chairman's political connections at different levels on company's investment efficiency

| Dependent variable | Investments | |
|---|---|---|
| **Impact of connected** | **CEO** | **Chairman** |
| Independent variables | | |
| $PC_{Fed} \cdot Q_{i,t-1}$ | -0.03151*** | -0.00553 |
| | (0.00939) | (0.00615) |
| $PC_{Reg} \cdot Q_{i,t-1}$ | -0.05760*** | 0.06661 |
| | (0.01723) | (0.04326) |
| $PC_{Mun} \cdot Q_{i,t-1}$ | -0.05349 | 0.27518** |
| | (0.08452) | (0.12842) |
| $Q_{i,t-1}$ | 0.08937*** | 0.08003*** |
| | (0.01294) | (0.02012) |
| $CF_{i,t-1}$ | 0.04357 | 0.00855 |
| | (0.05727) | (0.05850) |
| $Size_{i,t-1}$ | 0.00876* | 0.01231** |
| | (0.00508) | (0.00572) |
| $Lev_{i,t-1}$ | -0.13304*** | -0.12229*** |
| | (0.02666) | (0.03395) |
| $Growth_{i,t-1}$ | 0.00005[a] | 0.00004 |
| | (0.00004) | (0.00004) |
| $PC_{Fed\ i,t}$ | 0.02151 | -0.01424 |
| | (0.03014) | (0.02285) |
| $PC_{Reg\ i,t}$ | 0.03989 | -0.07638** |
| | (0.03807) | (0.03946) |
| $PC_{Mun\ i,t}$ | -0.03934 | -0.02149 |
| | (0.07863) | (0.06486) |
| Intercept | -0.00649 | -0.03838 |
| | (0.06246) | (0.07358) |
| N of obs | 543 | 543 |
| R-squared | 0.2790 | 0.2416 |
| Wald chi2 | 80.33 | 80.38 |
| Prob > F | 0.0000 | 0.0000 |

***, **, * and [a] indicate 1%, 5%, 10% and 15% significance levels respectively.

*Source*: authors' analysis.

To conclude, our *fourth hypothesis is partially confirmed*: a company's investment efficiency is eliminated in the presence of a politically connected CEO at the federal and municipal level. Our *last hypothesis,* however, *is rejected* because we did not find a significant negative influence of a politically tied chairman of the board of directors. However, we did discover a positive effect of such connections at the municipal level.

## Conclusion

We identified a negative influence of political connections on the investment efficiency of the company, on a basis of the existing empirical and theoretical literature. Despite the presence of various approaches to measuring political connections, the most common one focuses around the previous and current working experience of a firm's chief executive officer or chairman of the board of directors. Political connections have a mixed impact on the company's value and performance. However, the relation to investment efficiency is always negative. That may be caused by the fact that government has a strong influence over the politically related companies. Such an influence enforces a firm to deviate from its primary goal of value maximisation. Moreover, managers can act in the interests of the state in order to impress people in power and thereby attain more personal benefits.

This paper investigates the relationship between political connections and the investment efficiency of companies. Consistent with the obtained results the following conclusions can be made:

- on average, 29% of public companies are politically connected;
- the presence of political connections has a negative influence on a firm's investment efficiency (that is manifested in a form of underinvestment);

- a politically related chairman of the board has no impact on the efficiency of investment decisions while CEO is negatively related to it;
- political ties at the federal, regional and municipal levels decrease investment efficiency;
- the presence of a politically connected chief executive officer at the federal and regional level declines the efficiency of investments;
- the existence of a politically tied chairman of the board enhances company's investment efficiency.

Possible explanations of such outcomes are related to the strong position of the government in Russia and the opportunistic behaviour of a firm's top executives. Moreover, the top management of a company may focus on pursuing personal goals and obtaining additional benefits. It is also the case that empire-building motives of a CEO can lead to a decrease in investment efficiency. Besides, companies can use the relations with authorities at the municipal level in order to obtain a more advantageous position in the market.

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# Profitability and Executive Board Turnover in Russian Banks

**Aleksandra Kudryashova**
Leading Expert
ORCID
E-mail: kudryashovaae@economy.gov.ru

Department for Macroeconomic Analysis and Forecasting,
Ministry of Economic Development of the Russian Federation, Moscow, Russia


**Sergey Solntsev**
PhD in Labour Economics, Deputy Laboratory Head
ORCID
E-mail: ssolntsev@hse.ru
Laboratory for Labour Market Studies,
National Research University Higher School of Economics, Moscow, Russia

## Profitability and Executive Board Turnover in Russian Banks

# Abstract

This paper examines profitability as a factor in the turnover of poorly-performing executives in Russian banks, and how this acts as a mechanism of good corporate governance. It is intended to identify and measure the relative effects of different determinants on executive turnover, and thus highlight the practical sets of circumstances where turnover is most likely. A relatively unique perspective on the study of corporate governance, we intend to demonstrate an aspect of corporate accountability for commercial performance and shed light on high-level manifestations of reactive management practices.

In order to construct the most realistic and robust analysis, we will take into account the idiosyncracies of the companies and individuals involved in this process, and also consider the influence of external economic and social developments where appropriate. The empirical data in this research consists of 3251 observations concerning members of the executive boards of the 50 largest Russian banks from 2005 till 2014. Contemporary accounting data and other financial and economic indicators for these companies is weighed alongside personal information about the banks executives. Descriptive statistics and econometric approaches are utilised in order to parse the provided data and construct a comprehensive explanatory model. Our interpretative process includes the application of probit regressions and OLS panel regressions with fixed effects.

The results of this evaluation may be summarised as follows. We found out that a decrease in return on equity (ROE) and a decrease in return on assets (ROA) leads to a higher probability of executive turnover. Changes in the EBITDA to total assets ratio did not correlate with executive turnover probability. State-controlled banks showed a higher executive turnover rate. A greater turnover rate during pre-crisis 2006-2007 may have been caused by banks' demand for new executives, in their ambition to attain extensive growth. A higher turnover rate in 2014 could have been inspired by the economic sanctions again Russia, or influenced by a recent policy of the Central Bank of the Russian Federation aiming at a "clearance" of the banking system. Finally, it was demonstrated that personal characteristics of the members of the executive boards did not have a significant influence on executive turnover probability.

This study contributes to the limited literature in the area by analysing the determinants of turnover of members of the executive boards of banks depending on the profitability of banks and other characteristics. This is the first study of this kind, based on extensive Russian data which allows for the appraisal of the mechanisms of corporate governance. While a primary limitation of this study is that only large banks were included in the sample, the very presentation of these conclusions carries significant weight in terms of defining methodological parameters for future research. This area is ripe for further investigation. For example, it is immediately apparent that the results may be very different for small or medium-sized banks, let alone other kinds of financial and commercial institutions.

## Introduction

In any system of corporate governance, one of the primary tasks facing decision makers is the creation of mechanisms for the turnover of poorly performing executives. Such a mechanism should create incentives for executives to improve the performance of their companies, for the companies themselves to retain executives who perform well, and provide pathways to identify and dismiss those who are unsatisfactory. This study examines the extent to which these mechanisms operate in the Russian economy. This will be approached in terms of the influence of profitability indicators on the probability of bank executive turnover, i.e. whether executives are likely to be dismissed if the banks led by them show poor financial performance[1].

The 50 largest banks included in the sample play a major role in the Russian banking system, and account for about 85% of total banks' assets in the country. Compared with other sectors of the Russian economy, banks are characterised by greater transparency, which relates to legislative requirements for regular disclosure of the main financial indicators of banks' activities. Furthermore, according to Russian legislation[2], the management of a bank's operations is to be carried out by a collegial executive body (bank executive board) and a sole executive body (chairperson of the bank executive board). The composition of a bank's executive board is coordinated with the Central Bank of the Russian Federation and requires publication on a regular basis. This allows us to focus our research on the turnover of executives (senior managers) of the bank, i.e. chairmen and board members. The choice of the banking sector is also due to the special importance of banks in the economy, their role in raising funds, and their role in providing loans to companies and individuals. The availability of well-functioning banks is essential for the development of the economy as a whole.

As A. Muravyev has aptly noted, Russia is an excellent place to study the process of corporate governance, because the country has significant challenges in the field of effective management, has been constantly influenced by external shocks that have shaken the Russian economy, and also because of reforms in corporate governance it has witnessed in recent decades [1].

Corporate governance mechanisms in the Russian economy have been actively developed since 1999. At that stage, against the background of economic growth, companies began to actively attract new investors (including foreign ones), to allocate their shares and bonds, to sell major equity stakes and to sell whole companies to new owners. This was accompanied by the departure of owners from the operational management of companies, which also stimulated the development of more efficient corporate governance mechanisms. One of the reasons for the global financial crisis of 2007 was poor corporate governance in the largest banks [2]. This led to a decline in the Russian economy at the end of 2008 and posed new challenges for the management of banks. Another shock to the Russsian economy was the imposition of sanctions from the United States and the European Union in 2014, which complicated access to foreign sources of financing.

## Review of Empirical Research and Research Hypotheses

Most of the studies on the influence of profitability and other financial indicators on the change of company executives are based on data from foreign economies. These works can be divided into two large groups, namely those works that study the effect of poor profitability indicators on the probability of a change in performance, and studies that raise the opposite question, i.e. how executive turnover in a company affects profitability (a tertiary but significant aspect to this is the question as to whether newly appointed executives show a better performance than those they replace).

Let us start with the first group of works in which financial and other indicators are considered as a factor potentially influencing the executive turnover. In these works, the company's performance for the reporting period is used as an independent indicator, and whether an executive succeeds in retaining his position as a head of the company or loses it are treated as dependent ones. Thus, it is estimated how effective or ineffective corporate governance mechanisms are functioning with the aim of retaining "good" executives and dismissing "poorly performing" executives.

Warner et al. analysed 269 companies, the shares of which were traded on the New York and American Stock Exchange from 1963 to 1978 [4]. The results show that there is no unambiguous and unidirectional influence of the performance of a company's activity on the change of senior managers. The study of Fee and Hadlock (based on the data of companies on the S&P500 list for 1993–1998) has shown that the composition of the senior management changes with the deterioration of the company's profitability, and the CEO position is more sensitive to the deterioration of these factors [5]. Companies with good financial performance often retain a team of senior managers. The study of Tran et al., based on the data of 226 Vietnamese firms for 2009–2015, has revealed a negative relationship

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[1] Turnover of senior managers can be caused by a large number of reasons, and it is not always possible to obtain data on the real reason for an executive turnover. Among the studies on Russian data, the work of Rachinsky should be mentioned, in which data on the reasons for the executive turnover in Russian companies have been collected and analysed [3]. This study uses a different approach, which is to analyse the factors of the turnover of executives based on large samples, when they are used to estimate the probability of the turnover of an executive depending on the performance of the companies. A description of studies using a similar approach is given in the next section.

[2] The Federal Law "On Banks and Banking Activities" dated 02.12.1990 N 395-1-FZ.

between the indicators of a company's profitability and executive turnover [6]. For the CEO, this relationship was more significant compared to other senior managers.

Among the authors of the second group of works there is no consensus as to the direction of the influence of turnover of executive board members on profitability and other company indicators. There is a perception that turnovers have a positive impact on the company's performance, because new executives contribute their experience and bring new insights fresh ideas to the company. New managers are capable of instilling openness to innovation in companies and increasing their adaptability to environmental changes. They can bring innovations to the company's strategy, a willingness to modify production processes, fight its bottlenecks and achieve better results. Davidson and his co-authors analysed data on 367 key managers of companies that were on the Fortune 500 list in 1986, and noted a positive relationship [7].

On the other hand, Hannan and Freeman are confident that executive board turnover has more of a negative effect. Involving new members in an existing team is not a fast process, it can shake the integrity and efficiency of teamwork [8]. Based on data from 262 fast food restaurants, it was found that the change of executives leads to a decrease in profitability and a deterioration in other indicators of the company [9]. Another study showed that executive board turnover can adversely affect the return on assets (ROA) [10].

The study of Adams and Mehran raises the question of how corporate governance (in particular, the executive board turnover in case of poor performance) in banks differs from similar mechanisms in other sectors of the economy (primarily in industry) [11]. Adams and Mehran did not reveal a similar relationship. The result of their research on data on banking holdings in the United States in 1986–1996 showed a lack of relationship with the executive board turnover in banks in the event of poor financial results. In earlier work on a sample of 83 major US commercial banks for 1982–1987, a positive relationship was found between executive turnover probability and poor performance [12].

After 2008, there were works studying corporate governance in banks and the impact of the global financial crisis on it, which affected the banking system of each country to a varying extent. Beltratti and Stulz did not find confirmation that corporate governance is better in banks. It was found, rather, that boards of directors mostly acted for the benefit of investors before the crisis: the banks, shares of which grew rapidly in 2006, were hardest hit during the crisis [13]. The research on corporate governance in the largest US banks during the 2008 crisis showed that well-functioning corporate governance mechanisms in banks made it possible to derive large profits and smooth out the negative impact of crises [14]. Stepanova and Ivantsova, using data on European banks, revealed that small boards of directors showed better performance during the 2008 crisis [15].

There are relatively few works using data from domestic Russian companies. Goltsman, in her study of the chairman board turnover in large domestic companies, analysed the influence of financial indicators and the ownership structure [16]. Among financial indicators, profitability and change in revenue were significant in the model, and labour productivity was not. Also, the senior manager turnover probability is significantly influenced by a change of owner, and percentage of shares held was not significant. A higher share of state ownership was found to increase executive turnover probability. In the work of Muravyev, based on data on 419 Russian companies, a positive influence of the state as an owner on executive turnover was also found [17].

The relationship between financial performance and executive turnover was found by analysing case study data collected from 110 companies for the years 1997 to 2001 [3]. Research on panel data for the years 1997 to 2003 confirmed the negative relationship between the financial performance of the company and executive turnover [18]. An analysis of the ownership structure has shown that the greater the ownership share investors have in relation to the company, the more probable the turnover of executives. The positive effect of the quality of corporate governance on the results of evaluating the company's market value was confirmed by an empirical analysis of data for 100 Russian companies [19].

The work of Pentyuk and Solntsev on Russian companies that are listed on foreign exchanges in 2003–2013, showed that a poor return on assets value (ROA) increases the probability of a company's CEO turnover [20]. The decline in the company's market capitalisation was found to be an insignificant factor. In the crisis years, there was more activity in terms of replacement of company executives with crisis managers. Analysis of the structure and performance of corporate governance in traded Russian companies based on data collected from 1998 to 2014 was carried out in the article by Muravyev [1]. Empirical analysis is based on data from companies that have ever traded on the RTS and MICEX (Moscow Exchange since 2011). The data are taken from quarterly reports, and contain the full names of managers, their dates of birth, the ownership share and work experience for the previous five years. It was found that there was a reduction in the board size, the share of ownership held by managers, as well as an increase in the share of women and foreigners in the ranks of executives.

Based on the review of the research, the following three hypotheses were suggested.

*Hypothesis 1.* In case of the deterioration of a bank's profitability, the probability of senior management turnover increases.

This is the main hypothesis of this study, which makes it possible to assess how well corporate governance mechanisms work in Russian banks. Most of the earlier studies on Russian companies, a review of which is given above, support this hypothesis [16, 18, 20].

**Figure 1.** Observations by years



Legend:
- Number of Observations (Executive Board Members)
- Missing Observations (Banks- Right Axis)

*Hypothesis 2.* During crisis periods, turnover of executive board members in the banking sector increases.

This hypothesis is based on the data obtained concerning Russian traded companies, that during the crisis years there was a higher executive turnover rate [20].

*Hypothesis 3.* In banks with state participation, turnover rate is higher than in fully private banks with Russian or foreign control.

Although within traditional models, the state has traditionally been perceived as a passive owner, (which creates less incentive for bank management to improve financial performance), for countries with transitional economies the results have shown a high efficiency of banks with state participation [15]. They also show a higher executive turnover rate in companies with state participation [16, 17].

As part of this study, we analysed whether corporate governance mechanisms regarding turnover of poor-performance executives work, and how other factors influence executive turnover in Russian banks.

## Data and Descriptive Statistics

For the purpose of empirical analysis, we collected an original database on the executive turnover in Russian banks

and indicators of banks' profitability. For the sampling of banks, the rankings prepared by the *Expert RA* rating agency as of 01.10.2015 was used, in which the banks were arranged in descending order of assets[3]. A total of 747 banks were included in the rating, from which we selected 50 of the largest. Since the information on profitability and board members for three of the 50 largest banks (NCC Bank (ranked 9), Citibank (20), RosEvroBank (48)) was not available for the study period from 2005 to 2014, the sample was modified, with the addition of the banks next on the list (MSP Bank (ranked 51), CB DeltaCredit (52), and the Asia-Pacific Bank (53). A complete list of banks is given in the Appendix. Since the banking system in Russia is characterised by a high degree of bank concentration, the assets of the 50 largest banks included in our sample amount to 65 trillion ruble, i.e. about 85% of the assets of all banks in Russia (data for 2015).

For the sample of 50 banks obtained, information was collected for a ten-year period (2005-2014) on the management of the banks (board members) and on their main financial performance. Information about the bank board members was obtained from the annual and quarterly reports of banks posted on the websites of banks and in the Spark-Interfax system.

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[3] The bank ranking is available at http://raexpert.ru/ratings/bank/monthly/Oct2015/ (Verified on 01.03.2018).

**Table 1.** List of dependent and independent variables

| Variable | Description of Variable |
|---|---|
| **1. Dependent variables** | |
| Change | Whether the board member retains his position in a year: 0-retains, 1-leaves |
| Change_Share | Share of bank board members leaving their position in a year (used to test robustness in panel regressions) |
| **2. Independent variables** | |
| **2a. Bank profitability indicators** | |
| EBITDA/Tot_Assets | Bank earnings before interest expenses, taxes, and amortisation (EBITDA), to the bank total assets ratio |
| ΔEBITDA Tot_Assets | Change in EBITDA/Tot_Assets compared to last year |
| ROA | Return on Bank Assets |
| ΔROA | Change in ROA compared to last year |
| ROE | Return on Bank Equity |
| ΔROE | Change in ROE compared with last year |
| **2b. Financial indicators of the bank** | |
| C_Equity/Tot_Assets | Common Equity/Total Assets, financial independence ratio shows the share of assets secured by the bank's own funds. |
| ΔC_Equity/Tot_Assets | Change in C_Equity / Tot_Assets compared with last year |
| Loans/Deposits | Loan-to-deposit ratio. |
| ΔLoans/Deposits | Change in Loans/Deposits compared with last year |
| Tot_Assets | Total bank assets |
| ΔTot_Assets | Change in Tot_Assets compared to last year |
| **2c. Characteristics of the members of the bank executive board** | |
| Chairperson | Dummy variable, equal to 1 for the chairperson of the board and 0 for other members |
| Age | Age of a board member (years) |
| Experience | Work experience on the bank executive board (years) |
| Gender | Gender of a board member: 0 - for women, 1 - for men |
| Nation | Dummy variable for board member citizenship: 0 - foreigner, 1 - citizen of the Russian Federation. |
| Stocks | Percentage of shares of the bank held by the member of the board (%) |
| **2d. Characteristics of the bank** | |
| Board_size | Number of members on the bank executive board |
| Own | Bank's form of ownership: 0 – Russian private bank, 1 – state-controlled bank, 2 – foreign-controlled bank[I] |

[I] The bank was classified as a foreign bank, if it was under the control or significant influence of persons and organisations registered outside the Russian Federation, mainly Russian subsidiaries of foreign banks. The bank was classified as a state bank if the share of federal or regional authorities (directly or indirectly) exceeded 50%. The data was obtained from the website of the Central Bank of the Russian Federation in the section "Reference book on credit organisations".

**Table 2.** Descriptive statistics of dependent and independent variables

| | Number of observations | Mean | Standard deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| Change | 3,203 | 0.164 | 0.369 | 0 | 1 |
| Change_Share | 3,186 | 0.165 | 0.198 | 0 | 1 |
| EBITDA/ Tot_Assets | 1,895 | 0.024 | 0.019 | -0.017 | 0.059 |
| ΔEBITDA/Tot_Assets | 1,657 | -0.015 | 0.832 | -1.755 | 1.969 |
| ROA | 2,189 | 0.011 | 0.013 | -0.021 | 0.034 |
| ΔROA | 1,960 | -0.239 | 1.787 | -5.883 | 3.191 |
| ROE | 2,174 | 0.107 | 0.110 | -0.140 | 0.306 |
| ΔROE | 1,950 | -0.174 | 1.585 | -4.890 | 3.115 |
| C_Equity/ Tot_Assets | 2,584 | 10.693 | 3.266 | 5.171 | 18.175 |
| ΔC_Equity/Tot_Assets | 2,243 | -0.030 | 0.221 | -0.423 | 0.447 |
| Loans/Deposits | 2,382 | 121.825 | 35.817 | 80.662 | 221.044 |
| Δ Loans/Deposits | 2,002 | 0.010 | 0.138 | -0.254 | 0.292 |
| Tot_Assets | 2,590 | 974,342 | 1,718,924 | 52,688 | 6,736,482 |
| ΔTot_Assets | 2,250 | 0.281 | 0,257 | -0.082 | 0.901 |
| Age | 3,174 | 44.18 | 8,016 | 25 | 72 |
| Experience | 3,225 | 4.094 | 3,894 | 0 | 23 |
| Gender | 3,225 | 0.779 | 0.415 | 0 | 1 |
| Nation | 3,224 | 0.968 | 0.176 | 0 | 1 |
| Stocks | 3,205 | 0.445 | 2,858 | 0 | 38.37 |
| Board_size | 3,251 | 9.366 | 3,981 | 2 | 23 |

The financial indicators of the banks were collected from Ruslana (Bureau van Dijk), Bloomberg and Thomson Reuters databases.

The sample amounted to 3251 observations[4], and the observations by year are presented in Fig. 1. It is worth noting that in the first two years of observations (2005 and 2006) there is a fairly large number of gaps in the sample which limits the representativeness of the results for this period. In later years, the number of gaps has been reduced, while the number of observations has been increased.

To verify our hypotheses, a probit regression is used in the work within which the probability of the change of a bank board member (Change) is assessed depending on changes in bank profitability indicators (Profit), other financial indicators (FinIndex), characteristics of board members (Personal), and bank characteristics (Bank), as well as the year of observation (Year):

$$\text{Probit}\left(\text{Change}_{i(t+1)}\right) = \alpha_1 + \alpha_2 \cdot \Delta\text{Profit}_{it} +$$
$$+\alpha_3 \cdot \Delta\text{FinIndex}_{it} + \alpha_4 \cdot \text{Pesonal}_{it} +$$
$$+\alpha_5 \cdot \text{Bank}_{it} + \alpha_6 \cdot \text{Year}. \qquad (1)$$

Since, within this regression, we consider the changing (or retention) of a board member depending on the performance of the bank's activities, the dependent variable is used over the year t+1, and the independent variables are used over the year t. EBITDA/Total_Assets, ROA, ROE were used as indicators of bank profitability. We used Common Equity/Total Assets, Loans/Deposits, Total

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[4] One observation is a board member who held his position as of the end of the calendar year.

Assets as benchmark financial indicators. The characteristics of board members included gender, citizenship, work experience on the board, the position of chairman of the bank, and the share of the bank's ownership. Variables, related to the number of the bank board members and the bank's ownership form were also included. Table 1 shows description of the dependent and independent variables that were used in our analysis of the determinants of turnover of the members of executive boards in Russian banks.

The profitability of banks was assessed by three standard indicators: EBITDA/Tot_Assets, ROA, ROE, which make it possible to view the efficiency of the bank from different perspectives. Return on assets (ROA) characterises the capability of a bank to generate profits. Return on equity (ROE) shows how effectively the capital is used (not the total capital, but the part held by the owners of the bank). The EBITDA-to-assets ratio shows how effectively a bank generates a profit (before interest expenses, taxes, depreciation and amortisation). The financial independence ratio (C_Equity/Tot_Assets) shows the share of assets secured by the bank's own funds. It can be assumed that with the deterioration of this indicator, the turnover probability for

board members increases as the organisation's financial sustainability decreases. The size of the bank's total assets (Tot_Assets) indicates the position held by the bank in the market. The loan-to-deposit ratio (Loans/Deposits) is the most important indicator of long-term liquidity of the bank. The high value of this indicator indicates the growing dependence of the bank on foreign markets and sources of financing, which should result in an increase in the turnover probability for the executive board member of the bank. However, the low value of this indicator also demonstrates the inefficient use of funds and receiving less profit by the bank.

Since there is a large variability in values of indicators of profitability of banks and financial indicators, in order to control outliers the winsorizing of 5% of the minimum and 5% of the maximum values was made. Table 2 shows descriptive statistics on the variables used in the work.

During the period under review, 16.5% of the board members were changed annually (Table 2). Turnover peaks accounted for 2006–2007, and the same effect took place in 2014 (Figure 2). Higher turnover rates were recorded in state and foreign banks in the first half of the period under review.

**Figure 2.** Turnover of executive board members by years and the form of ownership of the bank
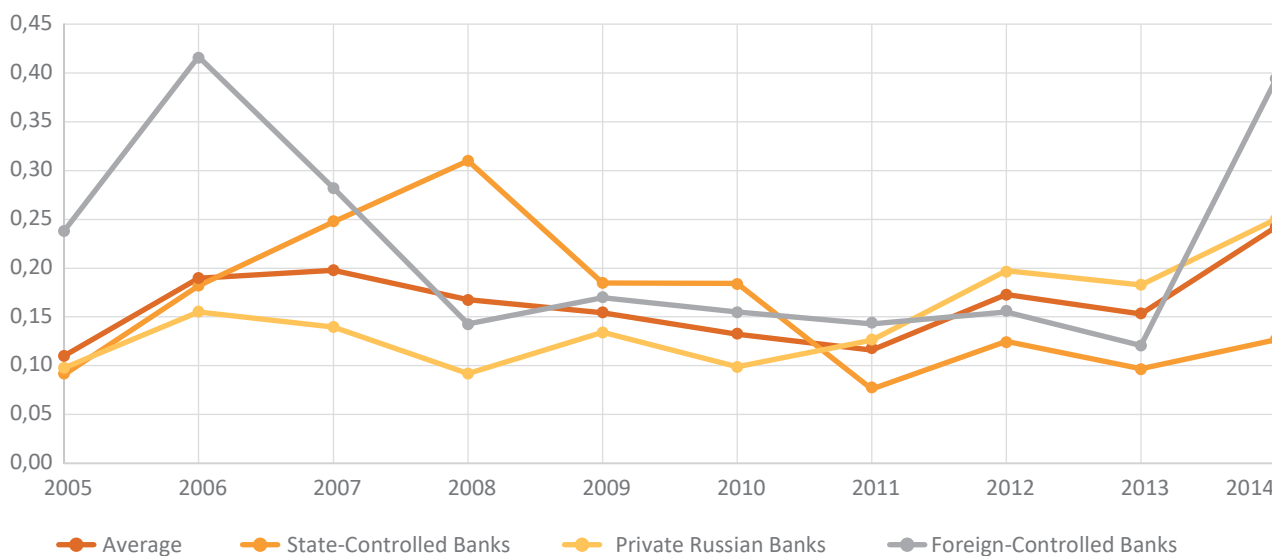


With regard to the individual characteristics of the board members, it can be noted that the average age is 44.2 years (minimum – 25 years, maximum – 72 years) (Table 2), which generally correlates with the data in the study by Muravyev [1]. Work experience on the bank executive board is in the range of 0 to 23 years, but on average, it amounts to 3–4 years on the board. The percentage of shares held is small and on average is around 0.5%, and the majority of board members do not own shares in the bank managed by them.

The number of members on the board changes from year to year, from two people in some banks, up to 23 in others (Figure 3). On average, the number of executive board

members was about 9–10 persons. We can note a slight leap in the number of the board members in 2008, which is combined with an increase in the turnover rate in 2007 (Figure 3). Figure 4 shows the proportion of women and men by years. The proportion of female executive board members was 21.8% in the sample, varying slightly during the period under review within the range of 19–23%.

The same indicator for 212 major US banks for the years 1997–2004 was 5.9% [21], which is significantly lower than the observed indicator. In our sample, the highest proportion of women was observed in banks with foreign participation, at 26%. In private Russian banks, by contrast, the figure is 23%, and in state-controlled banks, 17%.

**Figure 3.** Number of executive board members of the bank (minimum, maximum, mean)



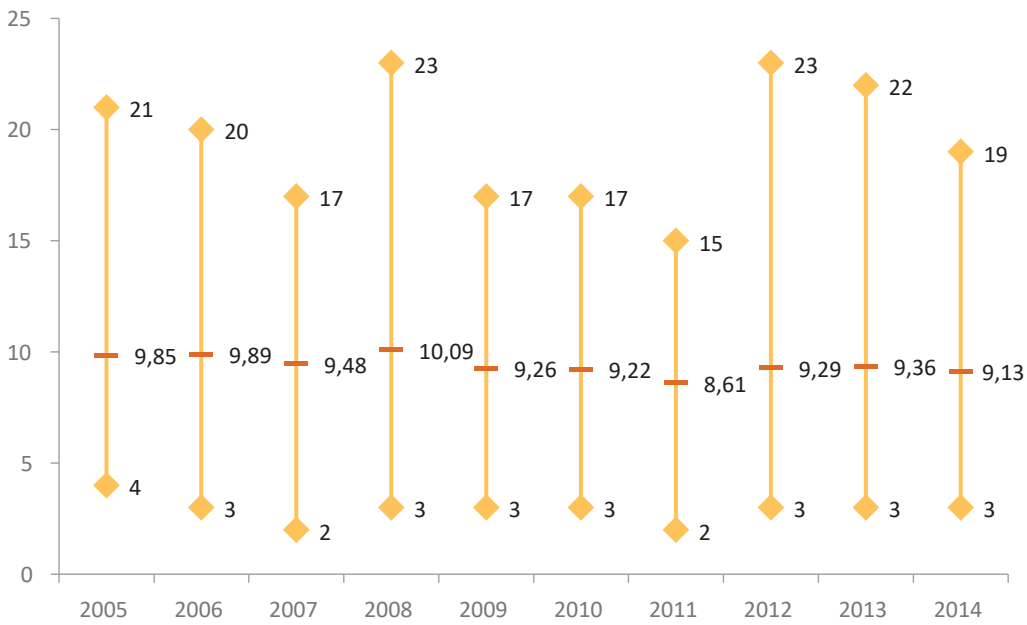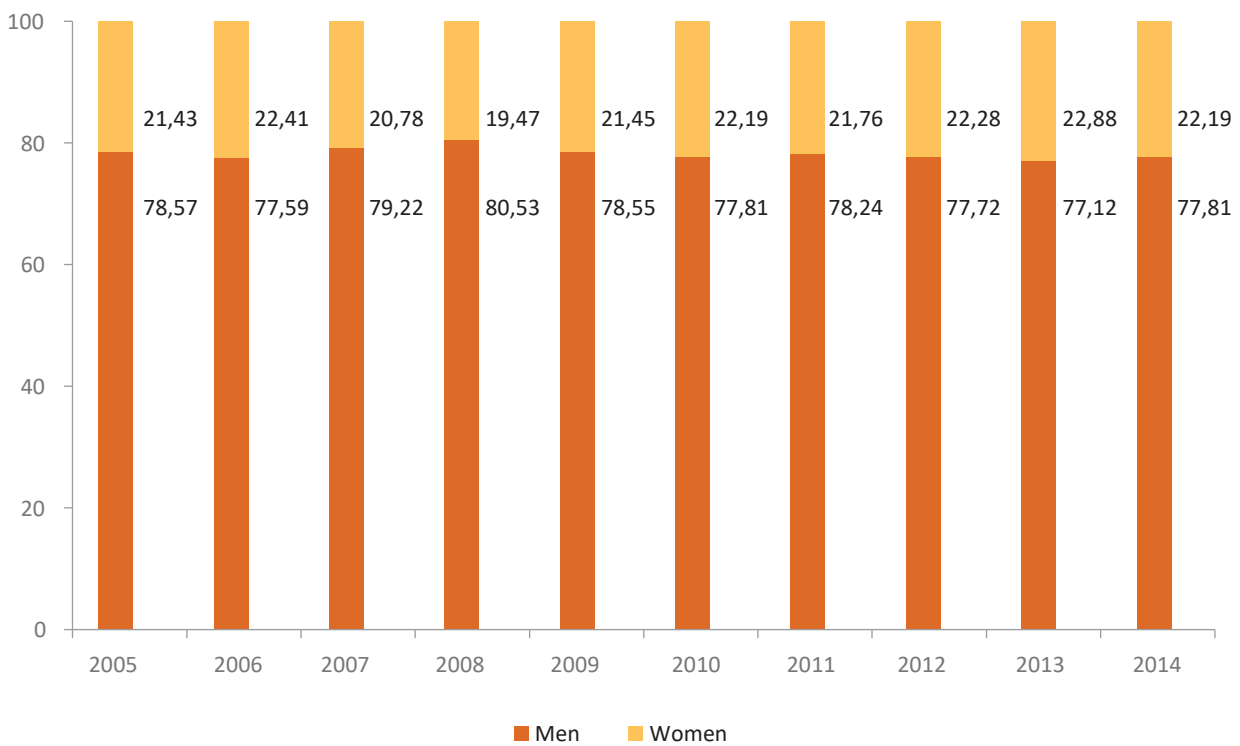**Figure 4.** Gender composition of executive board



■ Men  ■ Women

Analysis of the mean values of profitability indicators for 2005–2014 (Figure 5) shows that their dynamics were quite similar. There was a significant drop in performance in 2008, when the economy suffered a decline, followed by stabilisation and a slight increase in the following years and also in 2014 when problems emerged in the economy.

**Figure 5.** Dynamics of mean values of EBITDA/Tot_Assets, ROA, ROE
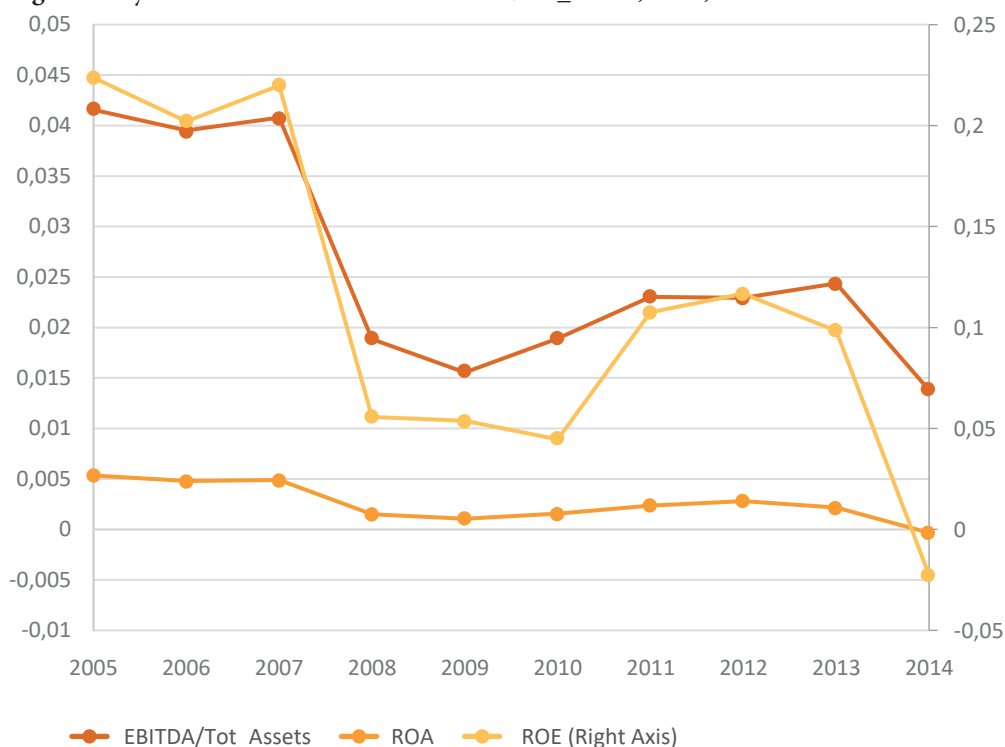


## Econometric Analysis

To verify the hypotheses made, three basic specifications of probit models were evaluated, in which the change of a bank board member (Change) acts as a dependent variable, and the change in bank profitability indicators, the characteristics of a board member, and the year of observation (Table 3) serve as independent variables. The first specification uses ΔEBITDA/Tot_Assets, specification (2) – ΔROA, specification (3) – ΔROE. Three variables characterising profitability are added in turn to avoid the effect of correlation. For profitability indicators, relative indicators have been included, which better show the performance of the bank executive board. This indicator also makes it possible to compare disparate banks among themselves. Also, three financial variables are used that characterise various aspects of bank activities (ΔC_Equity / Tot_Assets, ΔLoans / Deposits, ΔTot_Assets), which were also included in a relative form. The age variables (Age), experience in the board (Experience), year of observation (Year), bank ownership forms (Own) were converted to categorical. One of the values was selected as the baseline, and the others were included into the regression as dummy variables. The variables of gender (Gender), nationality (Nation), bank stocks holding (Stocks), and holding of the position of a board chairman (Chairman) were added to the regression in the form of dummy variables. The board size variable was included into the regression in the form of a logarithm (Board size).

**Table 3.** Determinants of turnover of executive board members: probit regressions

| dependant variable - CHANGE | (1) | (2) | (3) |
|---|---|---|---|
| ΔEBITDA/ TOT_ASSETs | -0.003 (0.013) | | |
| ΔROA | | -0.014** (0.005) | |
| ΔROE | | | -0.012** (0.006) |
| ΔC_Equity/Tot_Assets | -0.003 (0.004) | -0.001 (0.004) | -0.001 (0.004) |

| dependant variable - CHANGE | (1) | (2) | (3) |
|---|---|---|---|
| ΔLoans/Deposits | 0.000 | 0.001* | 0.001* |
| | (0.000) | (0.000) | (0.000) |
| ΔTot_Assets | 0.000 | 0.000 | 0.000 |
| | (0.000) | (0.000) | (0.000) |
| Board_Size | -0.064* | -0.027 | -0.026 |
| | (0.035) | (0.029) | (0.029) |
| Age  (35 or less) | | | |
| 36–40 | -0.051 | -0.030 | -0.030 |
| | (0.043) | (0.037) | (0.037) |
| 41–45 | -0.077* | -0.051 | -0.051 |
| | (0.043) | (0.037) | (0.037) |
| 46–51 | -0.060 | -0.043 | -0.043 |
| | (0.044) | (0.038) | (0.038) |
| 52 or more | -0.007 | 0.006 | 0.007 |
| | (0.047) | (0.041) | (0.041) |
| Gender | -0.007 | 0.006 | 0.007 |
| | (0.047) | (0.041) | (0.041) |
| EXPERIENCE (0–0.9) | | | |
| 1–1.9 | 0.016 | -0.001 | -0.001 |
| | (0.033) | (0.031) | (0.031) |
| 2–3.9 | -0.002 | -0.004 | -0.003 |
| | (0.029) | (0.028) | (0.028) |
| 4–6.9 | 0.036 | 0.023 | 0.023 |
| | (0.032) | (0.031) | (0.031) |
| 7 or more | 0.084** | 0.051 | 0.052 |
| | (0.035) | (0.032) | (0.032) |
| Own (0 – PRIVATE Russian) | | | |
| 1 (STATE-controlled) | 0.005 | -0.006 | -0.004 |
| | (0.029) | (0.026) | (0.026) |
| 2 (Foreign-controlled) | 0.071 | 0.051 | 0.053 |
| | (0.043) | (0.036) | (0.036) |
| Year (2011) | | | |
| 2006 | 0.152*** | 0.151*** | 0.151*** |
| | (0.057) | (0.057) | (0.058) |
| 2007 | 0.144*** | 0.107** | 0.106** |
| | (0.051) | (0.044) | (0.044) |

| dependant variable - CHANGE | (1) | (2) | (3) |
|---|---|---|---|
| 2008 | 0.089** | 0.070* | 0.067* |
| | (0.042) | (0.038) | (0.038) |
| 2009 | 0.056 | 0.033 | 0.035 |
| | (0.036) | (0.034) | (0.034) |
| 2010 | 0.102** | 0.072** | 0.071** |
| | (0.040) | (0.036) | (0.036) |
| 2012 | 0.077** | 0.067** | 0.064** |
| | (0.033) | (0.031) | (0.031) |
| 2013 | 0.026 | 0.023 | 0.022 |
| | (0.029) | (0.028) | (0.028) |
| 2014 | 0.077** | 0.083** | 0.087*** |
| | (0.033) | (0.032) | (0.033) |
| Chairperson | -0.046 | -0.014 | -0.014 |
| | (0.029) | (0.028) | (0.028) |
| Stocks | -0.028 | -0.016 | -0.016 |
| | (0.024) | (0.024) | (0.024) |
| Nation | -0.118 | -0.153** | -0.152** |
| | (0.077) | (0.070) | (0.070) |
| _cons | -0.241 | -0.654 | -0.648 |
| | (0.535) | (0.465) | (0.464) |
| Pseudo $R^2$ | 0.0487 | 0.0461 | 0.0447 |
| Prob > $chi^2$ | 0.0002 | 0.0001 | 0.0001 |
| N | 1,429 | 1,630 | 1,630 |

Notes: significance level: *** – 1%, ** – 5%, * – 10%. The table shows the marginal effects – the marginal effects relative to the baseline values are given for categorical variables (the baseline values are shown in parentheses).

As a result of the assessment, the ΔROA and ΔROE variables turned out to be negative (specifications (2) and (3)). That is, with a deterioration in the return on equity value the probability of being replaced increases. This result is quite logical and can be explained by the fact that with the deterioration of the bank's profitability indicators, investors and the board of directors decide to replace pour-performance bank managers. The ΔEBITDA/Tot_Assets variable was not significant (specification (1)). Thus, we can say that hypothesis 1 is confirmed with regard to ROA and ROE.

In two of the three specifications, the board size logarithm (Board_Size) turned out to be significant, which indicated that the greater the number of people on the board, the less probability of a particular senior manager change. In all specifications, only the third age group was significant, which indicated that compared with young managers under the age of 35, only managers aged 41–45 years are

less likely to be dismissed. This result is logical and can be explained by the fact that in this age group, managers not only have sufficient experience in solving major problems, but are also active in introducing innovations.

The experience variable in this bank (Experience) was significant only for experience over 7 years (specification (1)). The gender of the manager (Gender), the fact of stocks holding (Stocks) and holding of the position of the board chairperson (Chairperson) were insignificant in all specifications. As for the members of the board, foreigners (Nation) were significantly more likely to lose their position.

As we have seen in the descriptive analysis (Figure 2), 2006, 2007, 2008 and 2014 were significant. In these years there was a higher probability of a board member change, indicating that hypothesis 2 is not confirmed in terms of the 2008–2009 crisis years, but is confirmed regarding 2014.

The significance of the ratios regarding the form of ownership of the bank (Own) should be noted. In the first specification, we found that in banks with state participation, turnover rate is higher than in Russian private banks, which confirms hypothesis 1. Specifications (2) and (3) indicate that turnover is increasingly common in foreign-controlled banks compared with private Russian banks.

Further, panel regressions were evaluated. The use of panel data makes it possible to take into account the heterogeneity in banks, the specifics of their operation, and the corporate governance at play in them, and variables which were not taken into account in the control variables in the previous model. The share of the bank board members change (Change_Share) was used as a dependent variable, the board size logarithm (*Board_Size*), the change in profitability indicators (ΔEBITDA/Tot_Assets, ΔROA, ΔROE), the change in financial indicators (Δ C_Equity/Tot_Assets, ΔLoans/Deposits, ΔTot_Assets), the year of

observation (Year), and the variables of share of women (Woman_Share), and the share of foreigners on the board (Foreign_Share) made for panel regression were used as independent variables. Similar to specifications (1)–(3), profitability indicators are added to the panel regression separately (4)–(6). The specification equation (4) is given below; in the specifications (5), (6), instead of ΔEBITDA/Tot_Assets, two other variables characterising profitability (ΔROA, ΔROE) are used:

$$Change\_Share_{i(t+1)} = \alpha_1 + \alpha_2 * Board\ size_{it} +$$
$$+\alpha_3 \cdot \Delta EBITDA / Tot\_Assets_{it} +$$
$$+\alpha_5 \cdot Woman\_Share_{it} + \alpha_6 \cdot Foreign\_Share_{it}. \quad (2)$$

As part of the study, OLS panel regression with fixed and random effects were calculated. Regressions with fixed effects have been selected, based on the Hausman test and are presented in Table 4.

**Table 4.** Determinants of turnover of executive board members: OLS panel regressions

| DEPENDANT VARIABLE - Change_Share | (4) | (5) | (6) |
|---|---|---|---|
| ΔEBITDA/ Tot_Assets | -0.001 (0.020) | | |
| ΔROA | | -0.021** (0.009) | |
| ΔROE | | | -0.019* (0.010) |
| ΔC_Equity/Tot_Assets | -0.012 (0.009) | -0.005 (0.008) | -0.006 (0.008) |
| ΔLoans/Deposits | 0.001 (0.001) | 0.001 (0.001) | 0.001 (0.001) |
| ΔTot_Assets | -0.000 (0.000) | -0.000 (0.000) | -0.000 (0.000) |
| Board_Size | 0.281** (0.115) | 0.295*** (0.092) | 0.292*** (0.093) |
| Woman_Share | -0.178 (0.202) | -0.270 (0.178) | -0.258 (0.179) |
| Foreign_Share | 0.071 (0.337) | -0.060 (0.263) | -0.070 (0.264) |
| Year (2011) | | | |
| 2006 | 0.108 (0.102) | 0.074 (0.097) | 0.074 (0.097) |
| 2007 | 0.163* (0.084) | 0.079 (0.070) | 0.077 (0.070) |

| DEPENDANT VARIABLE - Change_Share | (4) | (5) | (6) |
|---|---|---|---|
| 2008 | 0.080 (0.074) | 0.037 (0.067) | 0.032 (0.067) |
| 2009 | 0.101 (0.067) | 0.037 (0.061) | 0.039 (0.061) |
| 2010 | 0.116* (0.066) | 0.078 (0.056) | 0.075 (0.056) |
| 2012 | 0.066 (0.055) | 0.056 (0.049) | 0.053 (0.049) |
| 2013 | 0.030 (0.056) | 0.032 (0.049) | 0.030 (0.050) |
| 2014 | 0.109* (0.061) | 0.109** (0.054) | 0.112** (0.055) |
| _cons | -0.514** (0.279) | -0.472*** (0.231) | -0.458*** (0.232) |
| N | 148 | 181 | 181 |

Notes: significance level: *** – 1%, ** – 5%, * – 10%. The table shows the marginal effects, the marginal effects relative to the baseline values are given for categorical variables (the baseline values are shown in parentheses).

In general, previously obtained results have been confirmed. Among the dummy variables, the years of observation were significant for 2014 (in all three specifications) and 2007 (in specification (4)). The Board_Size variable was significant with a positive sign, i.e. with an increase in the number of board members in a particular bank, the probability of a board member change increases, and with a decrease in the number of board members, the turnover probability decreases. It is expected that the sign before Board_Size has changed as compared with the probit-regressions, since Specifications (1)–(3) (Table 3) compared various banks with different numbers of board members, and Specifications (4)–(4) (Table 4) compared the changes in the number of board members in one bank. The share of foreigners (Foreign_Share) and the share of women (Woman_Share) were not significant.

## Conclusion

This work examined the senior management turnover in the banking sector and evaluated the effectiveness of corporate governance mechanisms in the largest banks in Russia. Based on the original data, three hypotheses were tested using econometric regressions. The dependent variable was the change of the executive board member, and the regressors were the bank profitability indicators (EBITDA/Tot_Assets, ROA and ROE), other characteristics of banks, personal data of board members, the years of observation.

Our analysis has revealed that for two of the three financial indicators a significant effect was found on the probability of a board member change: a decrease in ROE and ROA significantly increases the probability of a change of bank board member, while a change in EBITDA/ Tot_Assets does not have a significant effect on the turnover probability. In general, a weak negative relationship corresponds to earlier work on executive turnover in Russian companies [3, 18, 20].

The higher managerial turnover rate in state-controlled banks confirmed the results obtained on the basis of research on data from the 1990s [16, 17, 20].

Our hypothesis regarding higher management turnover rates during the crisis did not find its confirmation for the crisis of 2008. This is significant, as higher rates of turnover of executive board members were observed during the period of active growth of the economy (2006, 2007) and banks actively involved new managers who were to provide active growth of banks. As such, this result contradicts the conclusion made in the study on Russian companies traded on foreign exchanges [20].

An increased frequency of turnover of executive board members in 2014 can be associated both with the imposition of economic sanctions in 2014, which could require the involvement of managers who can work both in the environment of restricted foreign sources of funding. Further, it cannot be disregarded that this increased frequency is also related to the arrival of a new team led by E.S. Nabiullina and the declared policy of bank's system "clearance" in Russia.

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## Appendix

### Ranks of banks (01.10.2015)

| № | Bank name | Assets, bln rubles |
|---|-----------|--------------------|
| 1 | PJSC Sberbank | 22 362.4 |
| 2 | VTB Bank (PJSC) | 8732.1 |
| 3 | GPB Bank (JSC) | 4794.8 |
| 4 | PJSC Bank Otkritie Financial Corporation | 2986.5 |
| 5 | VTB 24 (PJSC) | 2774.1 |
| 6 | JSC Russian Agricultural Bank | 2445.6 |
| 7 | JSC ALFA-BANK | 2133.9 |
| 8 | Bank of Moscow OJSC | 1836.0 |
| 10 | JSC UniCredit Bank | 1368.2 |
| 11 | PJSC Promsvyazbank | 1237.9 |
| 12 | OJSC MOSCOW CREDIT BANK | 1007.5 |
| 13 | PJSC ROSBANK | 892.3 |
| 14 | JSC Raiffeisenbank | 879.2 |
| 15 | PJSC BINBANK | 698.0 |
| 16 | PJSC Khanty-Mansiysk Bank Otkritie | 609.9 |
| 17 | PJSC "Saint-Petersburg" Bank | 536.9 |
| 18 | JSC "AB» RUSSIA" | 523.9 |
| 19 | PJSC "AK BARS" BANK | 523.9 |
| 21 | JSC Bank Russian Standard | 487.1 |
| 22 | PJSC Sovcombank | 443.2 |
| 23 | ING BANK (EURASIA) JSC | 388.8 |
| 24 | PJSC JSCB Svyaz-Bank | 382.5 |
| 25 | PJSC MOSOBLBANK | 370.9 |
| 26 | JSC Nordea Bank | 369.2 |
| 27 | PJSC BANK URALSIB | 344.6 |
| 28 | PJSC CB UBRD | 342.3 |
| 29 | PJSC MDM Bank | 338.3 |
| 30 | Bank TRUST (PJSC) | 306.1 |
| 31 | ROST BANK JSC | 301.0 |
| 32 | SMP Bank JSC | 299.7 |
| 33 | JSC JSCB NOVIKOMBANK | 295.8 |
| 34 | GLOBEXBANK JSC | 294.9 |

| № | Bank name | Assets, bln rubles |
|---|-----------|--------------------|
| 35 | PJSC BANK UGRA | 293.1 |
| 36 | PJSC Bank ZENIT | 291.7 |
| 37 | Vneshprombank LLC | 285.8 |
| 38 | HCF Bank LLC | 274.3 |
| 39 | JSCB Absolut Bank (PJSC) | 259.3 |
| 40 | AKB RUSSIAN CAPITAL (PJSC) | 256.7 |
| 41 | PJSC MinBank | 225.0 |
| 42 | Vozrozhdenie Bank (PJSC) | 212.9 |
| 43 | PJSC CB Vostochny | 191.0 |
| 44 | OJSC "Joint-Stock Investment Bank "Tatfondbank" | 184.8 |
| 45 | TKB BANK PJSC | 181.5 |
| 46 | AKB PERESVET (JSC) | 166.5 |
| 47 | PJSC MTS-Bank | 165.3 |
| 49 | JSC OTP Bank | 149.9 |
| 50 | JSC Credit Europe Bank | 143.6 |
| 51 | JSC MSP Bank | 143.0 |
| 52 | JSC CB DeltaCredit | 139.9 |
| 53 | Asia-Pacific Bank» (PJSC) | 138.4 |

# Роль нефинансовых ресурсов в повышении капитализации страховой компании

**Людмила Ивановна Цветкова**
кандидат экономических наук, доцент
ORCID
E-mail: tsvetkova1501@gmail.com

Кафедра управления рисками и страхования, Московский государственный институт международных отношений МИД РФ, Москва, Россия

## Роль нефинансовых ресурсов в повышении капитализации страховой компании

## Аннотация

В современных условиях потребность в росте капитализации страховой компании удовлетворяется в результате обеспечения достаточности капитала для поддержания страховой деятельности компании на определенном уровне и адекватности качества и структуры капитала. Она определяется с учетом номенклатуры предлагаемых компанией страховых продуктов и услуг, степени рисков, связанных со страховой и инвестиционной деятельностью компании, перспектив ее роста и др.

Целью статьи является проведение концептуального исследования по определению роли и места нефинансовых ресурсов в капитализации страховой компании на основе гипотезы, согласно которой превращение нефинансовых ресурсов в капитал происходит путем их объединения с предпринимательским ресурсом, его носителем выступает либо сам сотрудник, либо управляющий его трудом менеджер.

В ходе реализации исследования были использованы следующие методы: метод дедукции при схематическом построении архитектуры человеческих ресурсов и составляющих инструментария конкурентоспособности компании; метод индукции при определении элементов человеческого капитала; абстрагирование в процессе выявления трансформации нефинансовых ресурсов в финансовый капитал; анализ теоретических подходов в международном опыте страховой бизнес-практики.

Поиск структуры капитала страховой компании осуществлялся на основе ресурсной концепции конкурентоспособности и рассмотрения стейкхолдеров как поставщиков ресурсов компании, суммарное множество которых в конечном итоге воплощается в форму финансового капитала. Привлекаемые страховщиком ресурсы имеют ценность, поскольку могут быть трансформированы в форму финансовых активов (основных и оборотных), и в этой форме содействовать обеспечению интересов тех его стейкхолдеров, которые поставляют компании ресурсы в финансовой форме: страхователей и страховщиков. Эффективность структуры нефинансового капитала компании основана на ее способности порождать или трансформироваться в финансовый капитал.

В результате исследования были определены наступление стоимостной синергии как комбинации всех ресурсов страховой компании, а также необходимость внесения страховыми компаниями персонифицированных знаний в корпоративную стратегию как полноценного структурного элемента, через который развивается и пополняется инновационный капитал.

Результаты исследования могут быть внедрены в страховых компаниях как новый управленческий подход повышения эффективности деятельности и стратегической стабильности фирмы.

Ценность статьи заключается в разработке универсального практического инструментария по повышению капитализации независимо от рыночной специализации страховой компании.

**Ключевые слова:** ресурсный подход, нефинансовые ресурсы, инновации, предпринимательский капитал
**JEL classification:** G34, M14, O16

# Введение

Потребность в росте капитализации страховой компании обусловлена двумя аспектами: достаточностью капитала для поддержания страховой деятельности компании на определенном уровне и адекватностью качества и структуры капитала.

Потребность в росте капитала учитывает номенклатуру предлагаемых компанией страховых продуктов и услуг, степень рисков, связанных со страховой и инвестиционной деятельностью компании, перспективы ее роста, необходимость финансовой поддержки дочерних компаний и выплаты дивидендов, объем финансовой задолженности, адекватность перестраховочных и общих резервов, а также наличие капитала для нейтрализации воздействия непредвиденных событий [1].

Устойчивость рынка страховых услуг во многом зависит от платежеспособности компаний, поэтому уход игроков из-за недостаточного капитала можно признать инструментом улучшения рыночной конъюнктуры, увеличивающим долю компаний, не испытывающих сложностей с исполнением обязательств перед клиентами только при условии, если иных инструментов обеспечения платежеспособности в их распоряжении просто нет.

Специфика сектора финансовых услуг заключается в том, что взаимоотношения между клиентами и компанией во многом зависят от уровня доверия, подрыв которого отражается на емкости рыночной ниши (потребитель отказывается от услуги из-за недоверия и не приносит деньги на рынок). Таким образом, развитие страхового рынка можно напрямую связывать не только с повышением капитализации, но и с ростом уровня сбалансированности страхового портфеля. Создание новых благ (капитальных), увеличивающих доходы собственников страхового дела на величину процента от вложений в бизнес, в наименьшей мере зависит от объема вложенного капитала и определяется ростом показателя отдачи на капитал, как повышения отношения сборов страховых премий к вложенному капиталу. Этот процесс свидетельствует о росте рыночной доли компании, соответственно – увеличении прибыли и повышении рентабельности собственных средств. Кроме того, сбалансированный и существенный в части выборки страховой портфель приводит к снижению волатильности убытков, а, значит, и страховых тарифов. Рост рыночной доли приводит к росту стоимости компании и повышению благосостояния всех стейкхолдеров.

Ресурсная концепция конкурентоспособности и рассмотрение стейкхолдеров как поставщиков ресурсов компании позволяют сделать вывод о различной сущности ресурсов страховщика, суммарное множество которых в конечном итоге воплощается в форму финансового капитала. Привлекаемые страховщиком ресурсы имеют ценность, поскольку могут быть трансформированы в форму финансовых активов

(основных и оборотных), и в этой форме содействовать обеспечению интересов тех его стейкхолдеров, которые поставляют компании ресурсы в финансовой форме: страхователей и страховщиков. В связи с этим возникает вопрос об эффективности структуры нефинансового капитала компании, в основе которой лежит способность порождать или трансформироваться в финансовый капитал.

Решение проблемы поиска структуры капитала страховой компании на основе ресурсного подхода впервые было предложено страховой компанией *Skandia* (Швеция), в лице ее Главного управляющего знанием — Л. Эдвинссона [2]. В качестве центральной модели структуры нефинансовых форм капитала были определены два основных компонента и их взаимодействие при создании стоимости:

- **человеческий капитал, формируемый человеческими ресурсами фирмы.**
  Это совокупность знаний, практических навыков и творческих способностей служащих компании, приложенная к выполнению текущих задач. Другими его составляющими являются ценности компании, культура труда и общий подход к делу. Человеческий капитал не принадлежит компании, тогда как человеческие ресурсы как бы арендуются ею;

- **структурный капитал.**
  В эту категорию входят техническое и программное обеспечение, организационная структура, патенты, торговые марки и все то, что позволяет работникам компании реализовать свой производственный потенциал, – иными словами, то, что остается в офисе после ухода служащих домой. Структурный капитал также включает капитал отношений, сложившихся между компанией и ее крупными клиентами. В отличие от человеческого капитала, структурный капитал может быть собственностью компании и, следовательно, объектом купли-продажи.

Согласно модели *Skandia* [3]

Человеческий капитал + Структурный капитал =
= Интеллектуальный капитал.

При этом результатом взаимодействия данных элементов является обеспечение длительного сохранения успешного положения компании на рынке путем постоянного производства и коммерциализации инновационных решений. Л. Эдвинссон был согласен, что именно производство инноваций служит источником создания стоимости страховой услуги, формирующей ключевую компетенцию компании [4]. Такая позиция исходила из того, что у создания стоимости есть два фундаментальных источника.

Первый – это те инновации, которые генерируются человеческими ресурсами фирмы в юридически защищенные интеллектуальные активы. Вторым источником являются продукты и услуги, которые возникают в результате коммерциализации инноваций.

Инновационные решения, реализуемые в рамках первого источника создания стоимости, касаются всех бизнес-процессов и их результатов вплоть до вывода страхового продукта на рынок. Второй же источник формирования стоимости связан с инновациями в продаже страховых продуктов, переводящих нефинансовый капитал в финансовую форму.

## Обзор литературы и гипотезы исследования

Предпринимательский ресурс может быть представлен как совокупность функций, выполняемых им в социально-экономической системе. Это один из дискуссионных аспектов теории предпринимательства, по которому мнения исследователей расходятся.

Так, С.Э. Жилинский выделяет три функции:

- ресурсную, заключающуюся в нетрадиционном соединении факторов производства (земли, капитала, труда) и способствующую росту производства товаров и услуг, повышению эффективности экономики;
- организаторскую, состоящую в таком соединении и комбинировании факторов производства, которое наилучшим образом приведет к достижению корпоративной цели, получению высокого дохода;
- творческую, связанную с новациями [5].

М.Г. Лапуста, А.Г. Поршнев, Ю.Л. Старостин, Л.Г. Скамай считают, что предпринимательство выполняет общеэкономическую, творческо-поисковую (инновационную), ресурсную, социальную и организаторскую функции [6].

Изложенное выше позволяет выдвинуть следующую гипотезу: превращение нефинансовых ресурсов в

капитал происходит путем их объединения с предпринимательским ресурсом, носителем которого является либо сам сотрудник, либо управляющий его трудом менеджер.

Интеллектуальный капитал страховой компании служит источником создания дополнительной стоимости, поскольку обеспечивает инновационные решения, создающие квазимонопольную сверхприбыль в период до начала процесса диффузии инновационных решений на рынке. В него же следует включить разработки инновационных решений и поиск предмета для инноваций, поскольку инновационный процесс не может быть остановлен, исходя из ограниченности жизненного цикла предприятия [7]. В соответствии со взглядами И. Адизеса, в основе жизненного цикла любой организации находится фундаментальный закон, гласящий, что все организации, как живые организмы, проходят через схожие стадии жизненного цикла и демонстрируют прогнозируемые и повторяющиеся модели поведения. На каждой новой стадии развития каждая организация сталкивается с уникальным набором вызовов и сложностей. Успех организации определяется способностью менеджеров управлять переходом от одной стадии к другой, а также проводить своевременное обновление стратегии во избежание экономической «смерти». Таким образом величина интеллектуального капитала может быть оценена доходным методом (по порождаемому доходу).

Интеллектуальный капитал по Л. Эдвинссону возникает в результате объединения всех нефинансовых ресурсов в единую структуру. Поскольку основную его ценность составляет способность производить инновационные решения, то в модель *Skandia* включен инновационный капитал (рис. 1).

**Рисунок 1.** Модель интеллектуального капитала как источника создания новой стоимости
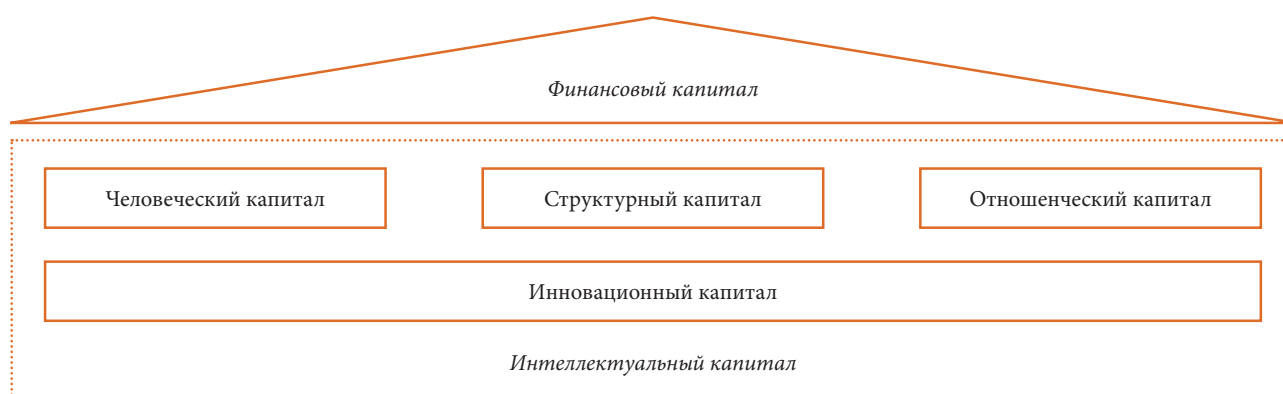


*Источник:* составлено на основе [8].

Представленная модель (см. рис. 1) логично выстраивает архитектуру между элементами, однако не показывает связь ряда элементов нефинансового капитала с порождающими их ресурсами. Структурный и отношенческий капиталы являются результатами операционной деятельности компании, поэтому отсутствие ясности, за счет каких ресурсов они создаются, порождает сложность в их разграничении и количественном определении.

Кроме того, модель не разъясняет, что имеется в виду под инновационным капиталом: инновационный потенциал, как способность компании к формулировке инновационных решений, или инновационные продукты, созданные с использованием инновационных решений.

Соотнесение нефинансовых форм капитала с порождающими их ресурсами имеет практическое значение для идентификации спектра необходимых ресурсов и оценки эффективности их привлечения. Категориальное определение привлекаемых ресурсов является условием финансовой оценки их стоимости, которая позволит оценить эффективность каждого ресурса путем соотнесения его с создаваемыми при его использовании долей финансового капитала. Все это обусловливает потребность усовершенствования модели Л. Эдвинссона путем интеграции ее аспектов инструментария формирования нефинансового капитала.

Человеческие, информационные и предпринимательские ресурсы могут рассматриваться как факторы производства. Если возможно их привлечение, значит, они имеют предметную форму, обеспечивающую их идентификацию. Ответ на вопрос, при каких условиях эти ресурсы становятся капиталом, следует искать в функциях предпринимательского ресурса.

Предпринимательский ресурс, осуществляя свои функции, инициирует процессы производства или обмена, тем самым реализуя себя в экономике. Поэтому существенным отличием его от других ресурсов является свойство самореализации. Для всех иных ресурсов – земли, финансового капитала, труда – требуется воздействие силы, внешней по отношению к ним: прежде всего инициативы предпринимателя-организатора, где бы они оказались включенными в производственный процесс.

По мнению Ф. Найта, «цены производственных услуг "фиксируются" на рынке в ходе конкурентной борьбы предпринимателей, но доход предпринимателя не фиксирован: в него входит все, что остается после выплаты фиксированных доходов. Таким образом, исследовать его приходится косвенным путем, вникая в те силы, которыми определяются фиксированные доходы и соотнося их со всем продуктом предприятия или общества» [8]. Иными словами, это единственный ресурс, судить о наличии которого можно лишь по результатам его вовлечения в производство товаров или услуг. Результаты в таком разрезе про-

являются в качестве ключевой компетенции (финансовой устойчивости) как итоговой комбинации всех прочих ресурсов, обеспечивающей получение ренты за их использование.

Ф. Найт указывает на различие предпринимательских функций и управленческого труда как такового, когда пишет, что «жалованье предпринимателя регулируется таким образом, что становится очевидной зависимость продолжительности его пребывания в должности от процветания предприятия под его руководством». Предпринимательский ресурс обеспечивает такое качество деятельности предприятием, при котором, по мнению Ф. Найта, сочетаются «способности» с «готовностью» [9]. Готовность использовать имеющиеся нефинансовые ресурсы сотрудниками, чья деятельность при этом обеспечивается собственными способностями как частью человеческих ресурсов, а также имеющейся в распоряжении персонала информационной базой, определяет объединение осязаемых нефинансовых ресурсов с предпринимательским ресурсом.

А. Чендлер, П. Хагстром и О. Солвелл [10] артикулируют идею, что для понимания процесса создания инноваций необходима теория создания знаний. Они выделяют два вида знаний, которые лежат в основе всей теории, – явные и скрытые. Понимание разницы между явным знанием и скрытым выступает для них ключевым аспектом отличия западного подхода к знаниям от японского. Создание знаний представляет собой не просто обучение у других или получение знаний извне. Кроме того, предприятие не может создавать знания без индивидов, но может поддерживать индивидов в этом процессе, поэтому знание должно быть создано в процессе взаимодействия групп индивидов внутри предприятия.

Увеличение стоимости компании Л. Эдвинссон напрямую связывал с инновационностью, обеспечившей такой рост капитализации, которую следует рассматривать как показатель оценки ее конкурентоспособности, в том числе и с точки зрения безопасности инвестируемых средств. Следовательно, знания, которыми располагает и которые использует компания, определяют уровень ее конкурентоспособности, являясь начальным и необходимым условием для усиления конкурентных преимуществ.

Р. Лессем выделяет три процесса в компании, в ходе которых создаются знания [11].

1) Создание новых знаний происходит в процессе деятельности при решении проблем как генеративный процесс.

2) Новое знание используется в продуктивном процессе, который служит основой для новых предложений.

3) После декларирования знания реализуется репрезентативный процесс, в котором знания, трансформированные в новые продукты, предлагаются потребителям.

## Методология исследования

В ходе реализации исследования нами были использованы:

- метод дедукции при схематическом построении архитектуры человеческих ресурсов и составляющих инструментария конкурентоспособности компании;

- метод индукции при определении элементов человеческого капитала;

- абстрагирование в процессе выявления трансформации нефинансовых ресурсов в финансовый капитал;

- анализ теоретических подходов в международном опыте страховой бизнес-практики.

## Результаты исследования

Рост капитала страховой компании может осуществляться через финансовые ресурсы за счет изменения дивидендной политики и увеличения акционерного капитала, что ограничивает топ-менеджмент в использовании инструментов управления и развития компании.

Возможность собственного капитала к самовозрастанию характеризует приемлемый уровень образования чистой (нераспределенной) прибыли страховщика, его способность поддерживать финансовое равнове-

сие за счет собственных источников. Снижение в общем объеме удельного веса собственного капитала до некого критического предела свидетельствует о потере финансовой независимости при ведении страхового предпринимательства и возрастании роли внешних источников финансирования, что подтверждает важность диверсификации ресурсов для роста капитализации [1].

Предпринимательский ресурс может стать капиталом только в объединении с прочими осязаемыми нефинансовыми ресурсами, реализуясь в управленческих компетенциях, проявляющихся в первую очередь в рыночном успехе компании и росте ее клиентской базы, что означает рост удовлетворенности ключевых стейкхолдеров страховщика: страхователей и акционеров. При этом предпринимательский ресурс, имея персонифицированную форму, определяет прежде всего человеческий капитал, где в дальнейшем переносится для создания его интеллектуальной или предпринимательской формы. В соответствии со взглядами на предпринимательство как на фактор производства, его основной характеристикой является способность к инновациям. Наличие у страховой компании способности к инновациям обеспечивает постоянство процесса новых эффективных инструментов и продуктов, позволяющих сохранять положительный тренд развития компании в условиях изменений внешней и внутренней среды.

**Рисунок 2.** Модель трансформации нефинансовых ресурсов в финансовый капитал
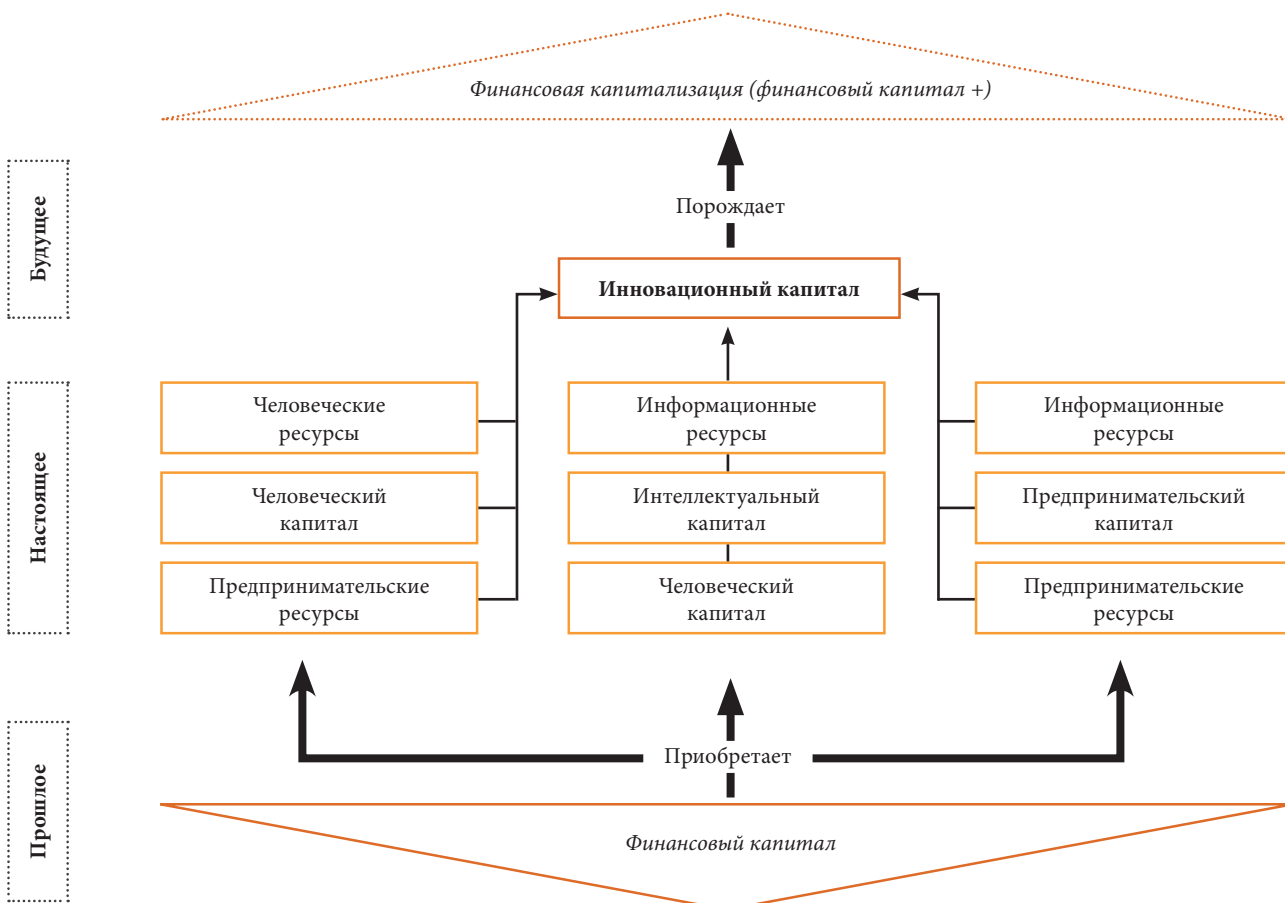


*Источник*: авторская разработка.

В формировании инновационного капитала, обеспечивающего квазимонопольную ренту, предпринимательский капитал участвует одновременно с интеллектуальным капиталом как базой создания инноваций и человеческим капиталом как носителем предпринимательской инициативы.

Учитывая указанные выше факторы, мы предлагаем архитектуру трансформации во времени нефинансовых ресурсов в финансовый капитал (рис. 2).

Предпринимательский капитал является пересечением человеческого и интеллектуального капиталов. Каждый из используемых компанией нефинансовых ресурсов, кроме предпринимательского, имеет осязаемую форму. При соединении с предпринимательским ресурсом они порождают неосязаемый капитал, обеспечивающий маркетинговую капитализацию компании. Что касается стоимости осязаемых нефинансовых ресурсов, она может быть сформирована на основе затрат на оплату таких ресурсов, их привлечения или создания. Сумма указанной оплаты участвует при расчете прибыли компании до налогообложения *NOPAT* в системе МСФО.

Особенность осязаемых качеств используемых нефинансовых ресурсов состоит в том, что они могут контролироваться менеджментом до начала вовлечения их в страховые бизнес-процессы. Наличие неосязаемых качеств, возникших при соединении с предпринимательским ресурсом, может быть оценено только при получении финансовых результатов от их использования: путем оценки прибыли (*NOPAT*), добавленной стоимости (*EVA*) или уровня маркетинговой капитализации (изменения рыночной стоимости компании).

Структурируя сущностное содержание понятия «человеческие ресурсы» [12–14] в корпорации, мы предлагаем следующее схематическое представление осязаемых характеристик (рис. 3).

Соединение их с предпринимательским ресурсом менеджмента формирует в качестве синергетического результата человеческий капитал, объединяясь со следующими неосязаемыми качествами, входящими в состав ресурсов, и образуя новое качество (рис. 4).

Информационные ресурсы страховой организации также имеют осязаемые характеристики [15–18], реализуемые, например, в базе корпоративных знаний (рис. 5).

**Рисунок 3.** Структура осязаемых характеристик человеческих ресурсов
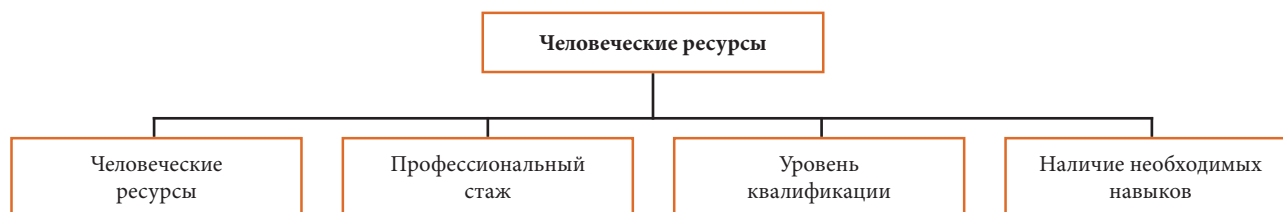


*Источник:* разработано на основе [12–14].

**Рисунок 4.** Структура человеческого капитала



*Источник:* авторская разработка.

**Рисунок 5.** Структура информационных ресурсов
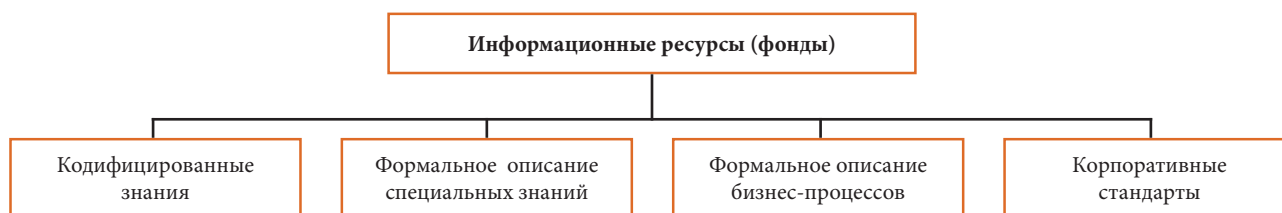


*Источник:* разработано на основе [15–18].

**Рисунок 6.** Структура интеллектуального капитала



*Источник:* авторская разработка.

При пересечении с человеческим капиталом, включающим вовлеченные в производство способности всех сотрудников, информационные ресурсы трансформируются в интеллектуальный капитал, участвующий в производстве стоимости страховой деятельности (рис. 6).

Все прочие формы капитала, определения которых встречаются в специальной литературе, в целом представляют собой конкретизацию пересечений различных секторов интеллектуального капитала с человеческим:

- отношенческий капитал, проявляющийся в процессе пересечения знаний и навыков, составляющих сущность человеческого капитала, с той частью интеллектуального капитала, которая содержит принятые компанией приемы и методы работы с клиентами или партнерами, корпоративную практику по организации взаимоотношений с контрагентами и созданию позитивных коммуникаций компании на рынке [19];

- организационный капитал, который проявляется в процессе пересечения знаний и навыков, составляющих сущность человеческого капитала менеджмента, с той частью интеллектуального капитала, которая содержит приемы и методы, объединяющие всех лиц, которые участвуют в работе компании для достижения единых корпоративных целей и создают внутреннюю непротиворечивую корпоративную культуру, т.е. частью интеллектуального капитала, обеспечивающего

высокоэффективную организационную структуру компании [20];

- структурный капитал, проявляющийся в процессе пересечения знаний и навыков, составляющих сущность человеческого капитала, с той частью интеллектуального, которая касается эффективной структуры корпоративной информации, отражающих ее баз данных, стандартизованных описаний бизнес-процессов, корпоративных стандартов, бренда и иных «нематериальных активов», остающихся в распоряжении компании даже в отсутствии сотрудников [21].

Выделение подобных форм капитала имеет смысл тогда, когда конкретные секторы интеллектуального или человеческого капитала являются объектами для реализации индивидуальной маркетинговой стратегии компании в целях повышения ее рыночной стоимости.

Уникальность комбинаций ресурсов компании – это база для производства инноваций как новшеств по определению. Аргументом в пользу такого утверждения служит то, что такая уникальная комбинация является, во-первых, новой, поскольку уникальна, а, во-вторых, – эффективной, в силу определения ее как основы для создания ключевой компетенции. Поскольку каждый из ресурсов, участвующих в создании этой базы, легко доступен, то ее формирование обеспечивается именно «живым знанием», т.е. информацией, ценность которой реализуется ее живым носителем – специалистом, получившим ее в результате образования, опыта и деловой интуиции.

Особенно ценны такие уникальные комбинации ресурсов в сфере интеллектуальных услуг, использующих высокоспецифичные и индивидуально накопленные знания. К сфере таких услуг относится и сфера страхования [22].

Именно в ходе этих процессов создается знание, которое в итоге проявляется в виде предложения нового товара или услуги для потребителей, что для страховой компании трансформируется в портфель уникальных страховых услуг.

Мы определяем систему факторов, обеспечивающих формирование ключевой компетенции страховой компании как основы ее рыночной конкурентоспособности, включив в нее фактор «знания», который в условиях современной экономики может быть признан основополагающим условием устойчивого развития организаций (рис. 7).

**Рисунок 7.** Знания как базис формирования конкурентоспособности страховой компании, работающей в условиях непрерывных изменений
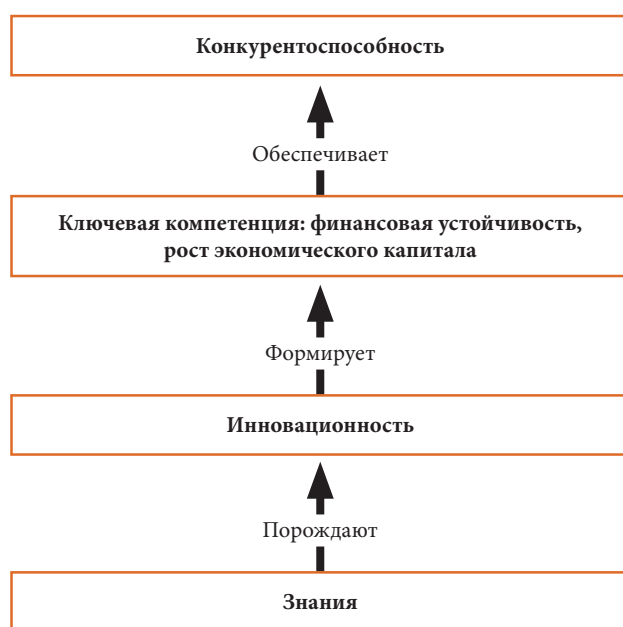


*Источник:* авторская разработка.

Если согласиться с оценкой знаний как базиса в обеспечении стабильности инновационного развития компании в условиях непрерывных изменений, то остро встает вопрос о специфическом управлении по увеличению потока таких знаний в организацию. Знания, умения и навыки конкретных сотрудников, вовлеченных в творческий процесс, формируют основу инновационности фирмы. Технологическая составляющая без творчества во многом становится неструктурированным набором знаний, которые сложно трансформировать в фундамент инновационного развития корпорации. Способность к созидательному творчеству у сотрудников – это и есть практическая реализация живого знания в компании. Составляющая творчества благоприятно влияет на устойчивость

бизнес-модели, где в основе лежит «живой» и гибкий интеллектуальный капитал [23].

Страховщик, основной деятельностью которого является «обработка» риска, работает в недетерминированных условиях, с негарантированным информационным обеспечением, т.е. в условиях неопределенности. Принимаемые страховыми специалистами решения всегда являются до некоторой степени «предпринимательскими» и даже «инновационными» в связи с оригинальностью и неповторимостью каждого принимаемого риска, каким бы типовым он ни был. Страховые операции, от оформления страхового продукта до организации выплат выгодоприобретателям, не могут считаться итерационными, поскольку призваны обеспечить индивидуальные страховые потребности для индивидуальных физических или юридических лиц. Таким образом, для обеспечения своей ключевой компетенции страховщик должен обладать в качестве ресурсов специалистами, использующими знания, опыт, деловую интуицию, особо точную, релевантную информацию, а также организовать высокую эффективность комбинаций человеческих и информационных ресурсов с использованием технических, организационных, коммуникационных и мотивационных инструментов. Такие операционные действия гарантируют страховщику адекватность страхового капитала и прибыль как эффект на эффективное использование ресурсной базы, что характерно для рикардианской ренты страховщика. Для такого типа ренты характерно использование предпринимательского ресурса страховой компании, функционирующего на пересечении с человеческим и информационным ресурсом как предпринимательский капиталом.

Особое значение нефинансовые формы капитала имеют, на наш взгляд, для компаний, не достигших уровня крупных игроков на рынке и находящихся в процессе становления или ограничивающих свою деятельность конкретным регионом. В условиях конъюнктуры российского рынка это компании средних региональных страховщиков, основным источником развития которых служат преимущественно нефинансовые ресурсы, где эффективность использования оценивается через рост отдачи на затраты, т.е. через повышение рентабельности капитала.

Ориентация компании на удовлетворение страховых потребностей за счет предпринимательских инновационных подходов к созданию страховых услуг обеспечит возможность установления их рыночной цены на уровне, включающем дополнительную ренту. Рост финансовой отдачи от реализации бизнес-процессов также формирует дополнительную ренту для страховщика. Если рента будет присваиваться страховщиком не полностью, а использоваться для некоторого снижения цены страховых услуг на рынке, то компании будет обеспечен коммерческий успех.

На практике успешность предложенной модели деятельности страховой компании обусловлена многими

факторами. Кроме типичных рыночных колебаний спроса и предложения, на результативность деятельности влияет уровень экспертизы топ-менеджеров, как фактор более влиятельный, чем финансовая архитектура компании [24], потребности и доверие потребителей, что доказано через факторный анализ в [25], а также ориентирование стратегии на стабильность в долгосрочной перспективе. Это в том числе снижает колебания рейтинга компании, а значит, влияет на указанное ранее доверие клиентов [26].

Ограничения предложенной модели концентрируются в рамках влияния культурологических факторов, определяющих специфику рынка. Согласно исследованию [27] Россия попадает в кластер стран с низким уровнем развития страховой отрасли, наряду с Турцией и Мексикой, но обладает большим потенциалом развития в связи с тем, что относится к развивающимся рынкам, где культура страхования пока находится на более низком уровне, чем в странах с развитыми рынками страхования. Таким образом, ключевым фактором влияния является культура страхования в стране, а значит, поведение страхователей на рынке, их уровень знаний о страховых инструмента, доверие к страховщикам и готовность передавать свои активы на рынок. Следовательно, предложенная модель ограничивается существующей конъюнктурой российского рынка и будет нуждаться в точечной адаптации при изменении интересов главных стейкхолдеров страховой компании, от которых зависит доступ компании к финансовым ресурсам – страхователей.

## Заключение

Высокий уровень капитализации страховой компании обеспечивает развитие ее эффективной инвестиционной политики. Рост капитализации демонстрирует улучшение финансового положения компании, укрепление их финансовой устойчивости и снижение риска банкротства.

Рассмотрение страховой компании как комбинации всех ее ресурсов позволяет отследить наступление стоимостной синергии (когда стоимость такой комбинации выше, чем сумма стоимостей всех ее элементов). Источниками появления синергетического эффекта служат нефинансовые формы капитала, воплощающиеся в создании и реализации новых маркетинговых инструментов для роста рыночной доли.

Главный вывод состоит в необходимости определения страховыми компаниями особо важной роли персонифицированных знаний, высокого уровня образования персонала и развития узкопрофильных навыков сотрудников, как структурного элемента своей корпоративной стратегии, поскольку именно на данной базе развивается и пополняется инновационный капитал компании.

Абсолютная потребность в постоянном поиске наиболее эффективных комбинаций ресурсов приводит к логичному следствию, что в деятельности страховщика как финансового посредника источником прибыли или ренты является именно деятельность по нахождению оптимальных путей удовлетворения страховых потребностей путем перераспределения полученных на страховом рынке средств самих же потребителей. Это означает, что эффективность комбинации ресурсов страховщика определяется успешностью его работы на рынке за счет создания эффективных маркетинговых инструментов, обеспечивающих ему капитализацию, т.е. рост стоимости страховой фирмы, которую справедливо можно идентифицировать как маркетинговую капитализацию.

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# Role of Non-financial Resources in the Capitalization of Insurance Company

**Lyudmila Tsvetkova**
Candidate of Economic Sciences, Associate Professor
ORCID
E-mail: tsvetkova1501@gmail.com

Department of risk management and insurance, MGIMO University, Moscow, Russi

## Role of Non-financial Resources in the Capitalization of Insurance Company

# Abstract

The aim of this article is to conduct a conceptual study on the role of non-financial resources in the capitalization of an insurance company. The effectiveness of a company's non-financial resources is based on its ability to generate financial capital from them, and a company's employees and clients are the embodiment and creators of the most fundamental non-financial resources. We postulate that the needs of insurance companies to increase their capitalization is first addressed by ensuring adequate and quality capital is in place to maintain day to day business, and ensuring this capital is effectively structured.

Therefore, our evaluation of the effectiveness of capital structure is conducted according to the resource based view of competitiveness. We explore the hypothesis that a company's non-financial resources may be converted into financial capital when they are combined with an entrepreneurial influence - in this case, either an employee or a manager.

We apply the following diverse methodologies. First, a deductive approach is used to construct a virtual human resources architecture, which allows us to allocate conceptual corporate tools for improving competitiveness. Next, using an inductive method, we determine the relevant components of human capital. The abstraction method is applied to demonstrate a situation whereby non-financial resources transform into financial capital. Finally, we utilize an analytical methodology to evaluate the respective theoretical approaches used by international insurance companies.

We establish our methodological prerequisites in a conceptual model and successfully determined the onset of cost synergy as a combination of all company resources. Further, we identify the need for insurance companies to introduce personalized knowledge into corporate strategy. We thereby vaidate our hypothesis and confirm that the knowledge and experience of insurance companies' employee and client bases represents an essential non-finanical resource, and constitutes a legitimate structural element through which innovation capital may be developed and replenished.

The novelty of our study is represented by its practical and theoretical applications. As our results indicate, we successfully outline a universal conceptual approach that enables an increase in capitalization regardless of the market specialization in which an insurance company operates. As such, not only can our findings be directly implemented by insurance companies as a new management approach in order to improve corporate efficiency and strategic stability, but can be seen to have immediate bearing on consumer and business interests beyond the insurance industry, as well as informing further theoretical strategy development in academia.

**Keywords:** resource-based view, non-financial resources, innovation, venture capital
**JEL classification:** G34, M14, O16

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# Performance Audit in Construction Organisations: Relevant Criteria and Analytical Procedures

**Bibigul Amanzholova**

Doctor of Science in Economics, Head of Department of Audit, Accounting and Finance

ORCID

E-mail: amanzholova@corp.nstu.ru

Novosibirsk State Technical University, Novosibirsk, Russia


**Viktoria Karakchieva**

Candidate of Sciences in Philology, Associate Professor

ORCID

E-mail: karakchieva@corp.nstu.ru

Department of Foreign Languages, Novosibirsk State Technical University, Novosibirsk, Russia

**Performance Audit in Construction Organisations:
Relevant Criteria and Analytical Procedures**

# Abstract

Performance audit is becoming increasingly ubiquitous in commercial and business spheres internationally. Due to its important role in promoting efficient organisational and administrative practices, performance audit is becoming a subject more rigorously analised in the academic sphere.

This study seeks to develop and test analytical tools of performance audit in Russian construction organisations. We place emphasis on the industry-specific dimensions of information disclosure. We intend to offer a solution to several crucial challenges in the field, which will allow for the development of a comprehensive method to implement analytical procedures. This is done with a view towards obtaining and collating sufficient and adequate audit evidence to help achieve business goals.

In order to devise a consistent methodology, first, a link is highlighted between construction industry constraints and performance audit criteria. Second, an algorithm is developed to carry out comparative integrated estimation of performance audit criteria in order to shortlist relevant indicators. Third, the algorithm is tested using financial reporting of selected construction companies, which makes it possible to build a consistent system of performance audit criteria and identify a reliable set of controlled parameters.

A profile of practical analytical procedures, performance audit criteria and measurement indicators is formed through financial and performance audit and imbedded statistical methods. Implementing this approach will be seen to close some information gaps commonly found in the reporting data of construction industry, as it links the subject area of performance audit and the objective criteria of effectiveness, efficiency and economy.

The findings are presented with reference to existing statistical surveys on construction industry constraints. While recent studies provide a broader picture across construction industry, they do not address its regional aspects. As such, within this study we have carried out estimates of performance indicators for construction companies operating in the Novosibirsk region. The estimates are based on the information available through Professional Market and Company Analysis System. As a result, a system of performance audit criteria is identified in relation to the dimensions of effectiveness, efficiency and economy and a framework of controlled parameters is shaped. The level of disclosure concerning these parameters presented in a company's reporting is supposed to determine the decisions of stakeholders and potential investors.

In consideration of further research, this study highlights that it is necessary to identify and validate performance criteria in view of the fact that only few construction companies are profitable. The mix of qualitative and quantitative analytical procedures demonstrated herein is an effective approach to address the challenges of information integrity assessment. We consider that the most promising aspect of this study is the analysis of how the quality and amount of information disclosed in the reporting of construction companies affects their public image and business activities. This can be seen to have widespread industry and academic applications. Additionally, our approach represents a suitable framework for possible adaptation towards not only other industries, but also further development of the methodological approach itself.

# Introduction

The role of auditing as an institutional mainstay and a business practice is evolving in line with economic, political and technological dynamics. Today, the idea of auditing is treated in a broad social context, at least in the context of social responsibility. Audit functions are no longer confined to only economic problems of a business. Rather, auditing is expected to ensure public confidence in the information presented in various types of reporting. A significant strand in the research literature emphasises that contemporary audit practices tend to go beyond the conventional framework of monitoring and analysis and focus on forecasting and developing recommendations.

We should take into consideration that current audit activities are carried against a business and socio-cultural backdrop which has been radically reshaped by technological development. In this technologically driven environment, traditional audit skills are no longer sufficient, and in this new context, the factors that influence audit effectiveness need consideration [1]. On the other hand, we can witness the growing availability of audit support systems [2] that may send erroneous signals that audit procedures are available to casual users. Researchers also point out that a pervasive feature of the current audit environment is multitasking, which they see as a cause of impaired performance in auditing [3]. In this context, it is particularly important to develop adequate methods of selecting from and interpreting massive amounts of information. These methods should be customised to concrete purposes in order to overcome the restrictions of standard audit support systems. Research literature provides examples of methods and analytical procedures developed to meet specific needs of audit entities [4]. Another prominent factor is technology integration in the auditing process. Since auditors tend to increasingly rely on restricting audit support systems, this adversely hinders the variety of thought in audit and leads to a stagnation in the evolution of better practices [2]. From this perspective, we consider any discussion around analytical procedures and methods in audit as a contribution towards resisting this negative tendency.

Performance audit is a system of controls that is carried out by regulators through analytical review activities to allow for reasonable conclusions as to whether the recipients of financial resources utilise them properly. Nevertheless, the question is still open as to which performance audit criteria should be selected as a reference against which the evidence is evaluated, classified and categorised.

Part of the problem lies in underdeveloped accounting information systems which restrict the implementation of performance audit procedures, as well as some industry-specific factors that influence criteria selection and evidence interpretation. The cases we have explored show that to provide a comprehensive assessment of company performance, researchers use both accounting (ROA, ROE) and market-based indicators, such as Tobins Q [5, 6].

However, in the case of the Russian construction industry this approach is unacceptable because of the limited information available.

This seems to be inconsistent with growing information transparency and easier access to information, which are considered as prominent features of the current technologically driven environment. We should note that digitalisation only provides opportunities, and does not guarantee a sufficient level of information disclosure. Researchers have shown that corporate disclosure behaviour depends on many contextual and institutional factors such as economic development, legislation, sophisticated financial markets, as well as firm-level variables such as corporate governance and ownership structure [7].

As our observations show, Russian construction companies tend to publish only accounting, tax and statistical reporting. These kinds of reporting include mostly quantitative data, which restricts the capacity of performance auditing. The reported data from construction companies provides only a minimum of mandatory information to be disclosed in accordance with the legislation. Moreover, this reporting is formed retrospectively. This leads to the scarcity of information needed for balanced decision-making, as well as its low relevance from the perspective of current economic, social and technological requirements and standards.

For any national economy, a construction industry is vitally important, as it raises funds from both governments and private investors, and, most importantly, it greatly contributes to the social and economic development of the country. This serves to emphasise the importance of performance audit procedures in the Russian construction industry. However, there is a gap in theoretical and applied research on performance audit tools adjusted to accounting and reporting practices in construction organisations.

A baseline study of the construction industry enables us to reveal the most prominent constraints that hold back the performance of construction entities and subsequently shortlist the factors that shape the parameters of performance audit tools implementation.

Today, we have to state that the Russian construction industry is descending into deeper crisis. This conclusion is in line with the findings of RABC (The Rating Agency of Building Complex, Russia) that highlights the following crisis indicators: reduction of government contracts, significant decline of the amount of real estate developed, increasing arrears periods, and bankruptcy. According to analysts, the core of this recession is to be found in customers' insolvency as well as their financial uncertainty from a mid-term perspective. This has a direct impact on the developers' results and financial sustainability.

We should emphasise here that the customers' uncertainty comes not only from their insolvency, but also, to larger extent, their distrust of real estate developers and other fund-raisers. Therefore, neither the investment attractiveness of construction projects nor government efforts to

promote mortgaging alone can combat the crisis. In this context, we appreciate the initiative of the Head of the Ministry of Construction to improve information transparency of developers and establish mandatory requirements to their information disclosures in terms of fairness and completeness. This puts the spotlight on performance audit, since, we strongly believe, this discipline is capable of providing a comprehensive solution to the problem of information quality with a view to providing an adequate evaluation of construction organisations' performance.

## Construction industry trends

To gain a greater insight into Russian construction industry considerations, we now refer to official statistics [8]. For some time past, the industry has exhibited a marked slowdown. A slight growth of business in immediate post-crises period (2010–2014) was followed by a steady decrease (Figure 1).

**Figure 1**. Trends for the volume of work performed by the economic activity "Construction" in Russia (percentage) in terms of price comparison to the previous year (2006–2015)
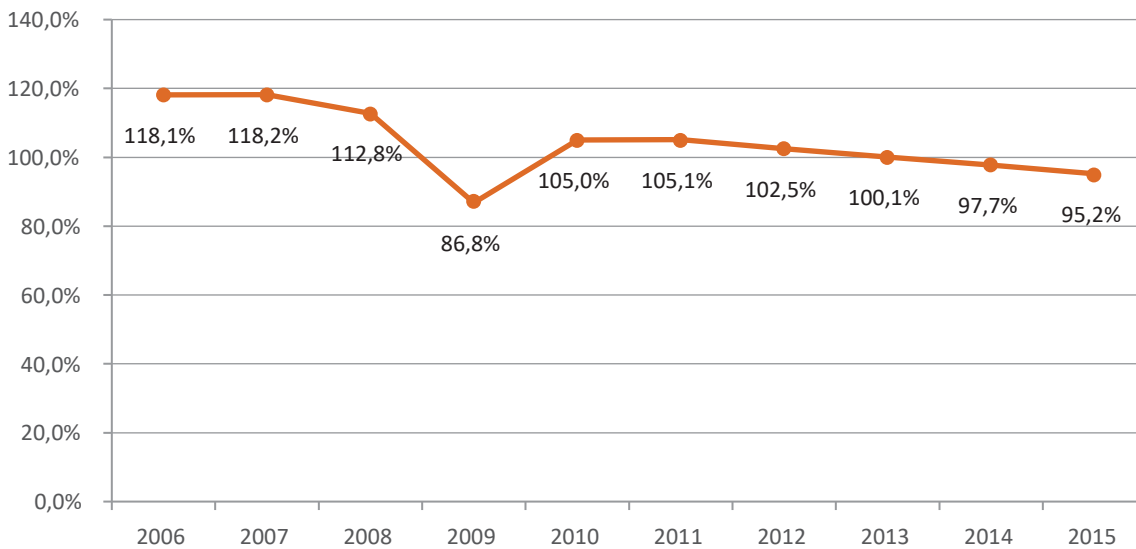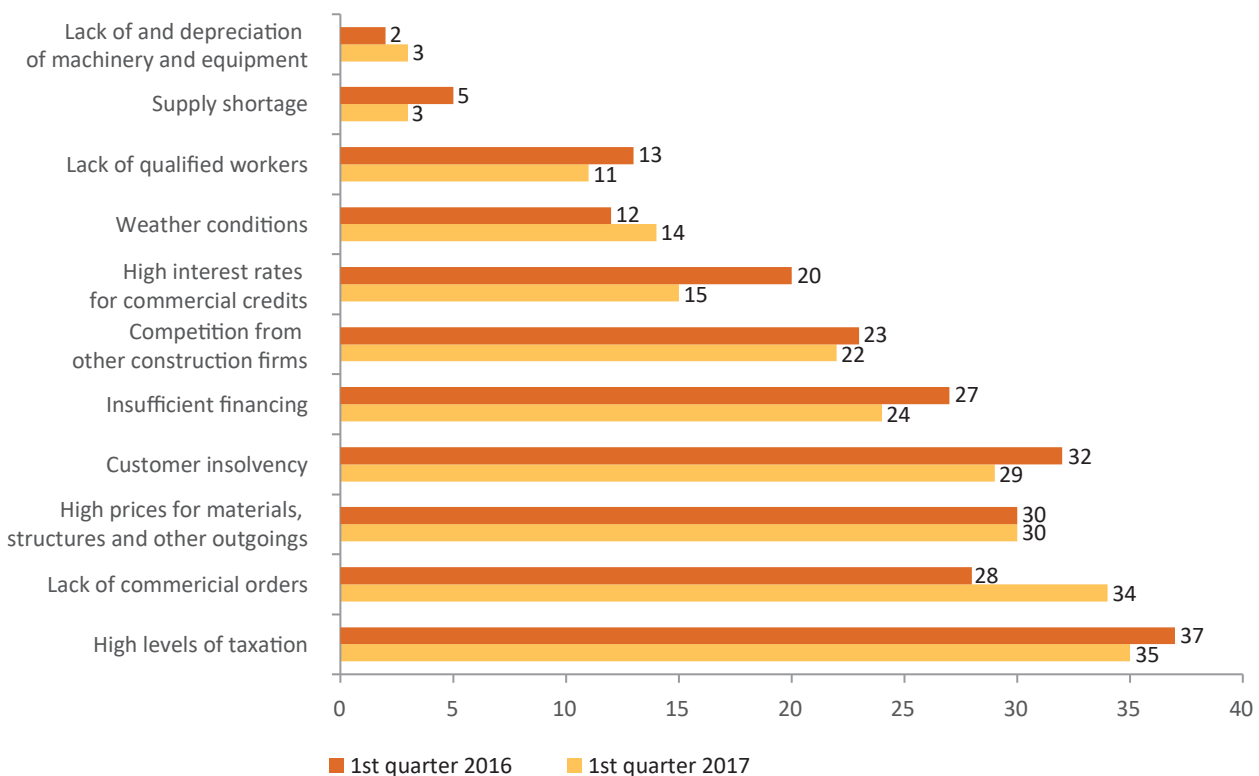


**Figure 2**. Construction industry constraints (response rate, %) [9]

A number of constraints that hamper the development of the construction industry. The Russian Federal State Statistics Service (Rosstat) conducts sampling monitoring of construction organisations, collecting quarterly feedback and expert estimates from people involved in the construction business. This allows for identifying key negative factors to stiffen construction industry from the perspective of the professional community (Figure 2).

The feedback from the respondents is in line with the data illustrating construction industry trends (Figure 3). Most prominent are such trends as the progressive growth of overdue accounts receivable, lengthy default periods, and the practically uninterrupted growth of fully depreciated manufacturing facilities. Other indicators in the 'red zone' concern the growing amount of bank loans in arrears. For example, at the end of 2013 overdue bank loans in construction industry totaled 7182 million roubles, in 2014 this increased six-fold and reached 49 936 million roubles. Statistics reveal that in 2015 the amount of overdue bank loans was as much as 54 434 million roubles.

## The effect of industry development factors on individual enterprise performance

The pattern of factors listed above shaped the idea of implementing performance audit tools in the construction industry. The case is that the impact of these factors on the performance of construction companies seems evident as long as it is considered *per se*. However, if we have a closer look at the performance criteria, the nature of their impact becomes far more ambiguous. Consider the factor 'Lack and depreciation of machines and equipment'. We cannot clearly categorise it as a negative factor influencing either effectiveness or economy.

Among the most relevant construction industry constraints, we can count the following:

- high level of taxation;
- high prices for materials, structures and articles;
- high interest for commercial credit;
- lack and depreciation of machines and equipment.

To provide a rationale for performance audit criteria patterns to be utilised in the construction industry, we have investigated how these criteria influence enterprise performance. The first significant factor is tax burden that shows the amount of resources a company has to divert to its taxation duties.

As we have mentioned above, construction business professionals see a high taxation rate as the most significant constraint. This means that the behaviour of high taxation factor needs further thorough consideration. Different ratios are used as indicators measuring tax burden, such as tax payable totals in relation to revenue, other earnings, and profit. Figure 4 shows the historical tax burden calculated by the method adopted by Federal Tax Statistics Service of Russia.

**Figure 3**. Trends for business indicators of Russian construction organisations (2007–2015) – authors' calculations



Tax payments in relation to revenue in construction organisations, %

Overdue accounts receivable, millions of roubles

Fixed capital investment in construction, billion roubles (measured in contemporary prices)

Percentage of fully depreciated manufacturing facilities (measured at the year-end)

Average days with payments outstanding
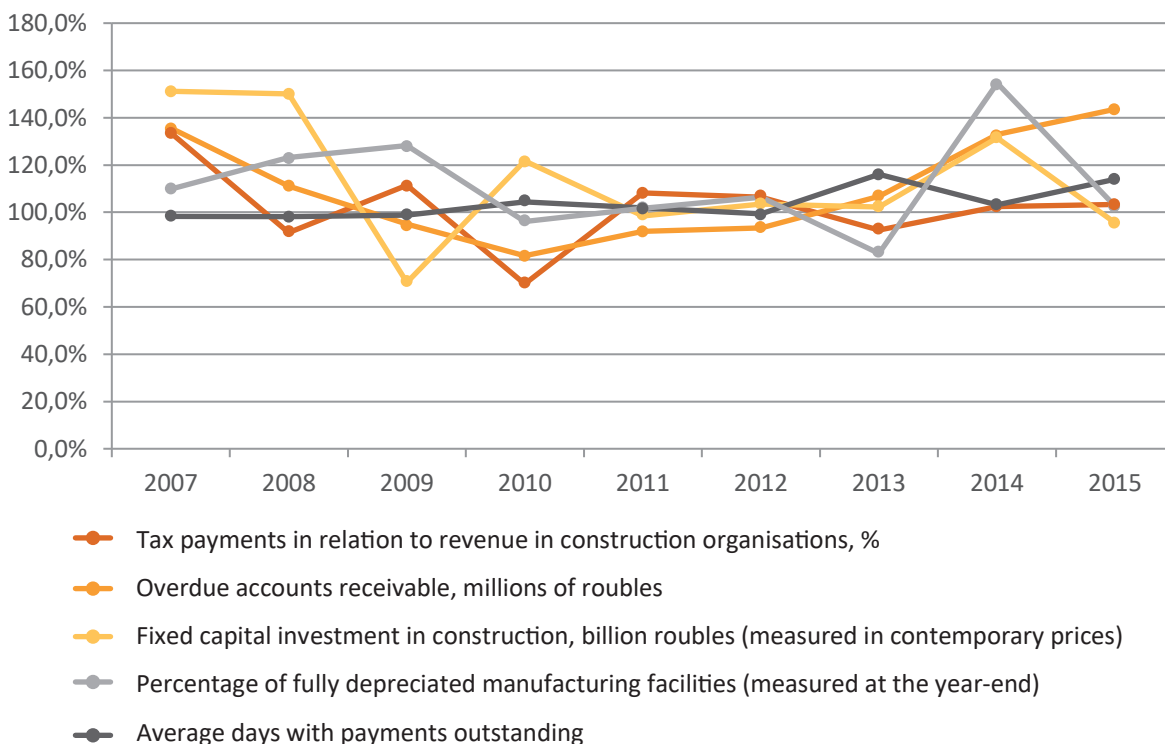
**Figure 4**. Tax burden in Russian construction industry, 2015–2016, percentage [10]



Tax burden as a percentage of revenue
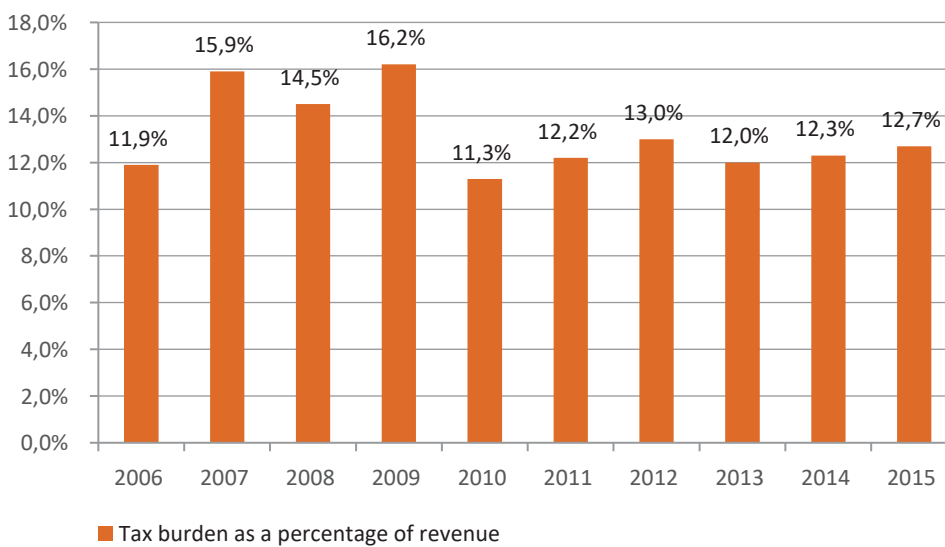
**Figure 5**. Construction works cost pattern in the Russian Federation, for 2015 (valued at actual costs) [11]



- Material costs
- Labour costs
- Deductions from pension, social and medical insurance
- Fixed assets depreciation
- Miscellaneous expenditures
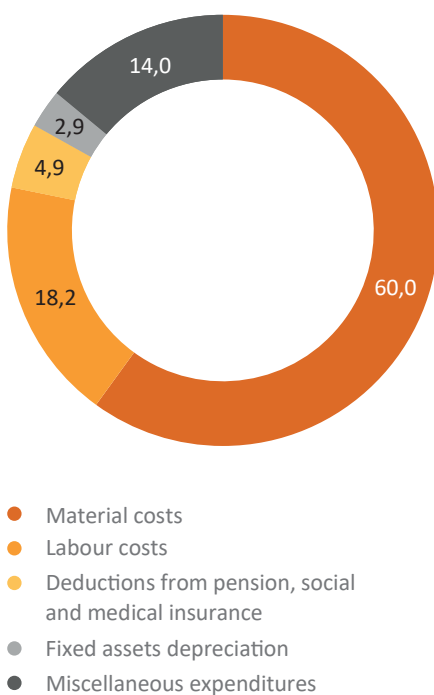
Thus, the pattern of controlled parameters enabling us to identify performance audit criteria should include profit, sales revenue, other earnings, and tax payable total.

Another constraint is high prices for materials, structures and articles. The power of this factor stems from the fact that construction industry is labour and material intensive. Figure 5 shows construction works cost pattern. Material costs account for more than 50% of estimated construction budget. This emphasises the importance of thorough monitoring of the procurement and depreciation of construction materials that should take into account their specific characteristics and feasibility.

To measure the impact of material costs on the performance of construction organisations, we suggest using the ratios of material returns and costing to sales revenue as the elements of performance audit criteria.

Construction investment is decreasing. The first quarter of 2014 saw a slowdown of business activities within the industry. The demand for construction contracts shrank and the financial standing of developers deteriorated, not least due to the inflation. One obstacle to investment activity in the industry is high interest for commercial credits. Its significance is proven by the increasing amount of unsettled bank loans and other borrowings of companies in construction industry. The two indicators to measure this factor's impact are borrowed funds turnover and returns on debt. Every year Rosstat summarises the condition of the country's construction machinery fleet, where it repeatedly states that construction organisations face a reduction of their current machinery fleet and a growth of machinery with an expired service life [12]. It is important to note that the proportion of foreign manufactured machinery is substantial.

To measure the impact of 'Lack and depreciation of machines and equipment' on company performance, it makes sense to use such indicators as fixed assets turnover and returns on fixed assets.

To provide an overall assessment of business processes in the construction industry in terms of economy, we introduce elasticity coefficients where the numerator shows the changing value of costs (resources), and the denominator indicates the change in revenue within comparison periods. Given the economy criteria are met, the growth rate of the nominator will be smaller than that of the denominator. Economy is measured in terms of savings or overruns of resources utilised against actual outcome. Audit practices measure economy using 'performance to plan' indicators that consider changes in different resources (factors) against outcomes. So overrun/saving measuring methods involve the information provided by plans, budgets and estimates. We think that this information can be expanded to include effectiveness and efficiency

assessment as well. Our approach is aimed at establishing the comparability of performance assessment for different construction companies over time. That is why our approach involves the relations of changing factors and revenue.

To measure the performance of construction companies and lay the grounds for their development, we need a comprehensive approach that would enable us to evaluate the contribution of the key factors under consideration. A comprehensive solution is provided by performance audit procedures, as they provide relevant accounting and analytical information that enables users (including the public) to determine how well a company is performing by comparing its results to priority objectives in compliance with the costs and quality of resources consumed. However, prior investigations into fundamental and practical issues of auditing performance confined it only to the public sector of the economy. In today's resource-constraint environment, it is necessary to broaden its applicability and expand it to account for the private sector, including private enterprises in construction industry.

As we mentioned above, an advantage of performance auditing is a comprehensive evaluation in terms of **effectiveness**, **efficiency** and **economy**. The glossary of basic terms compiled by Accounts Chamber of the Russian Federation defines these terms as follows:

1) The efficiency of public spending is a relation between the outcomes (product, services and other) produced by public funds recipient and the input of material, financial, and labour resources used to deliver those outcomes.

2) The effectiveness of public spending – the extent to which actual outcomes delivered by a public funds recipient match the planned objectives.

3) The economy of public spending attains the recipient's planned objectives at minimum costs or achieving best results within the planned budget [13].

For performance criteria, auditors may take numerous quality and quantity metrics that characterise the subject matter of audit in terms of its organisation, processes, results and/or business activities to provide evidence that enables to assess how reasonably public funds are utilised.

In the practice of performance audit, criteria patterns may vary in compliance with the audit subject matter and the nature of business under consideration. The main requirement is that the criteria pattern be sufficient for making reasonable conclusions, in line with the objectives of auditing procedures utilised [14].

Therefore, it is possible to make a connection between performance audit criteria and the industry-specific constraints in the construction industry as described above (Table 1).

**Table 1**. Linkage between performance audit criteria and construction industry constraints

| Constraints | Performance audit criteria | | |
|---|---|---|---|
| | efficiency | effectiveness | economy |
| High level of taxation | Tax burden in relation to revenue | Tax burden in relation to profit | Tax elasticity in relation to revenue |
| High prices for materials, structures, articles | Cost to sales revenue | Material returns | Elasticity of price of goods in relation to revenue |
| High interest for commercial credits | Borrowed funds turnover | Returns on debts | Elasticity of borrowed capital in relation to revenue |
| Lack and depreciation of machines and equipment | Fixed assets turnover; Capital / output ratio | Returns on fixed assets | Elasticity of equity in relation to revenue |

This system is directed towards the overall goal of improving the relevant performance indicators selected as audit criteria. It will allow for comprehensive control over performance factors, and thus foster excellence of management and workforce performance in construction organisations. To fulfil this task, we suggest a comprehensive analysis using the integral estimation method.

## Applying integral estimation method to audit criteria

The integral estimation method is based on an approach to integrated indicators that is commonly used with complex and multidimensional social and economic phenomena. The baseline indicators are first converted and then convoled to form an aggregate multivariable estimate.

A similar approach involves using integrated indicators developed by a number of international organisations, for example, the Human Development Index suggested in UN Development Program [15]. Generally, the algorithms of obtaining integrated indices are very similar in all methods and follow the same sequence:

- selection of baseline indices ($x_i$) – primary data describing the phenomenon under study;

- primary data normalising – reducing to one value by the method of average, relative difference and other methods;

- integration of normalised data ($x_n$) by convolving interim metrics calculated through either multiplicative or additive methods.

**Figure 6.** Algorithm of comparative integrated evaluation of performance audit criteria

**1. Primary (source) data selection ($x_i$)**

**2. Primary data normalizing**

Option A.
Average magnitude determination ($\overline{X}$)

Option B.
Determining $x_{max}$, $x_{min}$,
($x_{max}$-$x_{min}$) values

**3. Intermediate integration**

Integrated evaluation by Option A

$$X_j^A = \sqrt[k]{\prod_{j=1}^{k} x_{nij}} \,,$$

Integrated evaluation by Option B

$$X_j^B = \sum_{j=1}^{k} x_{nij}/k$$

**4. Calculation of final estimates**

Final evaluation by Option A

$$I^A = \sum_{j=1}^{m} X_j^A$$

Final evaluation by Option B

$$I^B = \sum_{j=1}^{m} X_j^B$$

**5. Ranking the final estimates for reporting periods**

**6. Selecting relevant indicators of efficiency, effectiveness and economy**

**7. Determining controlled parameters**

These steps may involve a wide range of normalising and integration procedures. We used the most appropriate procedures individually, as well as a mix of several procedures.

For example, for primary data normalising the following procedures were used:

1. *Normalising by the method of average.* A working method of data unification $(x_n)$ is the comparison of individual values of every index $(x_i)$ against the actual total average.

$$x_n = \frac{x_i}{\overline{x}} . \quad (1)$$

The exceedance of an index being assessed as a negative trend, normalising is calculated in reverse:

$$x_n = \frac{\overline{x}}{x_i} . \quad (2)$$

2. *Normalising by range of actual values deviation.* Baseline data $(x_i)$ are unified by comparison against the minimum $(x_{min})$ and maximum $(x_{max})$ values of the indicator.

$$x_n = \frac{x_i - x_{min}}{x_{max} - x_{min}} . \quad (3)$$

This integrated assessment procedure is known as the method of relevance difference [10]. For the indices describing negative trends, the normalising formula will be constructed as follows:

$$x_n = 1 - \frac{x_i - x_{min}}{x_{max} - x_{min}} . \quad (4)$$

The existing methods may differ in their ways of data harmonising to a single integrated magnitude, i.e. obtaining finite or intermediate values of an integrated indicator. For this purpose, power mean formulae are widely used. Some methods encapsulate the stage of weight indicators rating with follow-up procedures such as assessment of various experts' opinions. These methods utilise the weighted arithmetical mean that will average out the values of standardised indicators.

To form a list of integral indicators for construction industry constraints, we can use two options: (A) and (B) to investigate their comparability.

*Option A* involves normalising indicators' values by comparing them against the average magnitude, with the geometrical mean being used in intermediate integrating procedures:

$$X_j = \sqrt[k]{\prod_{i=1}^{k} x_{ni}} , \quad (5)$$

where $X_j$ is the intermediate integrated indicator for a separate set of conditions j;

k is the number of indicators describing the set of conditions j.

*Option B* involves normalising individual indicators by the relative difference method. Intermediate integrating is completed with the arithmetical mean.

The option selected for indicators normalisation will also influence further procedures of data integrating. In case that the normalised values are presented as relative deviations from the mean or minimum value and then further averaged (Options A and B), the finite aggregate can be calculated as an average magnitude.

It is then feasible to rank the consolidated aggregates on an annual basis, and select the most significant effectiveness and efficiency indicators. This is achieved by choosing the best year for each organisation and comparing effectiveness and efficiency indicators obtained by both methods.

The step-by-step sequence of the comparative integrated assessment method is summarised in the flow-chart (Figure 6).

Thus, the comparative assessment method of performance audit criteria allows for a serious improvement of the auditor's analytical tools. Firstly, it suggests reasonable selection procedures for efficiency, effectiveness and economic indicators, which provides representative evidence for the auditor's findings. Secondly, the method can be used to rate the industry players and so it provides the basis on which to compare performance criteria of the auditee against those of its competitors. Thirdly, relevant indicators allow for the building up of a consolidated framework of controlled parameters whose behaviour can be described by means of factor analysis to work out relevant recommendations.

# Using the comparative integral assessment method to review the performance criteria of construction organisations in Novosibirsk region

To identify the relevant performance criteria which provide a fair view of construction organisations' performance in terms of their effectiveness, efficiency and economy, we used available information on financial and operational activities of sixteen construction organisations operating in the Novosibirsk region. To calculate performance indicators, we used accounting (financial) reporting from the same sample. The estimates were calculated with reference to the information provided by Professional Market and Company Analysis System (SPARK).

The examined data showed that ten companies under consideration were in the red zone (suffering net losses) throughout several years, so only six organisations could be shortlisted. Their profit trends are illustrated below (Figure 7).

As the graph shows, the companies numbered as 1 and 14 earned the highest net profit, the best year for both of them being 2013.

Consider the revenue trends shown in Figure 8.

**Figure 7**. Net profit trends for six construction organisations operating in Novosibirsk Region selected from the sample of 2010–2014
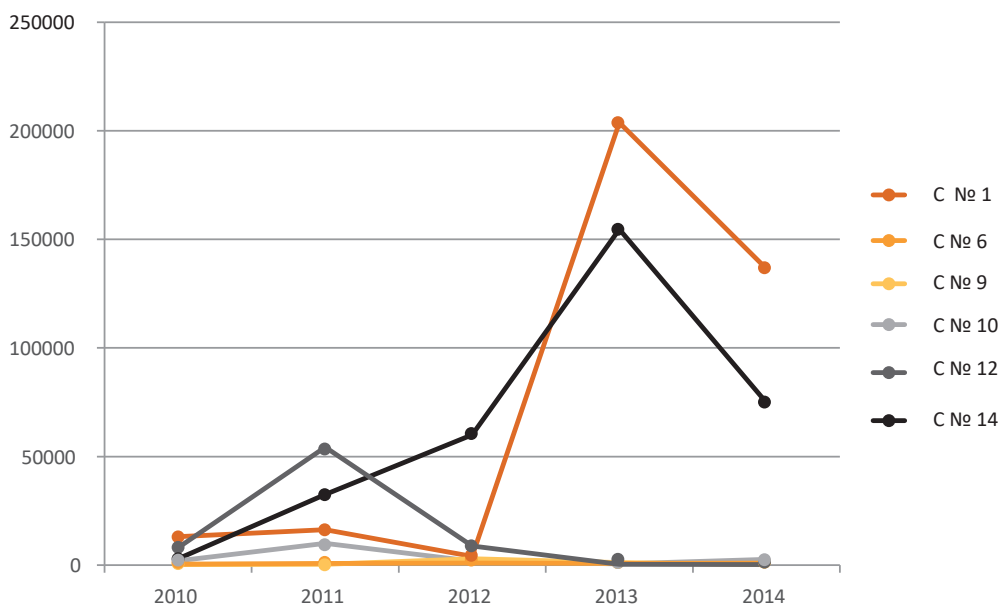


**Figure 8**. Revenue trends for six construction organisations operating in Novosibirsk Region selected from the sample of 2010–2014
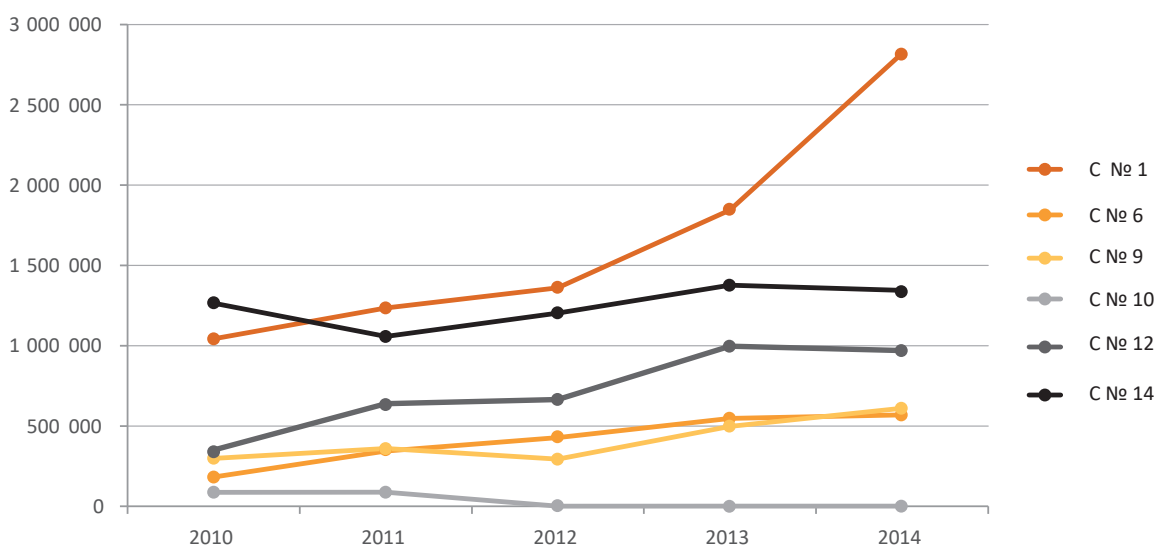


The revenue figures show the same trend. Company 1 and Company 14 have the highest rates. To continue with the analytical procedures, we have chosen Company 14 since it is the only company in our sample that has its accounting reports regularly published, which should ensure the quality of its reporting. Analysis of the data from construction companies in the Novosibirsk region confirms the findings of Russian researchers. In this vein, E. Senatorova [16] points out that the Russian construction industry tends to provide only mandatory accounting and tax reporting. As for non-financial reporting, construction ranks highest among the industries that are unlikely to disclose that kind of information. Herewith we will examine the sequence summarised in Figure 6.

To complete basic data sets, performance audit criteria should be calculated (the results are summarised in Table 2). Consider some of the following factors. For "High level of taxation", the following indicators are assigned: tax burden to sales revenue, current corporate income tax, tax to profit ratio. For "High prices for materials, structures and articles", the relevant indicators are cost to sales revenue, price of goods, and material returns. For "High interest for commercial credits" – borrowed funds turnover, average annual cost of debt, and returns on debt. For "Lack and depreciation of machines and equipment", the appropriate indicators are fixed asset turnover ratio, average annual value of fixed assets and returns on fixed assets.

**Table 2**. Calculation of performance audit criteria for a sample Joint Venture (2011–2015)

| Con-straints | Indicators | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Level of taxation | *Efficiency* | | | | | |
| | **Tax payment (TP)**, thousands of roubles. | 3029 | 15 671 | 25 722 | 33 913 | 29 281 |
| | Revenue (R), thousand roubles | 1 265 615 | 1 057 643 | 1 203 466 | 1 376 886 | 1 345 318 |
| | **Tax burden to Revenue (TB$_R$)**, TP/R | 0.24 | 1.481 | 2.14 | 2.46 | 2.18 |
| | *Effectiveness* | | | | | |
| | Net profit (P) | 2908 | 32 562 | 59 942 | 154 647 | 74 897 |
| | **Tax burden to Profit (TB$_P$)**, TP/P | 104.16 | 48.13 | 42.91 | 21.93 | 39.09 |
| | *Economy* | | | | | |
| | **Elasticity coefficient of taxes to revenue (E$_{TP/P}$)** $(TP_1 - TP_0)/(R_1 - R_0)$ | 0.957 | -0.061 | 0.069 | 0.047 | 0.147 |
| Costs of raw materials, components, articles | *Efficiency* | | | | | |
| | Cost of goods (CG), thousands of roubles | 1 066 089 | 742 053 | 775 189 | 936 102 | 909 110 |
| | **Cost of revenue** C/R | 0.84 | 0.70 | 0.64 | 0.68 | 0.67 |
| | *Effectiveness* | | | | | |
| | Material costs (MC), thousands of roubles | 586 349 | 408 129 | 426 354 | 514 856 | 500 011 |
| | **Material returns (MR)** MC/R | 2.15 | 2.59 | 2.82 | 2.67 | 2.69 |
| | *Economy* | | | | | |
| | **Elasticity coefficient of the cost of goods to revenue (E$_{CG/R}$)** $(CG_1 - CG_0)/(R_1 - R_0)$ | -5.68 | 1.56 | 0.23 | 0.93 | 0.86 |
| Interest on commercial loans | *Efficiency* | | | | | |
| | **Average annual amount of debt (DC)**, thousands of roubles | 748 909 | 734 374 | 650 277 | 589 952 | 627 999 |
| | **Debt turnover (T$_D$)** R/DC | 1.69 | 1.44 | 1.85 | 2.33 | 2.14 |
| | *Effectiveness* | | | | | |
| | **Returns on debt (R$_D$)** P/DC | 0.00 | 0.04 | 0.09 | 0.26 | 0.12 |
| | *Economy* | | | | | |
| | **Elasticity coefficient of debt capital to revenue (E$_{D/R}$)** $(DC_1 - DC_0)/(R_1 - R_0)$ | -0.76 | 0.24 | -0.81 | -0.02 | -2.50 |

| | *Efficiency* | | | | |
|---|---|---|---|---|---|
| Average annual value of fixed assets (FA), thousands of roubles | 720 372 | 671 384 | 668 643 | 708 279 | 721 756 |
| Fixed assets turnover($T_{FA}$) R/FA | 1.76 | 1.58 | 1.79 | 1.94 | 1.86 |
| Capital intensity ratio (CI) FA/R | 0.57 | 0.63 | 0.56 | 0.51 | 0.54 |
| | *Effectiveness* | | | | |
| Returns on fixed assets ($R_{FA}$) P/FA | 0.42 | 5.05 | 8.65 | 21.37 | 10.40 |
| | *Economy* | | | | |
| Elasticity coefficient of fixed assets to revenue (EFA/R) $(FA_1-FA_0)/(R_1-R_0)$ | 1.57 | 0.26 | 0.33 | 0.18 | 0.12 |

(Left vertical label: Machinery shortage and deterioration)

Following the algorithm, the next step is to calculate the average value, normalise baseline data, and make an intermediate integral assessment by the two methods (Options A and B) for the six sample organisations. The findings for one of the organisations under consideration (below referred to as a Joint Venture) calculated by Option A are presented in Table 3 and 4. Table 3 summarises the factors of "High tax rate" and "High price for materials, structures and articles", and Table 4 summaris-es those of "High interest for commercial credits" and "Lack and depreciation of machines and equipment". The evidence herein brings us to the conclusion that reference periods for the high taxation factor is the year of 2011, for "High price for materials, structures and articles" – 2013, and for "High interest for commercial credits" and "Lack and depreciation of machines and equipment" the reference periods are 2013 and 2014 respectively.

**Table 3**. Intermediate integrated estimates for High tax rate and High price of materials, components, and equipment for the reporting period of 2011–2015, Option A

| | **High level of taxation** | | | | | | |
|---|---|---|---|---|---|---|---|
| Year | Tax burden to revenue | Normalised tax burden to revenue | Tax paid, thousands of roubles | Normalised tax paid, thousands of roubles | Tax burden to profit | Normalised tax burden to profit | Product of normalised values | Intermediate integrated estimate |
| 2011 | 0.24 | 7.101 | 3029 | 7.105 | 104.16 | 0.491 | 24.825 | **2.917** |
| 2012 | 1.48 | 1.147 | 15 671 | 1.3731 | 48.13 | 1.064 | 1.677 | **1.188** |
| 2013 | 2.13 | 0.795 | 25 722 | 0.836 | 42.91 | 1.194 | 0.794 | **0.926** |
| 2014 | 2.46 | 0.690 | 33 913 | 0.634 | 21.92 | 2.336 | 1.023 | **1.007** |
| 2015 | 2.18 | 0.780 | 29 281 | 0.735 | 39.09 | 1.310 | 0.752 | **0.909** |
| $\overline{x}$ | 1.69 | x | 21 523 | x | 51.24 | x | x | x |

| | | | High price of materials, structures, articles | | | | |
|---|---|---|---|---|---|---|---|
| Year | Cost to sales revenue | Cost to sales revenue, normalised values | Price of goods, thousands of roubles | Price of goods, normalised values | Material returns (MR) | Material returns, normalised values | Product of normalised values | Intermediate integrated estimate |
| 2011 | 0.84 | 0.841 | 1 066 089 | 0.830 | 2.16 | 0.834 | 0.583 | **0.835** |
| 2012 | 0.70 | 1.010 | 742 053 | 1.193 | 2.59 | 1.001 | 1.207 | **1.064** |
| 2013 | 0.64 | 1.100 | 775 189 | 1.142 | 2.82 | 1.090 | 1.371 | **1.111** |
| 2014 | 0.68 | 1.042 | 936 102 | 0.946 | 2.67 | 1.033 | 1.019 | **1.006** |
| 2015 | 0.67 | 1.048 | 909 110 | 0.974 | 2.69 | 1.039 | 1.062 | **1.020** |
| $\overline{x}$ | 0.71 | x | 885 708 | x | 2.59 | x | x | x |

**Table 4**. Intermediate integrated estimates for high interest on commercial loan and machinery shortage and deterioration for the reporting period of 2011–2015, Option A

| | | | High interest on commercial loan | | | | |
|---|---|---|---|---|---|---|---|
| Year | Debt turnover | Normalised debt turnover | Average annual debt capital, thousands of roubles | Average annual debt capital, normalised values | Returns on debt | Returns on debt, normalised values | Product of the normalised values | Intermediate integrated estimate |
| 2011 | 1.69 | 0.893 | 748 909 | 0.895 | 0.004 | 0.037 | 0.029 | **0.309** |
| 2012 | 1.44 | 0.761 | 734 374 | 0.913 | 0.04 | 0.425 | 0.295 | **0.666** |
| 2013 | 1.85 | 0.978 | 650 277 | 1.031 | 0.09 | 0.883 | 0.891 | **0.962** |
| 2014 | 2.33 | 1.234 | 589 952 | 1.136 | 0.26 | 2.512 | 3.522 | **1.521** |
| 2015 | 2.14 | 1.133 | 627 999 | 1.067 | 0.12 | 1.143 | 1.382 | **1.114** |
| $\overline{x}$ | 1.89 | x | 670 302 | x | 0.10 | x | x | x |

| | | | | **Machinery shortage and deterioration** | | | | |
|---|---|---|---|---|---|---|---|---|
| Year | Fixed assets turnover | Normalised fixed assets turnover | Average annual value of fixed assets, thousands of roubles | Normalised average annual value of fixed assets | Returns on fixed assets | Normalised returns on fixed assets | Product of the normalised values | Intermediate integrated estimate |
| 2011 | 1.76 | 0.983 | 720 372 | 1.032 | 0.42 | 0.045 | 0,046 | 0.358 |
| 2012 | 1.58 | 0.881 | 671 384 | 0.962 | 5.05 | 0.551 | 0.466 | 0.776 |
| 2013 | 1.80 | 1.007 | 668 642 | 0.98 | 8.65 | 0.942 | 0.909 | 0.969 |
| 2014 | 1.94 | 1.087 | 708 279 | 1.015 | 21.37 | 2.328 | 2.568 | 1.369 |
| 2015 | 1.86 | 1.042 | 721 756 | 1.034 | 10.40 | 1.134 | 1.222 | 1.069 |
| $\overline{x}$ | 1.82 | x | 698 086 | x | 9.27 | x | x | x |

The same procedure was performed using Option B. The findings for "High tax rate" and "High price of materials, components and articles" are shown in Table 5. The intermediate integral estimates are similar to those obtained by Option 1. For example, the factor of "High tax rate" has the reference year of 2011, "High price of materials, components and articles" – 2013; for "High interest for commercial credits" and "Machinery shortage and deterioration" the reference year is 2014.

**Table 5**. Intermediate integrated estimates for High tax rate and High price of materials, components, and articles for the reporting period of 2011–2015, Option B

| | | | | **High tax rate** | | | | |
|---|---|---|---|---|---|---|---|---|
| Year | Tax burden to revenue | Tax burden to revenue, normalised values | Tax payments, thousands of roubles | Tax payments, normalised values | Tax burden to profit | Tax burden to profit, normalised values | Normalised values total | Intermediate integrated evaluation |
| 2011 | 0.24 | 1 | 3029 | 0.591 | 104.16 | 0 | 2 | **0.667** |
| 2012 | 1.48 | 0.441 | 15 671 | 0.265 | 48.13 | 0.681 | 1.713 | **0.571** |
| 2013 | 2.13 | 0.146 | 25 722 | 0 | 42.91 | 0.749 | 1.156 | **0.385** |
| 2014 | 2.46 | 0 | 33 913 | 0.149 | 21.92 | 1 | 1 | **0.333** |
| 2015 | 2.18 | 0.129 | 29 281 | 0.591 | 39.09 | 0.791 | 1.070 | **0.357** |
| $\overline{x}$ | 1.69 | x | 21 523 | x | 51.24 | x | x | x |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| x_max | 2.46 | x | 33 913 | x | 104.16 | x | x | x |
| x_min | 0.24 | x | 3029 | x | 21.92 | x | x | x |
| x_max - x_min | 2.22 | x | 30 884 | x | 82.24 | x | x | x |

**High price of materials, components and articles**

| Year | Cost of revenue | Cost of revenue, normalised values | Cost of goods, thousands of roubles | Cost of goods, normalised values | Material returns | Material returns, normalised values | Normalised values total | Intermediate integrated evaluation |
|---|---|---|---|---|---|---|---|---|
| 2011 | 0.84 | 0 | 1 066 089 | 0 | 2.16 | 0 | 0 | 0 |
| 2012 | 0.70 | 0.710 | 742 053 | 1 | 2.59 | 0.652 | 2.362 | **0.787** |
| 2013 | 0.64 | 1 | 775 189 | 0.897 | 2.82 | 1 | 2.898 | **0.966** |
| 2014 | 0.68 | 0.819 | 936 102 | 0.401 | 2.67 | 0.777 | 1.997 | **0.666** |
| 2015 | 0.67 | 0.840 | 909 110 | 0.484 | 2.69 | 0.801 | 2.126 | **0.709** |
| $\overline{X}$ | 0.71 | x | 885 708 | x | 2.59 | x | x | x |
| x_max | 0.84 | x | 1 066 089 | x | 2.82 | x | x | x |
| x_min | 0.64 | x | 742 053 | x | 2.15 | x | x | x |
| x_max - x_min | 0.20 | x | 324 036 | x | 0.67 | x | x | x |

**Table 6**. Intermediate integrated estimates for high interest for commercial credits and machinery shortage and deterioration for the reporting period of 2011–2015, Option B

**High interest for commercial credits**

| Year | Debt turnover | Normalised debt turnover | Average annual debt capital, thousands of roubles | Average annual debt capital, normalised values | Returns on debt | Returns on debt, normalised values | Normalised values total | Intermediate integrated evaluation |
|---|---|---|---|---|---|---|---|---|
| 2011 | 1.69 | 0,279 | 748 909 | 0 | 0.004 | 0 | 0.279 | **0.093** |
| 2012 | 1.44 | 0 | 734 374 | 0.091 | 0.04 | 0.157 | 0.248 | **0.083** |
| 2013 | 1.85 | 0,459 | 650 277 | 0.620 | 0.09 | 0.342 | 1.422 | **0.474** |
| 2014 | 2.33 | 1 | 589 952 | 1 | 0.26 | 1 | 3 | **1** |

| Year | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2015 | 2.14 | 0,786 | 627 999 | 0.761 | 0.12 | 0.447 | 1.993 | **0.664** |
| $\overline{x}$ | 1.89 | x | 670 302 | x | 0.10 | x | x | x |
| $x_{max}$ | 2.33 | x | 748 909 | x | 0.104 | x | x | x |
| $x_{min}$ | 1.44 | x | 589 952 | x | 0.26 | x | x | x |
| $x_{max} - x_{min}$ | 0.89 | x | 158 957 | x | 0.004 | x | x | x |

## Machinery shortage and deterioration

| Year | Fixed assets turnover | Normalised fixed assets turnover | Average annual value of fixed assets, thousands of roubles | Normalised average annual value of fixed assets | Returns on fixed assets | Normalised returns on fixed assets | Normalised values total | **Intermediate integrated evaluation** |
|---|---|---|---|---|---|---|---|---|
| 2011 | 1.76 | 0.492 | 720 372 | 0.974 | 0.42 | 0 | 1.466 | **0.489** |
| 2012 | 1.58 | 0 | 671 384 | 0.052 | 5.05 | 0.221 | 0.23 | **0.091** |
| 2013 | 1.80 | 0.609 | 668 642 | 0 | 8.65 | 0.393 | 1.002 | **0.334** |
| 2014 | 1.94 | 1 | 708 279 | 0.746 | 21.37 | 1 | 2.746 | **0.915** |
| 2015 | 1.86 | 0.783 | 721 756 | 1 | 10.40 | 0.477 | 2.259 | **0.753** |
| $\overline{x}$ | 1.82 | x | 698 086 | x | 9.27 | x | x | x |
| $x_{max}$ | 1.94 | x | 721 756 | x | 21.37 | x | x | x |
| $x_{min}$ | 1.58 | x | 668 642 | x | 0.42 | x | x | x |
| $x_{max} - x_{min}$ | 0.36 | x | 53 114 | x | 20.95 | x | x | x |

The next step is to make overall integrated assessments separately as per the procedures described in Option A and Option B and then average them to produce a single overall estimate. The findings are summarised in Table 7.

**Table 7**. Derivation of Integrated estimates by Option A and Option B and total integrated evaluation for the reporting period of 2011–2015

| Option A | | | | | | |
|---|---|---|---|---|---|---|
| Year | High tax rate | High price of materials, components and articles | High interest for commercial credits | Machinery shortage and deterioration | Integrated evaluation, Option A | **Ranking** |
| 2011 | 2.917 | 0.835 | 0.310 | 0.358 | 4.421 | **2** |
| 2012 | 1.188 | 1.065 | 0.666 | 0.776 | 3.695 | **5** |
| 2013 | 0.926 | 1.111 | 0.962 | 0.969 | 3.968 | **4** |

| Year | | | | | | Ranking |
|---|---|---|---|---|---|---|
| 2014 | 1.008 | 1.006 | 1.521 | 1.369 | 4.905 | **1** |
| 2015 | 0.910 | 1.020 | 1.114 | 1.069 | 4.113 | **3** |

| **Option B** | | | | | | |
|---|---|---|---|---|---|---|
| Year | High tax rate | High price of materials, components and articles | High interest for commercial credits | Machinery shortage and deterioration | Integrated evaluation, Option B | Ranking |
| 2011 | 0.667 | 0.000 | 0.093 | 0.489 | 1.249 | **5** |
| 2012 | 0.571 | 0.787 | 0.083 | 0.091 | 1.532 | **4** |
| 2013 | 0.386 | 0.966 | 0.474 | 0.334 | 2.159 | **3** |
| 2014 | 0.333 | 0.666 | 1.000 | 0.915 | 2.915 | **1** |
| 2015 | 0.357 | 0.709 | 0.664 | 0.753 | 2.483 | **2** |

| **Option A and Option B averaging** | | | | | | |
|---|---|---|---|---|---|---|
| Year | High tax rate | High price of materials, components and articles | High interest for commercial credits | Machinery shortage and deterioration | Total Integrated evaluation | Ranking |
| 2011 | 1.792 | 0.418 | 0.202 | 0.424 | **0.709** | **4** |
| 2012 | 0.880 | 0.926 | 0.374 | 0.433 | **0.653** | **5** |
| 2013 | 0.656 | 1.038 | 0.718 | 0.651 | **0.766** | **3** |
| 2014 | 0.671 | 0.836 | 1.261 | 1.142 | **0.977** | **1** |
| 2015 | 0.633 | 0.865 | 0.889 | 0.911 | **0.824** | **2** |

It is feasible to rank the integral estimates of Option A and Option B by reporting periods. Rank one is assessed as a target (reporting) magnitude. For the Joint Venture under consideration, the target periods obtained by Option A and Option B fall in the same period of 2014.

To obtain overall integral estimate, we need to average out Option A and Option B estimates (see Table 7). Similarly, rank the overall integral estimates by periods. Then, choose the best period for every selected organisation and compare the normalised values of Options A and B for every factor. The results are in Table 8.

The calculations show that for the construction companies under consideration, the fundamental indicators

include tax burden to profit, cost to sales revenue, returns on debt, fixed assets turnover and economy indicators for each factor. These metrics are capable of providing sufficient feedback about the performance of the construction companies in the sample throughout the reporting period in terms of their effectiveness, efficiency and economy. Besides, the indicators are intended to reveal the accountancy, managerial and taxation items that call for detailed auditing procedures to be implemented in order to evaluate the reliability of the reporting efforts and their compliance with the current legislation. Table 9 shows a relevant indicator framework for performance audit procedures.

**Table 8.** Framework of relevant efficiency and effectiveness indicators

| High tax rate | | |
|---|---|---|
| Organisation | Tax burden to revenue | Tax burden to profit |
| 1 | 2 | 3 |
| № 1 | – | + |
| № 6 | + | – |
| № 9 | – | + |
| № 10 | – | + |
| № 12 | + | + |
| № 14 | – | + |
| Total | 2 | 5 |
| **High costs of raw materials, compounds, articles** | | |
| Organisation | Cost to sales revenue | Material returns |
| № 1 | + | + |
| № 6 | + | – |
| № 9 | + | – |
| № 10 | + | – |
| № 12 | + | – |
| № 14 | + | – |
| Total | 6 | 1 |
| **High interest for commercial credits** | | |
| Organisation | Borrowed funds turnover | Returns on debt |
| № 1 | + | + |
| № 6 | + | + |
| № 9 | – | + |
| № 10 | – | + |
| № 12 | + | + |
| № 14 | + | + |
| Total | 4 | 6 |
| **Machinery shortage and deterioration** | | |
| Organisation | Fixed assets turnover | Returns on fixed assets |
| № 1 | + | + |
| № 6 | + | – |

| | | |
|---|---|---|
| № 9 | + | − |
| № 10 | + | − |
| № 12 | − | + |
| № 14 | + | + |
| Total | 5 | 3 |

**Table 9.** Performance audit criteria framework for construction organisations

| Efficiency | |
|---|---|
| Cost to sales revenue | Fixed assets turnover |

| Effectiveness | |
|---|---|
| Tax burden (to profit) | Returns on debt |

| Economy | | | |
|---|---|---|---|
| Elasticity of taxes to revenue | Elasticity of cost of goods to revenue | Elasticity of debt capital to revenue | Elasticity of fixed assets to revenue |

In view of this, the most relevant efficiency criteria for construction companies are seen to be fixed assets turnover and cost to sales revenue. Therefore, we can suggest that the most essential criteria among the construction industry constraints are the condition of property, plant and equipment and production costs structure. Thus from the perspective of efficiency assessment, we should emphasise the audit procedures that allow for a detailed analysis of prime costs, depreciation, asset acquisitions, and disposals. With regard to effectiveness, the values that deserve thorough analysis are debt financing, tax burden and its impact on performance.

Therefore, the most salient feature of our approach to the proposed performance audit criteria system is that it reveals industry-specific controlled parameters and baseline information available for auditing procedures to be conducted in construction organisations. Having identified significant performance audit indicators, we can now distinguish the controlled parameters that are presented in Table 10.

**Table 10.** Performance audit criteria framework developed for construction organisations with monitoring parameters

| Criteria category | Criteria | Controlled parameters |
|---|---|---|
| 1 | 2 | 3 |
| Efficiency | Cost to revenue | Cost of goods |
| | | Revenue |
| | Fixed assets turnover | Revenue |
| | | Fixed assets average annual |
| Effectiveness | Tax burden (to profit) | Tax payment |
| | | Net profit (loss) |
| Effectiveness | Returns on debt | Net profit (loss) |
| | | Debt capital annual average |

| Criteria category | Criteria | Controlled parameters |
|---|---|---|
| Economy | Elasticity of taxes to revenue | Tax payment |
| | | Revenue |
| | Elasticity of cost of goods to revenue | Cost of goods |
| | | Revenue |
| | Elasticity of debt capital to revenue | Debt capital |
| | | Revenue |
| | Elasticity of fixed assets to revenue | Fixed assets |
| | | Revenue |

To provide further performance estimation, consider the controlled parameters summarised in Table 11.

**Table 11**. Historical analysis of controlled parameters of the Joint Stock Company for the reporting period of 2015–2016

| Controlled parameters, thousand roubles | Year | | Growth rate, % | Increment, % | Absolute deviation, thousand roubles |
|---|---|---|---|---|---|
| | 2015 | 2016 | | | |
| 1 | 2 | 3 | 4 | 5 | 6 |
| Revenue | 1 359 373 | 1 181 227 | 86.8 | -13.2 | -178 146 |
| Net profit | 35 118 | 128 276 | 365.2 | 265.2 | 93 158 |
| Tax payment | 38 269 | 35 701 | 93.2 | -6.8 | -2568 |
| Debt capital annual average | 459 443 | 430 395 | 93.6 | -6.4 | -29 048 |
| Fixed assets average annual | 703 439 | 693 165 | 98.5 | -1.5 | -10 274 |
| Price of goods | 894 988 | 696 656 | 77.8 | -22.2 | -198 332 |
| Fixed assets | 687 027 | 699 303 | 101.7 | 1.7 | 12 276 |
| Debt capital | 402 711 | 458 079 | 113.7 | 13.7 | 55 368 |

To evaluate efficiency, calculate the profitability ratios presented in Table 12.

**Table 12.** Joint Stock Company profitability ratios for the reporting period of 2015–2016

| Company performance indicators | Formula | Year | | Change (+,–) |
|---|---|---|---|---|
| | | **2015** | **2016** | |
| 1 | 2 | 3 | 4 | 5 |
| Profit margin from core operations | Net income / (production cost + overheads + selling and marketing expenses) | 0,163 | 0,204 | 0,041 |
| Returns on assets | Net profit / Average total assets | 0.025 | 0.089 | 0.064 |
| Returns on equity | Net profit / Average equity capital | 0.045 | 0.148 | 0.103 |
| Returns on sales | Net income / Revenue | 0.140 | 0.169 | 0.029 |
| Returns on fixed assets | Net profit / Average fixed assets | 0.051 | 0.183 | 0.132 |

As shown in the table, the efficiency indicators demonstrate a positive trend. Nevertheless, to understand what actually created this trend, factor analysis has been conducted for every efficiency indicator.

A factor analysis of operations was conducted by the method of chain substitute. Its results provide the evidence sufficient to assess the impact of monitoring parameters on company performance. Table 13 summarises the results obtained.

**Table 13.** The impact of controlled parameters on company performance obtained through factor analysis for the reporting period of 2011–2015: Summary Table

| Profitability ratios | Controlled parameters | Absolute variation, thousand rubbles. | Positive / Negative impact | Materiality assessment, % |
|---|---|---|---|---|
| Profit margin from core operations | Price of goods | -198 332 | + | 28. 469 |
| Returns on assets | Net profit (loss) | 93 158 | + | 72.623 |
| Returns on equity | Net profit (loss) | 93 158 | + | 72.623 |
| Returns on sales | Revenue | -178 146 | + | 15.081 |
| Returns on fixed assets | Net profit (loss) | 93 158 | + | 72.623 |
| | Fixed assets | 12 276 | – | 1.755 |

As is seen from the table, the assessment of deviation materiality on the controlled parameters emphasises a number of indicators that are to be found in financial statements. For the construction organisation under examination, those indicators are as follows: price of construction work, net profit (loss) and revenue. Therefore, to interpret these values, the auditor has to reach out to additional information that affects the behaviour of the controlled parameters. Such information includes accounting policies on the price of goods formation (assessment methods of inventory disposal, capital assets depreciation, reserve accumulation policy, etc.). Thus, when interpreting performance audit evidence, account-

ing policy is considered with reference to the indicators of effectiveness, efficiency and economy (by 'accounting policy' we mean the policies that are not restricted to merely accounting objectives but also concern the issues of corporate profit taxation).

Another indicator to be specified is revenue. When examining a company's revenue, the auditor should understand its pattern and see how it fits the declared activities. He also should examine how well the audited entity maintains separate activity-based records of income and expenses. The revenue structure for the Joint Stock Company under consideration is provided in the notes to the Company's accounting statement (See Table 14).

**Table 14**. Revenue of the Joint Venture Company by type of activity for the reporting period of 2015–2016

| № п/п | Indicator | Revenue VAT exclusive, 2016, roubles | Revenue VAT exclusive, 2015, roubles |
|---|---|---|---|
| 1 | Selling own production (Foam concrete) | 1 064 759 788 | 1 165 710 643 |
| 2 | Construction and assembling operations, contractor's activities | 3 192 367 | 50 449 400 |
| 3 | Rental services | 30 182 217 | 40 621 766 |
| 4 | Providing services, work execution (including delivery) | 56 139 530 | 65 885 422 |
| 5 | Sales of real estates and land property | 2 312 369 | 11 500 000 |
| 6 | Sales of purchased goods | 24 640 676 | 25 206 049 |
| | **TOTAL** | **1 181 226 947** | **1 359 373 280** |

Thus, the method developed within the study has been tested using the reporting of construction companies operating in the Novosibirsk region. To yield and analyze performance audit criteria we initially selected sixteen construction companies throughout the Novosibirsk region. However, for the criteria to work well and adequately reflect the performance with reference to effectiveness, efficiency and economy, we had to reduce the sampling to six organisations. To obtain relevant indicators of effectiveness and efficiency for the six organisations, we identified their best period and compared the normalised values, estimated by Option A and Option B for each factor.

## Conclusion and Further research

This paper sought to draw up a set of criteria and analytical procedures for performance auditing in construction companies. It identifies some significant results and opens opportunities for future research.

The demonstrated results have confirmed our hypothesis that performance audit tools can provide a comprehensive solution to the problem of information openness and fairness in relation to the assessment of construction organisation performance.

First, we used valid statistical methods to determine certain significant indicators describing performance audit criteria. These indicators have been validated by compelling evidence elicited from sixteen construction organisations, over a period of five years.

Second, to establish significant indicators regarding efficiency, effectiveness and economy, auditing procedures were identified. This range of performance audit procedures was selected due to its having the capacity to provide comprehensive analysis of relevant information to measure key performance indicators.

Third, all the profitability indicators were subjected to factoral analysis that enabled us to assess the impact of certain controlled parameters vis-a-vis the performance results. The materiality of deviation for controlled parameters was estimated, and this allowed for the emphasising of some of the indicators gleaned from financial statements. Thus, it was identified as the information that is particularly important, meaning a strong emphasis should be put on this information's accuracy and fairness.

Fourth and lastly, we implemented performance audit procedures in order to systematise accounting policy information, which has implications for the applied parameters. This was to enable the identification of the most pertinent items to be disclosed through reporting.

The provided study of accounting policies of a Joint Stock Company has shown that the organisation utilises a weighted average cost method to compute the depreciation of goods sold, final products, financial assets and inventory. This method works well when purchasing prices tend to fluctuate sharply. In this case, prime costs averaging is shown to help avoid both unpredictable losses and unexpected revenue rates.

Therefore, the method demonstrated in this study provides guidelines to ensure accounting and analytical support of performance audit in construction organisations. This enables the creation of a system of performance audit criteria, the determination of their reference values, and the establishment of a set of controlled parameters. Being equipped with the controlled parameters, we can streamline accounting information, (including tax information and the information available through accounting statements) in terms of its materiality for stakeholders. Through this framework, stakeholders may evaluate a company's performance against the criteria of efficiency, effectiveness and economy. We should note that performance audit findings are especially important for internal users to validate their managerial decisions, as well as for external users making investment decisions.

It is necessary to expand and strengthen the results provided herein through further research. Firstly, we could see that statistical methods can fully validate the framework and reference values for performance audit criteria.

Nevertheless, to accomplish this task, we need to obtain information applicable to longer periods of at least several years. This will allow for the setting of benchmarks not against budget and forecast values, but using the information on the dynamics of effectiveness and efficiency of resources utilisation. Additionally, there is still a gap in the understanding of performance criteria with regard to many construction companies that continue to lose business. Secondly, using integrated estimates to rank relevant indicators of efficiency, effectiveness and economy enabled us to determine and specify controlled parameters. Controlled parameters create a reliable framework to present accounting and tax information in a systematic manner and assess the quality and reliability of its disclosure. This is a contribution to auditor sampling methodology and needs further development in the context of auditor review of material information disclosures. Thirdly, the research points out the need to supply stakeholders with information on effectiveness, efficiency and economy to provide them with comprehensive understanding of performance prospects in a broader socio-economic context. This means that construction companies need to disclose non-financial reporting, or expand their financial reporting with quality parameters. This creates an opportunity for further research on how the amount and quality of information disclosed in companies' reports impact business activities and the reputation of a construction company.

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# Public-Private Partnerships: Does Russian Practice Follow International Experience?

**Elizaveta Markovskaya**
Candidate of Economic Sciences, Associate Professor
ORCID
E-mail: markovskaya@yandex.ru

Department of Finance, National Research University Higher School of Economics, St. Petersburg, Russia


**Victoria Holodkova**
Candidate of Economic Sciences, Associate Professor
ORCID
E-mail: holodkova_victoria@hotmail.com

Department of Economic Cybernetics, St. Petersburg State University, St. Petersburg, Russia


**Dmitry Radushinsky**
Candidate of Economic Sciences, Business Consultant
ORCID
E-mail: D.Radoushinsky@gmail.com

Intellect Challenge LLC, St. Petersburg, Russia

## Public-Private Partnerships: Does Russian Practice Follow International Experience?

# Abstract

Business partnerships between state agencies and private sector entities represent one of the most common forms of interaction between government and the business sector. Moreover, these public-private partnership (PPP) projects can be a major and effective catalyst for significant social and commercial development in the public sphere.

This article is devoted to an analysis of recent changes in the legislative base concerning PPP in the Russian Federation. We intend to identify pragmatic approaches toward assessing the economic effects of PPP involvement for potential stakeholders, as well as constructing models of financial frameworks for mapping the PPP project implementation. This article presents the result of testing the financial model that we propose. The ultimate intention is that this model can be used in the preparation of concession agreements and negotiation in the preparation of PPP projects.

To achieve this, we analyze the legal framework and development trends of public-private partnership projects, both theoretically and practically. We consider and evaluate PPP from the point of view of 3 aspects: organizational, methodological and managerial. To achieve this, we must identify the interests of the various stakeholders who are directly or indirectly interested in the practical results of the project in both a material and a sociopolitical sense.

For each of the stakeholders, we identify areas for them to evaluate in the process of analyzing potential PPP projects. This includes the potential quantitative and qualitative results of a project that can be identified and, as a rule, measured, which allows for a standard approach to political and commercial evaluation. As a result, we present an algorithm for building a financial model which accounts for material and seemingly immaterial variables

It is suggested that this approach to building a financial model and evaluating the effects of PPP projects provides a uniquely useful perspective on the field. We utilize the most modern methods for assessing risks, benefits and effects for various stakeholders of projects implemented in the form of PPP, and as a result this paper provides ample opportunity for further development of research. The presentation of the evaluation algorithm for PPP stakeholders takes into account the complex structure of the partnership participants and will be useful for academic, commercial, and administrative parties.

## Introduction

Public-Private Partnership (PPP) has been studied in detail and multilaterally both in Russia and in international contexts. For example, in a general study of the PPP phenomenon, ed. E.R.Yescombe [1] examined, among other things, the specifics of the application of PPP standards in different countries, the various shortcomings of PPPs, the decision-making processes for investing and holding state competitions in PPPs, and the practical issues of organizing financing for private companies entering into PPP agreements. An empirical analysis of the involvement of small and medium-sized businesses in PPPs and amendments to the concluded contracts was carried out by the authors of the American Planning Association, the World Bank and the EBRD [2, 3, 4].

In other works [see 5, 6, 7, 8, 9, 10] different aspects of PPP such as prices for services in PPP projects in traditional sectors, the impact of public sector reforms on PPP, budget constraints on PPPs, risk transfer and stakeholder relationships, the influence of trust and established relationships, and regulatory regulation of PPP contracts are covered. Regional-specific experiences have also been analyzed, e.g assessing the effectiveness of PPPs in the construction of toll roads in the United States, implementing an integrated urban mega-project in the city of New Songdo in South Korea, and institutional and strategic barriers to PPP in the Netherlands [see 11, 12, 13]. In a recent paper [14] Professor J. Macomber of Harvard University discusses the possibilities of using PPPs in the four types of urban agglomerations which he outines.

We suggest a practical approach to the construction of a financial model for assessing the effectiveness of PPP projects by planning for the respective dependencies. This article describes the principles of building such a financial model, as well as the author's approach to assessing the integrated effect, taking into account the complex structure of the participants in the partnership and assessing economic effects for stakeholders.

The article analyzes the legal foundations and trends in the development of this form of interaction. Modern methods for assessing risks [8], benefits and effects for different stakeholders of projects implemented in the form of PPPs are considered. We propose to consider and evaluate PPP projects in terms of 3 aspects: organizational, methodological and managerial (stakeholder). The organizational encompasses an evaluation of the benefits of the project at different levels of functioning of the participating economic entities. The methodological approach considers that there are many methods that can be adapted for use in the process of assessing the effectiveness of PPP projects. From the point of view of project management in public-private partnership projects, there are several stakeholders: the state, business, society, etc. By 'stakeholders' we mean all individuals and / or legal entities that are directly or indirectly interested in the results of the project.

Through this method, for each of the stakeholders, we can identify the effects that are relevant to their interests in the process of PPP. By 'effects' we mean quantitative and qualitative project results that can be identified and, as a rule, measured [11].

## Trends in the Development of Public-Private Partnership in Russia

On January 1, 2016 Federal Law No. 224-FZ of July 13, 2015, "On Public-Private Partnership, Municipal-Private Partnership in the Russian Federation and Amendments to Certain Legislative Acts of the Russian Federation" (hereinafter – the PPP Law ) came into force in Russia.

Prior to that, most of Russia's PPP projects were implemented under the Law on Concessions, adopted in 2005, or on the basis of regional legislation on PPPs (according to data for 2015, 71 laws on the subject of the Russian Federation in the sphere of PPP are in force in Russia).

The current state of Russian legislation on PPP is developing around three main areas: the PPP law and the expected amendments to it, concession legislation, and regional legislation [15].

At the end of the 1st quarter of 2017 "Association PPP Development Center» published the results of their research 'Public-Private Partnership in Russia 2016-2017: Current Status and Trends, Regions' Rating'". In this document, experts identified the main trends in PPP development in Russia [16].

As of the beginning of 2017, the Russian Federation decided on the implementation of 2,446 infrastructure projects that involve private investment on the principles of PPP. At the same time, more than 480 projects are in the hands of governmental authorities and about 1,000 (according to expert estimates) are structured by a private partner for launch using the "private initiative" mechanism. Of the PPP projects that were favourably decided upon passed the decision-making stage on the implementation, 17 were at the federal level, 238 at the regional level, and 2191 were at the municipal level. A similar study (published in the 1st quarter of 2016) reported on 1300 PPP projects, for which a decision was made to implement 15 projects at the federal level, 191 projects at the regional level, and more than 1100 projects at the municipal level. Thus, the largest growth for 2016 (almost 100%) is noted for municipal level projects, while at the regional and federal level the growth in the number of projects implemented is more moderate. With regard to municipal PPP projects, it is noted that for 2017 so far, their implementation has been delivered to a maximum of 15–20 regions of the Russian Federation, where concession mechanisms are actively used. Thus, with the expansion of the geography of implementation in the coming years, the significant growth in the number of municipal-level PPP projects is likely to continue.

The main form of implementation of projects in the form of public-private partnerships continues to be related to the area of concession. 2,200 infrastructure projects (mainly in the municipal sector at the municipal level) are already being implemented and will be implemented in the form of a concession agreement. The term "private partner" has been used more actively since 2016, after the adoption of the law on PPP, mainly in PPP / PPP agreements in the social sphere (e.g. health, and education). To date, there are 70 such projects, all concluded within the framework of regional legislation.

The study notes that a number of projects are being implemented today in other organizational and legal forms closely related to PPP, such as: a long-term investment agreement and a life-cycle contract concluded within the framework of the 223-FZ, a life cycle contract within the framework of 44 FL, and a long-term lease of public property, which implies certain investment obligations of the lessee (the RF Civil Code and 135-FZ).

Most PPP projects are implemented in the following areas: communal and energy infrastructure (84% in terms of the number of projects and 27% in terms of investments), social infrastructure (11% in terms of number of projects and 13.5% in terms of investments), transport infrastructure 3% for the number of projects and 56% for the volume of investments). Projects in the information, communication and other spheres of PPP are 2% in terms of the number of projects and 3.5% in terms of investments. In such areas as defense, maintenance of law and order, and the fundamental science, the legislative forms of PPP and PPP-related activity is not utilised.

## Some aspects of project evaluation implemented in the form of public-private partnerships

The requirement to assess the effectiveness of projects implemented in the form of public-private partnership, starting from the moment the PPP Law comes into force, is an essential part of the organizational scheme for reviewing and analyzing the project by authorized representatives of government bodies [9].

We will hereby examine the individual aspects of the evaluation procedure, which should be implemented in the delivery of public-private partnership projects, and the legal framework which is relevant to them.

*Organizational aspect.* Organizationally, the evaluation process depends on the level at which decisions are taken on the project. For example, the materials of the Public-Private Partnership Development Center contain an organizational chart of the decision of the Investment Fund of the Russian Federation on PPP projects, which is set forth in Government Resolution No. 134 of March 1, 2008, "On Approving the Rules for the Formation and Use of Budgetary Appropriations of the Investment Fund of the Russian Federation" (with amendments and additions).

Organizational aspects of the decision-making process on investing in PPP projects are fixed in the following legislative acts: Resolution of the Government of the Russian Federation No. 590 of 12.08.2008 "On the procedure for inspecting investment projects for the effectiveness of using federal budget funds aimed at capital investments"; from 13.09.2010 № 716 "On approval of the rules for the formation and implementation of the federal targeted investment program"; the Decree of the Government of the Russian Federation of 03.08.2011 № 648 "On the selection and coordination of the implementation of priority investment projects of the federal districts and amendments to some acts of the Government of the Russian Federation", Resolution of the Government of the Russian Federation No. 382 of April 30, 2013 "On Conducting a Public Technological and Price Audit of Major Investment Projects with State Participation and on Amending Certain Acts of the Government of the Russian Federation"; and RF Government Decree of 05.11. 2013 No. 991 "On the procedure for assessing the appropriateness of financing investment projects at the expense of the National Welfare Fund and (or) retirement savings held in thestate management company, on a returnable basis".

*Managerial aspect.* In terms of the theory of project management in projects implemented in the format of public-private partnership, there are several stakeholders: the state, business, society. By stakeholders we mean individuals and / or legal entities that are directly or indirectly interested in the results of the project.

For each of the stakeholders, we can identify the effects that they can assess in the process of analyzing projects implemented in the format of public-private partnership. By effects we mean quantitative and qualitative project results that can be identified and, as a rule, measured [5].

*Methodological aspect.* Methodological bases for the evaluation of projects implemented in the PPP format are set out in several normative acts: The methodological recommendations for assessing the effectiveness of investment projects (approved by the Ministry of Economics of the Russian Federation, the Ministry of Finance of the Russian Federation and Gosstroy of the Russian Federation of June 21, 1999, No. V 477), the Order of the Ministry of Regional Development of the Russian Federation of October 30, 2009, No. 493 "On Approving the Methodology for Calculating Indicators and Applying Criteria for the Effectiveness of Regional Investment Projects ..." [21]

## Russian Practice of Financial Modeling, Risk Analysis and Effects Assessment

### Estimation of the integral economic effect in case of participation of foreign or international organizations in public-private partnership projects

To determine the integral economic effect of involving a foreign partner in joint activities to create an innovative product within a PPP, the following basic formula can be used:

$$Eief = FRf \times k1 \times k2 \times k3 - FRd, \quad (1)$$

where FRf (NPVf) is the expected financial result from the implementation of the project to create an innovative product in the PPP with the involvement of this foreign (international) company;

'k1' is a coefficient defining the scale of the project in the suggested range [0,8: 1,2]: 0,8 is a municipal project, the total cost of the project is up to 100 million rubles; 1 is the regional project, the cost of which is between 100 to 500 million rubles; 1.1 is a regional or interregional project, costing between 500 million and 5 billion rubles; 1,2 is a federal project, the cost of which is more than 5 billion rubles.

'k2' is a coefficient determining the level of business reputation (fame) of this foreign (international) company involved in the implementation of the project to create an innovative product within the PPP framework in the range [1: 1.5] : 1, which means the company is known in its country; 1,5 indicates that the company is the world leader, cooperation with which has the highest reputational effect;

'k3' is the ratio of the share of private capital in the project for the creation of an innovative product within the framework of PPP with the involvement of this foreign (international) company in comparison with the involvement of domestic partners or other foreign (international) companies that participate in the tender, the coefficient is determined by private respective shares;

FRd (NPVd) is the expected financial result from the implementation of a project to create an innovative product within the framework of PPP with the involvement of a domestic or foreign company that is accepted as the base option.

Moreover, formula (1) can take into account other factors, the influence (weight) of which can be determined by the method of expert estimates [18, 19].

## Approaches to building a financial model and assessing the effects of a project implemented in the form of PPPs: Russian practice

Implementation of the project in the form of public-private partnerships should provide mutual benefits for both sides involved in the transaction, for both the public and the share of the private partner.

In general, the base principle of formation of the remuneration reflects the following understanding at a basic level – for the successful implementation of the project, costs must be offset by income from private business projects, as well as generating some profit. This principle is particularly significant for the private partner, as the public partner in PPP projects primarily performs its social function, which provides and accounts for taxpayer funds. Therefore, the public partner does not need to extract any financial benefit from the project.

Note that part of the PPP projects, at the same time is subject to the necessary and additional state regulation of tariffs. This state regulation (see Law of the Russian Federation of the PPP No. 7) affects the preparation and formation calculations in the financial model. If, (in accordance with the agreement on public-private partnership) this provides for the production of goods, works and services carried out at regulated prices/tariffs and (or) based on established allowances to the prices/tariffs, procedures and conditions for establishing and changing prices/tariffs on manufactured goods, performed work, rendered services, allowances on prices (tariffs), long-term parameters of regulation of the private partner's activities (see Law of the Russian Federation of the PPP No. 7), subject to approval in accordance with standard field of price control legislation (tariffs) in the Russian Federation.

Thus, the final version of the financial model for this project of public-private partnership can be formed only after the prices / tariffs on manufactured goods / services will be agreed with the relevant regulatory authorities.

In addition, the agreement on public-private partnership may include a charge made by the private partner during the operation and (or) maintenance of the facility agreement (see Law of the Russian Federation of the PPP, Ch. 9).

The introduction of such a payment may be provided both during the entire life of the service and / or maintenance of the object of the agreement, and during certain periods of its operation and / or maintenance. The amount of such payment, as well as its form, procedure and timing of its introduction are established by the PPP agreement.

In the construction of the project's financial model it is necessary to observe a series of actions that will form a model more accurately and correctly.

The following scheme for constructing a financial model is proposed:

1) Formation of the overall project under the PPP model (including various production and basic financial indicators).

2) Preparation of the forecasted statements (including balance sheet, profit and loss statement, cash flow statement).

3) Calculation of the pure discounted cash flow.

In building the financial model for this scheme, it is necessary to consider that the amount of state participation in the transaction is determined by the size of the rate of profit and the amount of depreciation in the absence of borrowed funds.

In the presence of debt financing to private investors the rate of profit is also offset by interest paid for the use of debt financing. Thus, in order to determine the amount required to be paid, a financial model of the PPP project must be prepared. Formation of a financial model for the

implementation of the public-private partnership project takes place taking into account the use of own and borrowed funds. As part of the formation of the financial model, the amount to be paid by the private partner into the project to cover its expenses is calculated. This amount is calculated for each year of the provision of services / sales of products, under the following conditions.

The expected amount to be received by a private partner for each calendar year for the provision of services / sales of products is calculated by the following formula:

$$P_t = P(I_t) + P(FC_t) + P(VC_t), \quad (2)$$

where:

$P_t$ – the expected value in year t;

$P(I_t)$ – part of the expected investment in year t;

$P(FC_t)$ – expected permanentcosts in year t;

$P(VC_t)$ – expected variable costs in year t.

The expected value of the constant operating part in formula (1) for each t-year of the provision of services / sales of products is calculated by the following formula:

$$P(FC_t) = \sum_{j=1}^{n} FC_{tj} \times Ind(t), \quad (3)$$

where:

$FC_{tj}$ – compensation of j-type costs for t-year;

$Ind(t)$ – the forecasted index in t year.

The expected value of the operating variable part in formula (1) for each t service year is calculated using the following formula:

$$P(VC_t) = \sum_{i=1}^{n} V_t(i) \times \sum_{j=1}^{m} VC_{tj} \times Ind_j(t), \quad (4)$$

where:

$V_t(i)$ – expected volume of the i-th type of services / goods in year t;

$VC_{tj}$ – compensation costs in the form of j-th for year t;

$Ind_j(t)$ – forecast the index j-th species in year t.

When building a financial model of public-private partnerships, one must take into account that the value of the sum necessary for the private partners for the project should be not less than the sum itself (formula 1).

Thus, if we calculate the financial model of a project implemented through a public-private partnership scheme (a simplified example of such a calculation is given below, see Table 2.), the amounts of subsidies received should be calculated taking into account the constraints obtained by formulas (2)–(4).

**Table 1.** Simplified financial model for calculating the subsidy for falling costs in the PPP model

| Indicator name | Units | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|
| Income from goods /services | rub. | 54 872 | 58 620 | 61 025 | 64 230 |
| Income from non-core activities | rub. | 4510 | 4826 | 5163 | 5525 |
| Total revenues | rub. | 59 382 | 63 446 | 66 188 | 69 755 |
| Cost of sales of goods / services | rub. | 32 923 | 35 172 | 36 615 | 38 538 |
| Production costs | rub. | 5487 | 58 62 | 6103 | 6423 |
| Depreciation | rub. | 20 500 | 20 500 | 20 500 | 20 500 |
| Property tax | rub. | 560 | 560 | 560 | 560 |
| Expenditures for social development and other purposes | rub. | 1540 | 1540 | 1540 | 1540 |
| Project management costs | rub. | 420 | 420 | 420 | 420 |
| Interest on loans | rub. | 890 | 890 | 890 | 890 |
| Total costs | rub. | 62 320 | 64 944 | 66 628 | 68 871 |
| Drop-out costs | rub. | 2938 | 1498 | 439 | -884 |
| Subsidies from the budget | rub. | 2938 | 1498 | 439 | -884 |

In addition, in the implementation stage of the project, the formula may also take into account the income of the investor from the project. That is part of the amount $P_t$ at the relevant stage of operation of the project that can be covered through income from the project itself.

Most of the projects implemented in the format of public-private partnerships imply a gradual coverage of the investor's expenses for the project implementation at the expense of revenues received from its implementation.

However, it is also necessary to take into account that the investor pays attention not only to the gross income, but also to the distribution of funds over time.

In conclusion, it should be noted that any involvedment in a PPP necessitates an interest in the project. As a private investor, this will take the form of financial benefits, and for the state party, in the form of the implementation necessary for the requirements of the state, e.g., to ensure public infrastructure, social facilities and other such tasks,as are traditionally resolved at the state level [17].

## Approaches to risk assessment of PPPs: Russian practice

Here, we will consider examples of practical implementation of methodological recommendations for the evaluation of regional projects.

Below are examples of regional approaches to the implementation of guidelines for project evaluation. These approaches are related to the implementation of the rating-rating system of project evaluation.

*Example 1.*

The rating system for the evaluation of projects for the development of entrepreneurship in the Cherek Municipal District of the Kabardino-Balkarian Republic

**Table 2.** Criteria for assessing the local administration of the Chereksky Municipal District when giving grants to entrepreneurs

| Criteria | Indicator | Grade | Weight of criteria |
|---|---|---|---|
| 1 | 2 | 3 | |
| Land for project implementation | ownership | 100 | 0,2 |
| | Rent | 80 | |
| Creation of additional work places | More than 3 | 100 | 0,3 |
| | 3 | 80 | |
| Weight of equity in the total investment | 15% | 80 | 0,2 |
| | More than 15% | 100 | |
| Own fixed assets (infrastructure, equipment, tools etc) | yes | 100 | 0,1 |
| | no | 0 | |
| Business lines | agriculture | 100 | |
| | tourism | 80 | |
| | manufacturing | 70 | 0,1 |
| | services | 60 | |
| | arts | 50 | |
| | trade | 40 | |
| Correspondence with project documentation | corresponds | 100 | 0,1 |
| | Does not correspond | 0 | |

*Source*: Developed by Markovskaya E.I. together with Isupov AR, representative of the administration of the Chereksky Municipal District of the Kabardino-Balkarian Republic within the framework of the Presidential Program, 2015.

**Table 3.** The main directions of the study of the external and internal environment of the project / project initiator, the relevant indicators and their specific gravities

| Project characteristics | Weight | | indicator | Weight | |
|---|---|---|---|---|---|
| | Project finance | Investment loans | | Project finance | Investment loans |
| Project Initiator Owners | 0,1 | 0,4 | Influence of owners | 0,3 | 0,3 |
| | | | Stability of business | 0,2 | 0,2 |
| | | | Experience in Project Realization | 0,2 | 0,2 |
| | | | Financial Performance | 0,1 | 0,1 |
| | | | Goodwill | 0,2 | 0,2 |
| Project peculiarities | 0,6 | 0,2 | Financial Model | 0,2 | 0,3 |
| | | | Marketing and Sales | 0,2 | 0,15 |
| | | | Supply | 0,2 | 0,15 |
| | | | Assets creation | 0,1 | 0,1 |
| | | | Exploitation Stage | 0,1 | 0,1 |
| | | | Political Risks | 0,1 | 0,1 |
| | | | Other | 0,1 | 0,1 |
| Credit or investment deal peculiarities | 0,3 | 0,4 | Loan Guarantees | 0,4 | 0,4 |
| | | | Additional Finance Sources | 0,3 | 0,3 |
| | | | Level of Control | 0,3 | 0,3 |

When submitting an application, the applicant can provide any additional documents, including a letter of recommendation (letter) from public organizations, or guarantors, if he believes that they can influence the decision of the competitive commission. Additionally submitted documents are also subject to inclusion in the inventory. The commission assesses the submitted additional documents in points by a majority of votes, but not more than 20 points in total. A project that has earned scores from 70 to 100 qualifies as a recipient of the grant.

As we can see, the relationship criteria-indicators-scores given in the methodology express the stakeholder expectations associated with obtaining certain effects through participation the project.

Projects implemented in the form of public-private partnerships are implemented on the basis of the idea of sharing risks between all project participants. This principle is fundamental for project financing. Therefore, to analyze the risks of public-private partnership projects, it is possible to use methods that are designed to assess the risks of long-term financing.

As an example for these purposes, the methodology developed by Markovskaya EI can be adapted. Initially, this methodology was developed for JSC "AB Russia" in the period 2007–2008 in order to assess the bank's risks in project financing. Since project financing involves the participation of several stakeholders, including creditors and investors (the bank can also act as a co-investor of the transaction), this methodology includes risk assessment in different points of view[1] [20, 21].

The purpose of the methodology is to determine the level of credit risk R1 for deciding whether to participate in the transaction. The assessment of the level of credit risk R1 is carried out on the basis of an analysis of the main indicators that characterize the state of the external and internal environment of the initiator of the project.

The directions of analysis and the indicators included in their composition are presented in Table 3. The distribu-

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[1] The entire methodology is published in the following sources: Markovskaya EI Evaluation of the risks of long-term financing of investment projects in the Russian environment: // Audit and financial analysis . No. 5. 2013; Markovskaya E.I. Organization of financing of investment projects: theory and practice. SPb.: Publishing House of Polytechnic University, 2013.

tion of specific weights was made taking into account the importance of certain factors in the analysis of projects financed on the principles of project financing and investment lending. For example, the specific weight of the factor "project characteristics" in the case of project financing is 0.6, and in the case of investment lending it is 0.2. This is due to the fact that in the case of project financing, particular attention is paid to the project in the process of long-term risk analysis because it is the cash flows generated by the project that are the source of income for investors, as well as the source of debt repayment for the bank.

Calculation of the numerical value of the risk level R1 is carried out as follows:

- the study of the initiator of the project and its external environment for each indicator is carried out;
- the values of the indicators and their corresponding grades are determined; if the indicator includes subgroups, a score is determined for each subgroup;
- the values of the indicators, which include subgroups, are calculated by multiplying the grades by subgroups by their specific weights and by summing up the weighted indicators;
- weighted values of indicators are calculated by multiplying their gross values (the sums obtained by subgroups) by their specific weights;
- an estimate of the level of risk for each direction of the study of the internal and external environment of the initiator is calculated by summing the weighted estimates of the indicators in each direction;
- a final assessment of the level of risk R1 is calculated by multiplying the risk estimates by the research directions by the corresponding specific weights and summing the weighted values.

Based on the numerical risk assessment of R1, the bank / investor's participation in project financing and the nature of the financial condition of the initiator (to determine the quality of credit resources in case of participating in financing a bank project) are determined.

**Table 4.** Classification of the financial condition and the possibility of participating in the project, based on an assessment of the level of risk R1

| Financial Performance | Risk assessment R1 | |
| | grades | interpretation |
| --- | --- | --- |
| Good | 65–100 | Participation in financing is possible |
| | 45–65 | Participation in financing is possible with additional conditions |
| Medium | 25–45 | The project needs some changes |
| Bad | 0–25 | Participation in financing is complicated |

## Conclusion

In this composition, we have analyzed the trends in the development of the public-private partnership in Russia, and the new possibilities it offers. We have also examined the constraints of a Russian PPP Law which has been operating since 2016. While considering the aspects of project evaluation implemented in the form of PPP, we seek an approach to the construction of a financial model to assess the effectiveness of PPP projects that takes into account all the respective dependencies.

The principles of building a financial model have been described, which take into account the most modern methods for risk assessment, and the benefits and effects for different stakeholders of projects implemented in the form of PPPs. In the final part, this article describes an approach for assessing the overall integrated effect, taking into account the complex structure of the participants in the partnership and assessment of economic effects and risks for stakeholders.

We examined approaches that can be used by stakeholders in the process of assessing the risks and effects of public-private partnership projects. Taking into account the relevant risks, the method for identifying fair price of participation in the PPP project for both parties is estimated. The proposed financial model can be used to calculate the concession fee in tariff-regulated projects where the state is supposed to participate, usually with a subsequent transfer of ownership for the created entity to the state.

In furtherance of the continuous development of research in areas relevant to this article, the development of a methodology for assessing the risks and effects of public-private partnership projects (taking into account industry specificity) could be extremely useful froms practical and technical perspectives. This study may be considered a uniquely useful bridgehead in setting up the next step.

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# Ко-наем как стратегия выхода из высокотехнологичных инновационных компаний

**Рамиль Рафиг-оглы Гасанов**
Аспирант, старший инженер по техническому маркетингу
ORCID
E-mail: gasanoff.ramil@gmail.com

ООО «КАДЭКС», Нижний Новгород, Россия

## Ко-наем как стратегия выхода из высокотехнологичных инновационных компаний

## Аннотация

Венчурный бизнес традиционно связан с высокой степенью риска. По оценке консалтинговых компаний, лишь 23% инвестиций окажутся коммерчески состоятельными. Это говорит о том, что большинство вложений не будут возвращены. Такие потери неприемлемы для стагнирующего отечественного рынка венчурных инвестиций, поэтому одна из ключевых задач, встающих перед инвесторами, – нахождение методов максимизации отдачи от неудачных инвестиций. Ко-наем может стать таким методом. Цель работы – проанализировать механизм ко-найма и рассмотреть его финансовую модель.

Для анализа механизма был использован кейсовый метод. В статье рассмотрена активность корпорации Facebook на рынке поглощений, выделены и проанализированы примеры, в которых поглощение носит характер ко-найма. Определены также предпосылки появления этого механизма, рассмотрены финансовая модель, методы оценки стартапа, изучена структура сделок.

В результате было выведено определение ко-найма, произведены анализ и описание механизма, определены текущие подходы к структурированию подобных сделок, описана финансовая модель и рассмотрены альтернативные подходы к финансированию механизма. Было обнаружено, что в настоящее время не существует устоявшихся практик по поглощению стартапов с целью найма. Сделки могут регулироваться договором об оказании услуг, договором о покупке исключительных прав на интеллектуальную собственность или покупке доли в стартапе. Финансовая модель включает два пула: пул «рассмотрения сделки» и компенсационный пул. Первый пул попадает в руки инвесторов и стейкхолдеров после ликвидации компании. Компенсационный пул состоит из денежных средств и опционов, которые предназначены для сотрудников, нанимаемых в корпорацию.

Научная новизна статьи заключается в том, что описываются специфические черты ко-найма, позволяющие классифицировать его как отдельный механизм выхода.

Описанный в статье механизм имеет практическую ценность для венчурных инвесторов, осуществивших инвестиции в проекты, темпы роста которых не удовлетворяют ожидаемым. Применение этого механизма на практике будет способствовать повышению рентабельности подобных инвестиций.

**Ключевые слова:** ко-наем, приобретение талантов, слияния и поглощения, венчурный капитал, стратегия выхода, инвестиции

**JEL classification:** G24, G34, L24

## Введение

Венчурные инвестиции связаны с высокой степенью неопределенности и риска. Из анализа CB insights, проведенного на выборке из 1027 технологических стартапов, которые получили посевные инвестиции в 2008–2010 гг., следует, что 48%, или 489 компаний ликвидируются либо выходят на нулевую операционную рентабельность, не привлекая последующие раунды финансирования (рис. 1). Такие компании не приносят инвесторам дивидендов, а их потенциал роста сильно ограничен, что делает подобные инвестиции несостоятельными [1]. Всего из 1027 стартапов таких результатов достигла 791 компания, а это значит, что 77% посевных инвестиций оказались несостоятельными (см. рис. 1).

В 2016 г. в России было осуществлено венчурных инвестиций на сумму 507 млн долл. [2, с. 24]. Исходя из мировой практики, лишь 23% этих средств принесут прибыль. Для стагнирующего отечественного рынка венчурных инвестиций такие потери неприемлемы, и одна из важнейших задач, встающих перед инвесторами, – коммерциализация проваленных проектов.

Естественным способом защиты инвестиций является выход из неблагоприятного актива. Однако каким образом можно выйти из неудачного проекта? Кто и на каких условиях согласится выкупить долю инвестора в компании, которая за время своего существования не смогла найти свою целевую аудиторию, определить рынок и продвинуть на него свой продукт?

## Погоня за талантами

У большинства стартапов есть то, что жизненно необходимо стратегическим партнерам, а именно – компетенции. Как отмечают исследователи [3], одним из ключевых критериев осуществления венчурных инвестиций является команда. Технологические гиганты испытывают постоянный кадровый голод, который

в последнее десятилетие так и не был удовлетворен. Поэтому, когда стартап оказывается в плачевном финансовом состоянии, вместо ликвидации имеет смысл попытаться продать накопленные компетенции заинтересованной корпорации.

История Силиконовой долины и других инновационных кластеров по всему миру неразрывно связана с постоянно растущим кадровым голодом. Спрос на разработчиков программного обеспечения временно утих после того, как лопнул «пузырь дот-комов», но спустя десятилетие вновь достиг своего апогея вместе с уверенным ростом западного рынка венчурного капитала. Сегодня технологические гиганты готовы предложить привлекательные бонусы для привлечения и удержания талантливых инженеров. Они могут включать высокую фиксированную плату, выгодные опционы, прозрачные условия движения по карьерной лестнице, комфортабельные офисы, передовое оборудование, медицинское страхование для сотрудников и их семей.

Однако, несмотря на все преимущества работы на корпорацию, многие инженеры предпочитают запустить стартап самостоятельно или присоединиться к начинающей команде. Такие люди согласны на менее привлекательные зарплаты и отсутствие разнообразных бонусов, взамен они получают более полный контроль над будущим проекта и в случае, если стартап окажется успешным, возможность получить состояние при выходе из проекта. Кроме того, предпринимательство дает убедительные имиджевые преимущества, одобряется бизнес-сообществом и обществом в целом [4, с. 13].

В последнее время участие в стартапе становится все более привлекательным вследствие трех убедительных мотиваторов.

Стоимость основания инновационной компании существенно снизилась за счет множества государственных программ субсидирования и поддержки малого предпринимательства.

**Рисунок 1.** Воронка венчурного капитала
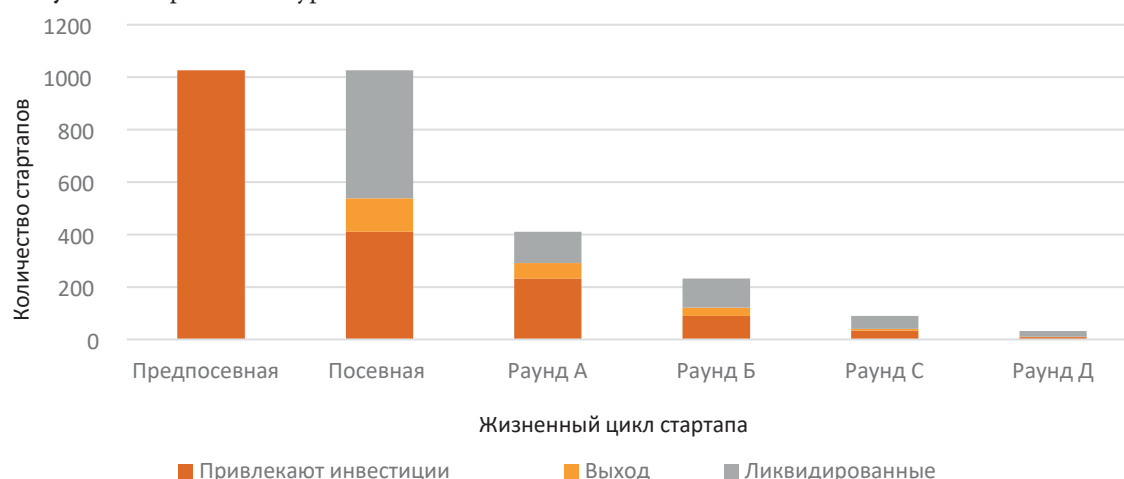


*Источник:* [1].

В дополнение к этому доступ к облачным технологиям и гранты от крупных инфраструктурных провайдеров (Microsoft, Amazon Web Services) позволяют практически полностью сократить расходы на серверное оборудование и лицензии на необходимое программное обеспечение. Например, программа Microsoft for Startups предлагает более 120 тыс. долл. в виде гранта на вычислительные мощности, ПО для разработки и офисное ПО [6].

Сегодня венчурное финансирование стало как никогда доступным. Отечественные и зарубежные венчурные инвесторы, бизнес-ангелы, акселераторы финансируют проекты даже на самых ранних стадиях.

Наличие доступа к венчурным деньгам в совокупности со снижением стоимости открытия бизнеса позволяет основателям предлагать более конкурентоспособную оплату труда и опционные программы. Скорость роста стартапов многократно превышает скорость роста крупных компаний, соответственно ценность доли в подобных проектах также стремительно растет.

В совокупности эти факторы говорят о том, что сегодня найти финансирование, привлечь в команду талантливых разработчиков и запустить инновационное предприятие легче, чем когда-либо. В свете этих обстоятельств конкуренция за талантливых разработчиков в последнее десятилетие только растет.

## Ко-наем

При классических слияниях и поглощениях главная цель покупателя – получение права собственности на материальные (недвижимость, оборудование, транспорт) и нематериальные (интеллектуальная собственность, аудитория, бренд) активы компании. При ко-найме покупающая компания, как правило, не заинтересована в операционной деятельности цели или приобретении ее активов, основную ценность представляет команда профессионалов.

Например, команда сервиса Drop.io присоединилась к Facebook 29 октября 2010 г. На момент приобретения стартап существовал три года и привлек 8,80 млн долл. в трех раундах финансирования. Drop.io был основан Сэмом Лессином [7], его сервис позволял пользователям обмениваться фотографиями, видеозаписями и другими файлами онлайн. В своей записи, посвященной сделке, основатель объявил о том, что продукт компании будет закрыт, а данные пользователей будут удалены,  несмотря на то, что многие пользователи платили за использование сервиса. Из той же записи следует,  что Facebook приобрел «большинство технологий». Это говорит о том, что не все наработки Drop.io интересовали Facebook. В результате команда сервиса во главе с Сэмом Лессином присоединилась к крупнейшей социальной сети [7].

Другое показательное приобретение Facebook – стартап FriendFeed. Пресс-релиз корпорации от 10 августа

2009 г. гласит: «Facebook сегодня анонсирует поглощение FriendFeed – инновационного онлайн-сервиса для публикации пользовательских новостей. В рамках соглашения все сотрудники FriendFeed присоединятся к Facebook вместе с четырьмя основателями, которые займут руководящие позиции в инженерных и продуктовых командах». В течение нескольких лет продукт FriendFeed поддерживался уже силами корпорации до того, как был полностью закрыт [8].

Как видно из приведенных примеров, в обоих случаях корпорации был важен доступ к команде и их компетенциям, а не финансовая составляющая этих проектов.

Одним из самых ярких примеров ко-найма на рынке СНГ является поглощение белорусской Masquerade Technologies социальной сетью Facebook 9 марта 2016 г. [9].

Продуктом Masquerade Technologies является мобильное приложение MSQRD [10], которое распознает лица людей в видеопотоке и накладывает на них «маски». По словам основателей компании, подобная идея родилась на волне популярности таких приложений, как Periscope и Snapchat.

Процессы распознавания лиц и замены изображения в реальном времени достаточно ресурсоемкие, поэтому краеугольными камнями являлись производительность приложения и способность работать на смартфонах с низкими техническими характеристиками. Благодаря опыту основателей в сфере разработки компьютерных игр им удалось достичь достаточно высокой скорости обработки видеопотока, таким образом обеспечив замену лиц в реальном времени. Основатель компании Евгений Невгень отметил: «Нам удалось сжать модель данных, используемую трекингом, со 120 МБ до 12,4 МБ при потере качества всего в 3–5%». Благодаря продуманной технологии MSQRD быстро работает и на новых, и на старых смартфонах. Обладая устойчивым, технологически сложным продуктом, компания привлекла 1 млн долл. инвестиций от российских инвесторов. На фоне роста популярности белорусского приложения к компании стал возникать интерес со стороны технологических гигантов, которые охотились за необходимыми компетенциями. Одним из таких гигантов был Facebook, который и приобрел команду проекта.

В процессе интеграции команда Masquerade Technologies начала работу над приложением Instagram, обогащая его функционалом, при этом последнее обновление их собственного приложения MSQRD произошло 2 августа 2016 г. [10]. Это говорит о том, что корпорация Facebook не была заинтересована в развитии продукта Masquerade Technologies или ее дальнейшей операционной деятельности. Наиболее важными активами являлись команда и ее наработки в области видеостриминга, отслеживания лица и 3D-плейсмента. Кривая обучаемости для этих навыков необычайно крута, а соответствующие специалисты весьма редкие.

**Рисунок 2.** Рост стоимости акций Facebook во время приобретения Masquerade Technologies
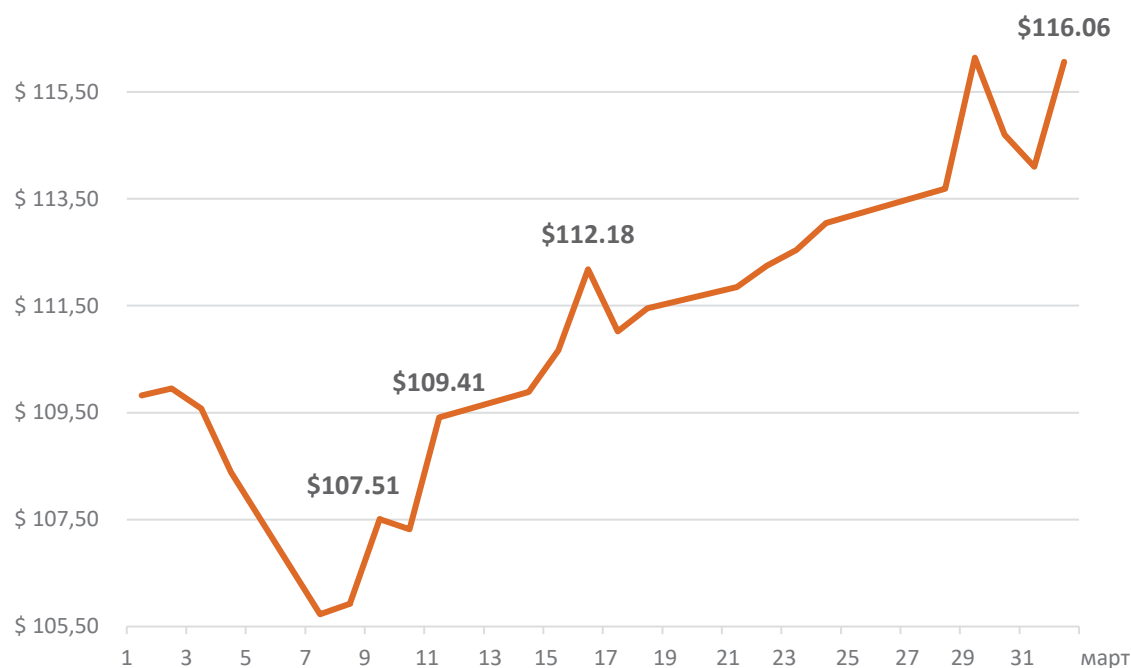


*Источник:* [12].

**Рисунок 3.** Количество людей, присоединившихся к Facebook в результате поглощений
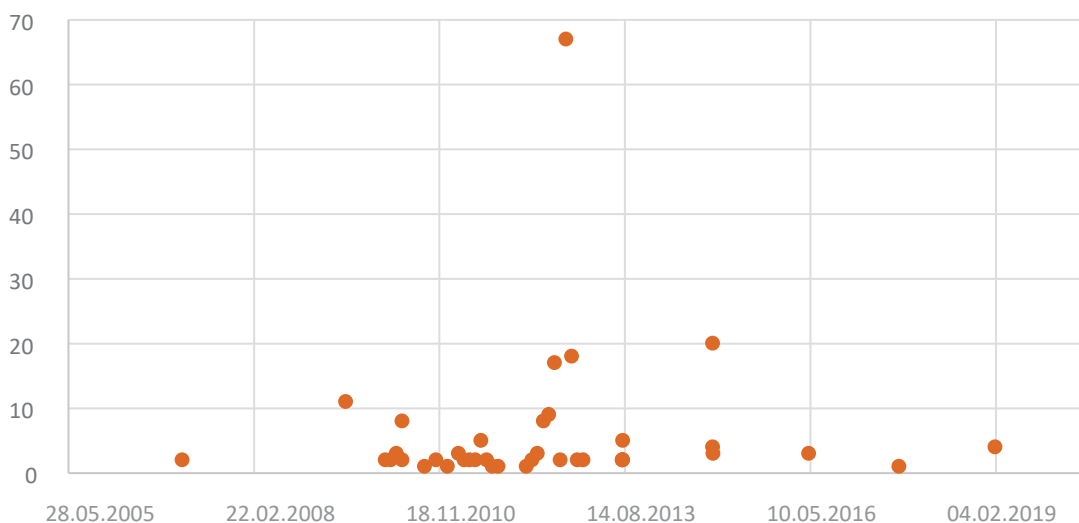


*Источник:* [13].

Стратегической целью социальной сети, купившей белорусский стартап, было привлечение поколения миллениалов, среди которых сервисы с подобным функционалом имеют высокую популярность. Монополистом на рынке видеофильтров было приложение Snapchat, которое Facebook неудачно пытался приобрести в 2013 г. [11]. Ко-наем Masquerade Technologies позволил быстро получить необходимые компетенции и усилить конкурентную позицию Facebook на стратегически важном рынке.

На момент приобретения Masquerade Technologies акции Facebook котировались по цене 107,51 долл. Спустя два дня акции выросли в цене на 1,77% и достигли

109,41 долл. Спустя неделю динамика увеличилась, и стоимость акций составила 112,18 долл. К концу месяца стоимость акций достигла 116,0 долл. Таким образом, капитализация компании увеличилась на 8,55% за 22 дня и в денежном выражении составила 339,01 млрд долл., что на 26,69 млрд долл. выше ее стоимости до покупки MSQRD (см. рис. 2). Очевидно, что усиление конкурентной позиции на рынке видеофильтров значительно сказалось на инвестиционной привлекательности Facebook.

Корпорация Facebook – одна из самых активных на рынке M&A. По данным Crunchbase, с 2007 г. технологический гигант приобрел 63 стартапа, наняв при

этом более 200 человек из 40 компаний. Это говорит о том, что в 63,49% случаев приобретение талантов выступило основным драйвером для сделки. На рис. 3 отражено количество людей, присоединившихся к Facebook в результате присоединения их работодателя к корпорации. Из рисунка видно, что, как правило, корпорация приобретает небольшие команды размером до 10 человек, при этом основная активность приходится на 2009–2013 гг.

Технологические гиганты покупают молодые компании с тем, чтобы вовлечь их в свои собственные проекты. Такой подход дает корпорациям возможность минимизации стоимости сделки за счет отказа от покупки всей накопленной интеллектуальной собственности и других, менее важных активов. Нанять слаженную команду с доказанным опытом создания продуктов куда проще и надежнее, нежели собирать такую же команду с нуля. Таким образом, можно предложить следующее определение ко-найму.

Ко-наем – процесс приобретения компании с целью найма ее персонала, при этом остальные материальные и нематериальные активы поглощаемой компании имеют второстепенное значение для покупающей компании.

Ко-наем может произойти на любой жизненной стадии компании, но чаще всего сделки заключаются между посевной стадией и стадией роста. Так произошло и с компанией Masquerade Technologies. Она была приобретена после раунда посевных инвестиций и до активного экономического роста. Как правило, на этом этапе основатели осознают, что стартап, скорее всего, не сможет вывести продукт на рынок и занять свою нишу. Таким образом, перед основателями встает вопрос о дальнейшей судьбе компании. Среди вариантов его решения: привлечение дополнительных инвестиций (что ведет к размыванию доли и не гарантирует дальнейшего успеха), ликвидация или ко-наем.

Джон Койл и Грег Польский [14] в своем исследовании проводят интервью среди предпринимателей и инвесторов Силиконовой долины, которые подтверждают, что ко-наем в большинстве случаев происходит именно по такому сценарию. В других случаях ко-наем был проведен вместо последующих раундов финансирования, так как условия привлечения нового раунда инвестиций не устраивали основателей.

Респонденты того же исследования подчеркивают, что на данный момент не выработано каких-либо стандартов или устоявшихся практик. Структура сделок сильно разнится от случая к случаю. Например, компания из трех-пяти человек может быть куплена за сумму менее 500 тыс. долл. При таком сценарии трансакция может регулироваться обычным договором об оказании услуг, в рамках которого компания получает денежный транш за определенные услуги. После выполнения договора стартап ликвидируется, а ее сотрудники в рамках стандартного трудового договора нанимаются в покупающую компанию. Очевидно, что такие условия не могут устояться в качестве практики, так как покупающая компания не может обязать сотрудников покупаемой компании трудоустроиться в нее. Это может привести к частичному или полному отказу штата «переселиться» в новую компанию.

В более крупных трансакциях принято структурировать сделку в соответствии с требованиями о покупке собственности. Как правило, при таком подходе имеется в виду покупка исключительного права гражданина или юридического лица на результаты интеллектуальной деятельности. Другая собственность (недвижимость, оборудование, транспорт) зачастую не участвует в сделке. Денежные средства (или опционы), уплаченные покупателем, распределяются между основателями и инвесторами поглощаемой компании в порядке приоритетов в процессе ликвидации компании.

## Оценка стартапа и структурирование сделки

При определении цены стартап, как правило, оценивается по количеству сотрудников. Однако вопрос цены остается крайне вариативным. По данным юристов по сопровождению слияний и поглощений из Lowenstein Sandler [15], существует негласное правило, по которому каждый разработчик оценивается в 1 млн долл. На практике конечный объем сделки варьируется от 200–300 тыс. до 50 млн долл. и более.

Несмотря на все разнообразие, во всех осуществленных сделках наблюдалась общая черта: выплаты, состоящие из денежных средств и опционов, делились на два пула.

Первый пул Джон Койл и Грег Польски [14, с. 19] назвали "deal consideration" («рассмотрение сделки»), он направлялся на приобретение стартапа. В зависимости от структуры сделки этот пул использовался для оплаты услуг инженеров, покупки интеллектуальной собственности (либо любой другой собственности) или доли в компании. Пул рассмотрения сделки во время ликвидации компании окажется у стейкхолдеров стартапа. Ими могут быть как ее основатели, так и внешние инвесторы.

Второй пул, называемый "compensation pool" («компенсационный пул»), использовался для вознаграждения сотрудников, которые впоследствии перейдут на работу в компанию-приобретателя. Как правило, большая часть пула представляет собой опционы, предоставляемые сотрудникам на определенных условиях. Практически во всех исследуемых случаях опционы были привязаны к сроку, в течение которого обязан проработать сотрудник (в среднем три-четыре года).

Причем опционы традиционно сопровождаются годовым порогом, или клиффом. Годовой порог говорит о том, что работник не сможет реализовать свой опцион до тех пор, пока не проработает год в покупающей компании. После годового порога части опциона будут доступны сотруднику пропорционально отработанному сроку. Рассмотрим пример, когда по условиям договора сотрудник должен отработать четыре года чтобы полностью реализовать свой опцион, а клифф составляет один год. Это означает, что после одного года работы сотрудник может реализовать 25% опциона, а оставшаяся часть будет поступать пропорционально в течение оставшихся трех лет на ежемесячной основе.

Помимо срока работы опционы могут быть привязаны к определенным ключевым показателям эффективности. Например, при разработке ПО могут быть использованы следующие показатели: количество релизов новых версий продукта, количество выявленных уязвимостей или ошибок.

Важный аспект компенсационного пула заключается в том, что он предоставляется исключительно тем сотрудникам, которые будут трудоустроены в покупающую корпорацию. Другими словами, ни инвесторы, ни стейкхолдеры (отказавшиеся от нового места работы) не получают из него никаких выгод.
На практике компенсационный пул практически полностью направляется рядовым сотрудникам, так как наибольший интерес для покупателя представляет команда инженеров-разработчиков.

Таким образом, денежные средства и опционы, получаемые поглощаемой компанией, делятся на два пула. Из-за наличия такой структуры сделки ключевым вопросом становится распределение общих выплат на два пула. Здесь возникает очевидный конфликт интересов. Инвесторы и стейкхолдеры (не нанимаемые в новую компанию) предпочли бы аллокацию ресурсов в направлении пула «рассмотрение сделки». С другой стороны, инженеры и стейкхолдеры (нанимаемые в корпорацию) будут заинтересованы в распределении общей суммы в сторону компенсационного пула.

Покупающая компания также заинтересована в увеличении компенсационного пула, так как от его размера и условий выплат будет зависеть мотивация ее будущих сотрудников. При ко-найме основным (если не единственным) мотивом покупателя является привлечение и удержание команды. Если компенсационные пакеты не будут устраивать инженеров, и они покинут компанию через один-два года, то смысл приобретения будет стремиться к «нулю». Получается, что с точки зрения покупателя первый пул является издержками, необходимыми для проведения сделки.

Таким образом, при распределении ресурсов интересы покупателя и инженерной команды противопоставляются интересам стейкхолдеров и инвесторов.
Профессиональное мнение относительно распределе-

ния бюджета делится на два лагеря. Инвесторы считают, что пул «рассмотрения сделки» должен удовлетворять прежде всего их интересам, так как если бы они не профинансировали посевной раунд, то у стартапа не было бы возможности собрать талантливую команду, доказать ее жизнеспособность и получить предложение от покупателя. С другой стороны, наибольшую ценность представляет именно человеческий капитал – инженеры, на которых у инвесторов не может быть никаких юридически обоснованных рычагов давления. Поэтому, по мнению сотрудников стартапов, большинство средств должно быть направлено именно в компенсационный пул. Кроме того, альтернативой ко-найма является ликвидация, при которой инвесторы в лучшем случае вернут ничтожную часть своих инвестиций.

Основная функция пула «рассмотрение сделки» – выплата инвесторам минимально возможной суммы, позволяющей, во-первых, удовлетворить их потребности, во-вторых, сохранить хорошие отношения между стейкхолдерами (которые в будущем, возможно, захотят основать новую компанию) и инвесторами. Потребности инвесторов и хорошие отношения стейкхолдеров тяжело перевести в денежный эквивалент, поэтому оценка пула «рассмотрение сделки» может быть крайне проблематичной. Ведь если инженерная команда почувствует риск занижения их «стоимости», то они могут попросту уволиться и перейти в корпорацию, при этом ничего не потеряв, а инвесторы и стейкхолдеры останутся ни с чем.
В таком случае необходимо найти правильный баланс между интересами инвесторов, стейкхолдеров и рядовых разработчиков. Но как его найти? Сколько должен получить инвестор? Какова адекватная цена для разработчика? Практика показывает, что для выяснения этих вопросов требуется колоссальное количество времени и переговоров. Кроме того, увеличение вариативности возможных результатов неизбежно приводит к неопределенности, которая может повлечь нежелательные риски в будущем.
Поэтому респонденты, интервьюируемые Джоном Койлом и Грегом Польски [14], на вопрос о размере выплат отвечают, что на рынке, скорее всего, устоится один из двух подходов, по которым инвестор получает либо фиксированный процент, например 15–20% от общего размера выплат, либо выплату в размере изначальных вложений. Это во многом ускорило бы процессы принятия решений в вопросах ко-найма и сократило бы неопределенность.

Так или иначе, основным подходом может остаться практика выплаты инвесторам изначальных вложений вследствие трех аргументов.

Инвесторы привыкли брать свои изначальные вложения за точку старта. Вкладывая в стартап, они ожидают вернуть вложения в десяти- или тридцатикратном размере, при этом именно изначальные вложения служат основным ориентиром [16].

Аллокация финансов на основе фиксированного процента вызовет ряд практических проблем. Из-за того, что инвесторы не имеют отношения к компенсационному пулу, они могут быть не осведомлены о его размере и деталях выплаты. Поэтому для вычисления корректной доли инвесторы должны быть проинформированы о деталях выплат инженерам, что не всегда может быть комфортно для команды стартапа. Кроме того, даже если инвестор будет в курсе всех деталей, рассчитать корректную выплату будет проблематично, ведь большая часть компенсационного пула традиционно представляет собой опционы, привязанные к условленным КПЭ (ключевые показатели эффективности). Один из базовых КПЭ – время работы на покупающую корпорацию. Таким образом, даже если применять принцип дисконтирования, необходимо учитывать риск неисполнения инженерами обязательств, который тяжело вычислить.

Многие основатели стартапов руководствуются благородным мотивом – вернуть вложенные средства инвесторов. Это позволяет не только улучшать бизнес-климат в России, но и сохраняет востребованные контакты для финансирования новых предприятий в будущем.

Таким образом, использование вложенных инвестором средств в качестве точки отсчета послужит удобным и предсказуемым ориентиром. Кроме того, если оценивать пул «рассмотрение сделки» на основе процентов владения компанией, то конечный размер выплаты инвесторам во многом зависел бы от правил распределения ресурсов при ликвидации юридического лица и стоимости компании, которая может быть низкой на фоне экономических провалов стартапа. Это говорит о том, что в ряде случаев фиксированная выплата в размере изначальных вложений будет выше, чем фиксированный процент от суммы выплат.

Это дает нам право предполагать, что в будущем при ко-найме устоится практика возврата инвесторам вложенных средств, и это поможет решить проблемы, связанные с аллокацией ресурсов между компенсационным пулом и пулом «рассмотрение сделки».

## Заключение

В статье мы рассмотрели предпосылки появления механизма ко-найма, привели практический пример, проанализировали феномен ко-найма и выяснили, что в настоящее время не существует устоявшихся практик по поглощению стартапов с целью найма персонала. От случая к случаю сделки регулируются договором об оказании услуг, договором о покупке исключительных прав на интеллектуальную собственность или покупке доли в стартапе.

Однако в транзакциях ко-найма наблюдаются общие черты. Конечная цена поглощаемого актива зависит от количества сотрудников стартапа. Финансовая модель включает два пула: пул «рассмотрения сделки»

и компенсационный пул. Первый пул попадает в руки инвесторов и стейкхолдеров после ликвидации компании. Компенсационный пул состоит из денежных средств и опционов, которые предназначены для сотрудников, нанимаемых в корпорацию.

В условиях стагнирующего рынка венчурных инвестиций и неблагоприятной макроэкономической ситуации в целом крайне важно определить работающие механизмы защиты инвестиций. Ко-наем, как механизм выхода из неблагоприятных активов, может помочь сократить издержки и обеспечить инвесторов денежными средствами для финансирования новых проектов. В качестве темы для будущих исследований можно рассмотреть долгосрочное влияние ко-найма на покупающую корпорацию.

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# Acqui-hire as an Exit Strategy from High-Tech Innovative Companies

**Ramil Gasanov**
PhD student, Senior Technical Marketing Engineer
ORCID
E-mail: gasanoff.ramil@gmail.com

CADEX Ltd., Nizhny Novgorod, Russia

## Acqui-hire as an Exit Strategy from High-Tech Innovative Companies

# Abstract

Traditional venture investments are associated with a high degree of risk. According to industry consultants, only 23% of investments are commercially viable, which means that most investments will not see returns. Such losses are unacceptable in the stagnating Russian venture market. Therefore, a key goal of investors is to find methods for maximising returns on failed investments. 'Acqui-hire', or the acquisition of companies in order to recruit from their pool of talented employees, can become such a method.

This paper aims to describe the acqui-hire mechanism and analyse its financial model. Presented herein is a case study method which examines Facebook's activity on the M&A market. As part of this evaluation, we will identify specific cases where acquisitions display relevant characteristics of the acqui-hire model. Common motivations behind acqui-hire are also discussed, the financial models which apply to the process are described, and startup valuation methods and typical deal structures associated with this mechanism are investigated.

As a result of this examination, we can assert that while distinct characteristics of acqui-hire may be identified, there is currently no broadly-established standard approach to acqui-hire activities. Individual deals may be structured in the form of service agreements, purchases of intellectual property, or equity acquisitions. We can identify that the relevant financial models comprise two general categories: the 'deal consideration' pool and the 'compensation' pool. The first pool relates primarily to investors and stakeholders, and concerns funds that are distributed after company liquidation. The second pool consists of options and funds that are dedicated to the employees who are going to join the acquiring corporation

The scientific novelty of this particular investigation consists in the descriptive breakdown of the specifics of acqui-hire, which allow for distinguishing it as a separate and distinct exit mechanism within the corporate milieu. As described herein, acqui-hire has practical value for venture investors in projects where growth rates do not meet expectations. Putting this mechanism into practice can certainly help to shore up the profitability of such investments.

**Keywords:** Acquihiring, M&A, venture capital, exit strategy, investments, talent acquisition
**JEL classification:** G24, G34, L24

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