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Influence of CEO Human Capital and Behavioral Characteristics on Economic Profit of Russian Companies

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Abstract

We investigate how different personal traits of a chief executive officer (CEO) influence value creation in one of the largest emerging capital markets in Russia. Our research model considers several components of human capital of a CEO. Moreover, we include CEO's behavioral biases looking at overconfidence measured by industry adjusted ratio of capital expenditures and narcissism captured by the analysis of CEO's photos following previous academic research approaches. The CEO power is applied to understand its impact over value creation and possible mitigating effect. Our sample con-sists of 111 Russian publicly traded companies and 235 CEOs for 8 years (from 2013 to 2020). We apply economic profit criteria to measure corporate performance with economic value added (EVA) which captures the spread between actual return on capital derived from financial reports and overall cost of capital based on the risks of a company collected from Bloomberg. We use first-order differences in company's contribution to EVA after adjustments to the industry and overall market contributions to EVA for the sample. We find empirical evidence that CEO's human capital affects value creation measured by first-order differences to industry adjusted EVA yearly. Furthermore, the CEO power has positive impact over value creation in Russian corporations while behavioral biases such as overconfidence ad narcissism do not have significant relationship with the changes in EVA.

Keywords: CEO, human capital, overconfidence, narcissism, CEO power, economic value added, emerging capital markets

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Introduction

The role of top managers in corporate decisions and they affect company's performance is among important and controversial topics in academic agenda. It has been very popular in managerial and social studies for many years. In corporate finance research the human-side of corporate financial performance becomes even more critical due to possible behavioral biases of top managers and chief executive officers (CEO) that are rooted in their irrational decision-making in investing, financing, strategic deals and other types of financial decisions. On one side, irrational behavior can lead to overestimation of future outcomes, errors in budgeting and financial planning, asset pricing and resource allocation. On the other side, it may result in underestimation or misunderstanding of risk drivers and their impact over the company in the short run and in the future. Therefore, the role of personal traits of top management and CEOs can be controversial and their combination may lead to positive and at the same negative effects of particular corporate decisions.

The studies on different groups of personal traits of a CEO including human capital characteristics and the metrics to capture its quality, behavioral characteristics and their possible metrics are mostly focused on developed market data. Such studies require rather wide scope of data, especially in case of behavioral traits to develop the variables for research models. The personal traits of CEO and their relationship with company's performance for emerging capital markets are understudied which can be explained also by the scarce data that is required to run such research. Despite the difficulties to have persistent data for personal traits measures, the empirical evidence on possible positive and negative effects of CEOs is needed. This paper is among the first to contribute to the literature on the role of both human capital and behavioral traits in emerging capital market. We study publicly traded companies in Russia to get the data, metrics and results.

The paper is structured as follows. Section 2 underlines main approaches from the literature review on the roles of human capital and behavior of a CEO. The section 3 develops the hypotheses, and defines the variables and research model. Section 4 presents empirical part of the research. Section 5 concludes. The paper has different annexes summarizing the classification of literature in the Appendix A and the descriptive data on variables in Appendix B.

Literature Review

Academic literature mainly considers such components of human capital as education, relevant experience (tenure in the current company, internal and external experience), government experience and other acquired professional connections. A classification of academic papers that consider the influence of these three groups of characteristics is presented in Appendix A. Studies of the role of the CEO age characteristic produce mixed results. A series of papers show that it is typical for younger CEOs to adhere to a more aggressive and risky corporate strategy of company acquisitions [1] and even more aggressive strategies of working capital management, and that such results are resistant to industry-specific effects and various model specifications . Another group of papers emphasizes the reverse dependence: more mature CEOs are prone to less risky company management, they are less motivated to improve their value in the labor market and more motivated to preserve the already achieved results [2; 3].

When considering CEO education, the authors demonstrate that a higher educational level enhances the ability to analyze large amounts of information and make management decisions in a resource-constrained environment [4], and that it is related to the development of employees' capacity for innovation [5]. The studies confirm a positive relationship between a CEO's educational level and corporate performance. Using the data of 350 companies for 1999-2017, A. Urquhart and H. Zhang revealed a greater impact of CEOs with PhD degrees on return on equity, as well as the fact that when this degree is granted by a top educational institution, it exerts the greatest impact [6]. Professional management education is just as important for CEOs. Thus, T. King et al. studied the operating efficiency of Chinese banks and showed that banks managed by MBA holders outperformed their competitors in terms of operating results [7].

An analysis of empirical papers suggests that CEO experience exerts a significant impact on corporate processes. CEO tenure produces an ambiguous influence on the company. Accumulated experience helps to make more informed decisions in stable industries [8]. W. Drobetz et al. emphasize the particular importance of prolonged tenure in a company when stakes are high: in case of implementation of a large investment project, management of a significant cash balance or a crisis [9]. C. Chahyadi, P. Wineka point out that executives with external experience make riskier investment decisions [10]. Crossland et al. also show that CEO external experience is related to growth in strategic innovation implemented in the company [11]. Studies suggest that industry-specific experience has a significant impact on strategic decisions [12] and CEO working style [13]. A positive relationship was revealed between the level of corporate entrepreneurship and CEO's professional connections in political circles [14]. Chief executive officers with financial expertise stand out due to their more active financial policy that decreases the cash balance, while increasing leverage and reducing investment in risky innovations [15].

The issue of why and how cognitive biases occur in decision-making is still relevant today and is discussed by scientists, business experts and psychologists all over the world [16]. Behavioral characteristics are based on irrational estimates when CEOs make decisions, they may lead to a overestimation of possible outcomes and, on the contrary, an underestimation of their risks. Acting in a more or less "irrational" way, people fall prey to a range of cognitive, emotional and social pressures that makes them opt for non-optimal solutions, which may impede the achievement of their goals.

Many authors in their studies consider irrational characteristics against the background of a chief executive officer's narcissism and overconfidence [17–19]. *Narcissism* is defined as excessive self-esteem that makes a person seek constant confirmation of his/her supremacy over other people and uniqueness [20]. People of this type use emotional self-regulation strategies in order to feel successful and important, thus exhibiting impulsive and impressive behavior in an attempt to satisfy their constant need for attention [21]. Narcissistic CEOs prefer to act in a daring and risky way, driven by their need to be admired [22]. Thus, V. Scotter asserts that purchases, especially major ones, are one of the most notable initiatives that may be taken up by the chief executive officer. CEO self-confidence is based on the "better-than-average" effect, which implies that CEOs tend to overestimate their own skills and knowledge, thinking they rank above average. It is related to three main factors: illusion of control, a high commitment to outstanding achievement and abstract guides, which impede the comparison of different people's achievements [23]. Only such CEOs or only the firm benefit from their biased beliefs [24]. One of the most obvious examples is the struggle between CEO self-confidence and personal aversion to risks that are undesirable from the shareholders' viewpoint [25]. When a manager is not prone to risk, overconfidence may make him/her undertake risky projects that a rational manager would reject after taking the risk into consideration. Appendix A also summarizes the studies dedicated to the influence of CEO behavioral characteristics on company operations.

As a rule, behavioral characteristics are presented as irrational features of a certain person. The biases of a chief executive officer are a potentially crucial factor that influences corporate performance [26]. For example, CEOs with strongly pronounced behavioral characteristics tend to use strategies and compete driven by their personal needs instead of corporate objectives [27]. Such actions may have positive consequences: firm performance may improve due to an increase in the number of innovations and acceptance of various investment opportunities [28; 29]. However, the authors point out the negative consequences as well: higher-risk decisions that top managers usually evaluate only over a short-term horizon, potentially causing a decline in corporate performance in the future [22].

The above analysis of empirical studies shows that an executive's irrational character traits do not always have a negative impact on the company. It is true that a narcissist running a company strives to enhance its risk profile, but at the same time a person of this type boosts innovation growth and earnings per share [22; 30]. Self-confident chief executive officers exploit innovation opportunities for growth more efficiently [31; 32].

The issue of the optimal CEO power level is no less important [36]. Numerous authors believe that CEOs can exert a significant influence on the heads of company business units and to make important corporate decisions, thus cancelling out the efficiency of corporate governance [34].

The key papers dedicated to this topic are presented in Appendix A. Literature offers a variety of ways to measure CEO power. Taking into consideration the specific nature of Russian corporate governance and limited published data about chief executive officers' characteristics in publicly available sources, hereinafter we will use the variables that reflect whether a CEO is the company founder and the share of independent directors on the board of directors [35–36]. Thus, Khresna et al. arrived at the conclusion that there is a significant level of interrelation between a highly powerful CEO and a company's high productivity, high market value, longer presence in the market, as well as introduction of new products [37; 38]. At the same time, executives with greater power use a lot of various incentives for making management decisions that are beneficial for them, which does not always provide favourable results [39]. Other papers show that highly powerful CEOs promote significant innovation activity and a achieve high financial results [40; 41]. Besides, some authors disapprove of endowing a chief executive officer with unlimited control over company operations. Disruption of checks and balances in the corporate control system ultimately undermines company value [42; 43].

In order to evaluate the influence of individual CEO characteristics on corporate performance, it is necessary to choose an indicator to measure them. We think it is important to use the *return on equity spread*, or the value by which the actual return on equity in a certain period differs from the risk-required return. Usually RI (residual income) is used for this purpose. It is based on the return on equity spread, which allows to take into consideration the vector of change in the company value for shareholders. Chief executive officer's individual characteristics, which comprise human capital and behavioral characteristics, may produce a positive or a negative impact on the return on equity spread and, consequently, on the economic value added. In this research we apply calculation without adjusting for financial statements because we rely on the data provided by Bloomberg (formula 1):

$$EVA = (ROIC - WACC) \cdot Invested\ Capital, \quad (1)$$

where *EVA* is the company's economic value added;

ROIC is return on invested capital;

WASS is the weighted average cost of capital;

Invested Capital is invested capital.

Against the background of the topic of the present research, it is important to note that economic value added provides corporate management with the correct incentive to create value for shareholders. Stewart distinguishes 4 advantages of this indicator for creating a system of efficient corporate governance [44]:

- *Operational efficiency*. In order to maximize EVA, it is necessary to optimize expenses and generate more revenue, i.e., look for the ways to increase profit while avoiding capital raising. Besides, these measures have a positive impact on other business performance indicators;

- *Efficient asset management*. EVA is the only indicator that demonstrates the actual change of the assets' book value. Thus, EVA motivates managers to optimize supply chains, speeding up the rate of asset turnover for reducing current assets. Also, EVA maximization leads management to reject investment projects that do not cover the cost of capital even if it reduces sales, EBITDA or profit.
- *Growth with regard to return*. EVA also motivates managers to invest in innovation, scaling and promoting growth, provided that return on equity exceeds the cost of capital. This allows to make investment decisions on the basis of the required return on invested capital, even if the return on these projects will be below the target ROI adopted by the company.

Optimal decision-making. Use of the EVA indicator demonstrates the influence of an investment decision on reported corporate performance, thus optimizing the procedure of making investment decisions. When managers follow the EVA paradigm, they generate the ideas that would have never been considered if accounting indicators prevailed in their minds as a target.

On the basis of the above arguments, we would like to point out that the EVA indicator presents the strategic and operating efficiency of decisions made by the company management. For this very reason we use this value in the present research as the resulting indicator of chief executive officer's management quality (i.e. the dependent variable).

Hypotheses and the Research Model

An analysis of empirical papers helps us to determine the logic of influence of each CEO characteristic on the economic value added of the company represented as EVA (economic value added) increment and to generate the following **hypotheses** for further research.

Hypothesis 1. There is a positive interrelation between CEO age and the increment of corporate EVA.

The experience accumulated with advancing age helps to make more intelligent management decisions [45].

Hypothesis 2. The higher the CEO education level, the larger the corporate EVA increment.

Prove that more educated CEOs are more capable of quick processing of diversified information, understanding of market opportunities, making proper management decisions, thus improving the quality of corporate governance [6].

Hypothesis 3. As CEO tenure increases, the EVA increment grows on a year-to-year basis.

There is a positive interrelation between the length of tenure and quality of operational and strategic planning [46].

Hypothesis 4. There is a positive interrelation between the extension of CEO tenure and corporate EVA increment.

W. Drobetz et al. show that the thoroughness of understanding of internal processes and business specifics influences the efficiency of investment decisions and risk level, which follows from the length of CEO tenure in the company in question [9].

Hypothesis 5. CEO external experience exerts a positive influence on the EVA increment.

Previous relevant external experience is believed to have a positive impact on performance; it promotes the development of more flexible thinking when making operational and strategic decisions [47].

Hypothesis 6. CEO government experience exerts a positive impact on the EVA increment.

Academic literature states that a chief executive officer's government experience brings about a more restrained investment policy, reduces the likelihood of corporate fraud and increases the number of business connections in the government authorities related to the company's field of activity [48; 49].

Hypothesis 7. CEO financial expertise has a positive impact on the corporate EVA increment year-to-year.

As a rule, executives with financial experience conduct a more active corporate financial policy, strive to decrease cash account balance and increase debt obligations, invest less in R&D, thus reducing the number of implemented innovations, attract external funding more actively during crisis periods, and have a more responsible attitude to dividend payout and capital gain [15].

Hypothesis 8. There is a statistically significant negative interrelation between CEO narcissism and corporate EVA increment.

A series of papers show that a chief executive officer's narcissism may lead to the company taking significant risks that may negatively impact financial performance and return on investment [50].

Hypothesis 9. There is a negative and significant interrelation between CEO self-confidence and the corporate EVA increment.

Self-confident executives tend to pursue an aggressive investment policy, which consists in a revaluation of return on investment and an underestimation of attending risks [51; 52].

Hypothesis 10. CEO power has a positive influence on corporate EVA increment.

Powerful chief executive officers may use their power to implement breakthrough innovation more swiftly, creating fundamental value [53; 54].

Description of the Sample and Variables of the Research Model

The sample consists of data on 111 Russian companies over an 8-year period (2013–2020) and is compiled on the basis of several criteria. In line with the previous studies dedicated to this topic, in the first instance, we selected only listed companies with full information in the annual reports and with explanation reports for at least 4 years of the analyzed

period. The majority of these companies are listed on the Moscow Stock Exchange (MOEX), nevertheless, there also are firms listed on the London Stock Exchange (LSE) and New York Stock Exchange (NASDAQ). First, we did not include serious market players that shape their industry in the analysis. Second, we would have to sacrifice a significant number of observations, which may have a negative impact on the quality of the empiric part of the research. Another selection criterion was the company size. We decided to remove companies with average revenue under RUB 120 mln for the research period from the sample because such enterprises are considered to be microenterprises in accordance with the Decree of the Government of the Russian Federation No. 265[1] of April 4, 2016 and cannot act as debt market participants according to minimum requirements for MOEX issuers[2].

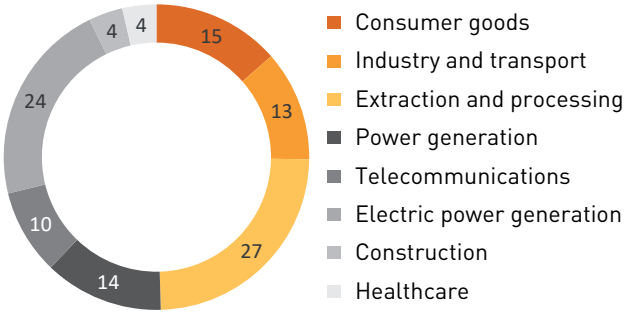
Then we used Bloomberg, Thomson Reuter Eikon and Factset databases to collect data for EVA and other financial indicators. All data gaps were filled in using corporate financial statements. All non-financial data that characterizes chief executive officers for each year of the analyzed period was collected manually from publicly available information sources, including annual company reports.

Dates of CEO entry into office and termination of powers were determined on the basis of annual reports and appendices to them. In the year of replacement, the new chief executive officer was indicated[3]. The chief executive officers who occupied their position for less than a year were eliminated from our analysis because of the premise that such chief executive officers were most unlikely to significantly influence corporate operations and because it was technically impossible to combine two observations with different variable values.

Ultimately the selection comprised 888 observations (111 companies for 8 years and 235 CEOs), where only 758 observations had EVA data, hence, could be us.ed in the model. Also, the sample contains omissions for other variables, therefore, .the final number of observations in the models may vary insignificantly depending on their number in an equation. The research uses companies only from the non-financial sector of economy. All companies were classified by sectors of economy accordin.g to the GICS[4] methodology offered by Bloomberg.

Figure 1 presents the distribution of companies from the sample by economy sector.

Figure 1. Distribution of companies by economy sectors



The companies are distributed by sectors of the Russian economy irregularly, which may influence the quality of analysis. We intentionally eliminated Sistema Public Joint Stock Financial Corporation from the sample, even though it met all the selection criteria. This organization is the only holding in the sample whose core activity is investment and whose portfolio comprises assets from various industries: PJSC MTS – telecommunications, Etalon Group – construction, STEPPE Agroholding – consumer goods, etc. At the same time, PJSC MTS accounts for 71% of the revenue of Sistema PJSFC and is included in our analysis as a separate organization, thus making it impossible to classify Sistema PJSFC as a telecommunications company. We also eliminated Rosseti Centre, PJSC from the sample due to the consolidation of top management with Rosseti Centre and Volga Region PJSC in 2016 in order to avoid the duplication of the variables related to chief executive officer's characteristics.

We use the *first-order differences of EVA* as the explanatory variable. However, industry-related trends and the market environment in general influence the economic value added. As long as the purpose of this paper is to analyze the CEO's influence on corporate operations, we have to evaluate only the part of EVA that the chief executive officer may affect. For this reason, we decided to clear EVA from industry-related and market effects. To that end, we used the approach described in the paper by McKinsey & Company which determines the actual amount of economic value added of the company after deduction of industry-related and market influence. It should be noted that in the original paper RI (residual income) was used which differs from the EVA original model in special adjustments to the data of financial statements. However, the Bloomberg system does not contemplate such adjustments, therefore EVA calculation tallies with RI calculations. The applied methodology of adjustment for industry-related factors is based on the paper by [55]) and is described in formula 2:

[1] Decree of the Government of the Russian Federation of April 4, 2016 No. 265 On Marginal Revenue from Entrepreneurship for Each Category of Small and Medium Business Enterprises. URL: https://www.consultant.ru/document/cons_doc_LAW_196415/

[2] Minimum requirements to MOEX issuers. URL: https://bondguide.moex.com/articles/debt-market/4

[3] It often happened that in the course of data collection for the variable describing CEO narcissism, evaluated by the photo from CEO's speech, annual reports were issued after the reporting date in the middle of the subsequent year and stated the name of the new chief executive officer who had not yet assumed office in the reporting period. In such cases we indicated the chief executive officer actually holding the office and the narcissism value was indicated as equaling the value of the previous year.

[4] Global Industry Classification Standard.

$$RI_{\text{company contribution}} = RI_{\text{company}} - \\ -RI_{\text{industry mean}} - RI_{\text{sample mean}}, \quad (2)$$

where is the economic value added of the company cleared from the industry-related and market influence;

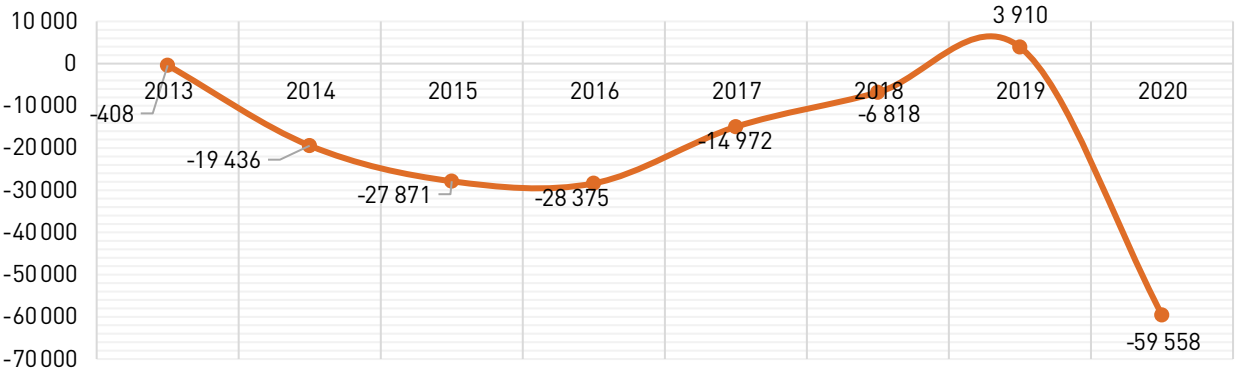
RI_{company} is the economic value added of the company;

$RI_{\text{industry mean}}$ is the mean value of economic value added in the industry to which the company belongs;

$RI_{\text{sample mean}}$ is the mean value of economic value added in the market.

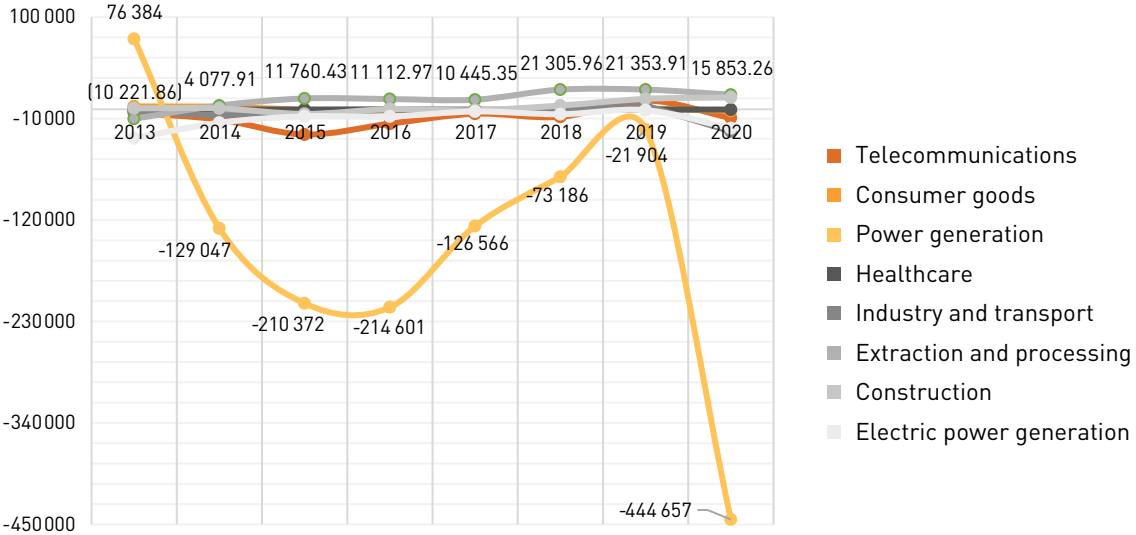
This allows to exclude the mean contribution of the industry and market from the value of the enterprise's economic value added. Figure 2 presents the dynamics of the mean economic value added for the sample in 2013–2020.

Figure 2. Dynamics of the mean economic value added for the sample, 2013–2020



The provided data shows that the mean market value of economic value added is rather volatile and was negative in the majority of periods. So, in 2020, the economic value added was the smallest for the period in question, amounting to RUB –59.6 bln. due to the coronavirus pandemic that dealt a major blow to enterprises. Figure 3 presents the dynamics of economic value added broken down by industry.

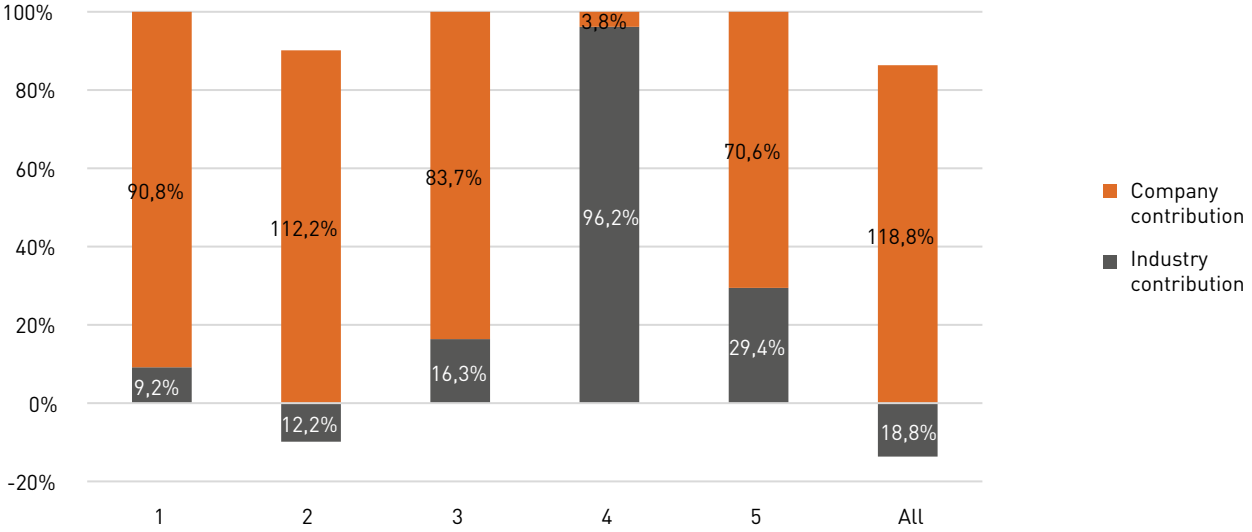
Figure 3. Dynamics of economic value added broken down by industry, 2013–2020



Let us examine the extraction and processing sector, which has managed to produce a positive economic value added since 2014. The reverse situation is observed in the power generation sector, where economic value added has not achieved positive results since 2014. Graphical analysis leads us to conclude that the power generation sector has the greatest impact on EVA in the sample. Thus, further in this research we will apply EVA data cleared from industry-related and market effects.

To sum up, in Figure 4 we present the contribution of the industry and the company to economic value added by quantiles (patterns).

Figure 4. Industry contribution and company contribution to economic value added



Note that with a breakdown into quantiles, as well as across the whole sample, company contribution prevails. It is indicative of CEO importance in creating fundamental value. There are two versions of EVA that will be used in the model: as first-order differences (model designation: *Delta_EVA*) and as percentage deviation (model designation: *Perc_EVA*).

We collected 10 variables for each company, which describe the chief executive officer for each year. See below the description and analysis of each variable.

CEO age

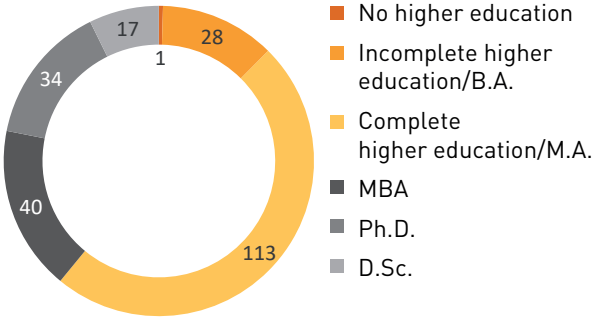
The variable representing CEO age (model designation: *Age* and *Age_2*) is a continuous variable and is defined as the number of years of the chief executive officer's age in the corresponding year. The data has been collected manually from official corporate websites, annual reports and publicly available Internet sources and presented in Appendix B – Characteristics of CEO Human Capital for the Sample of CEOs from Russian Companies. The average age in the sample is 48 and it varies from 30 to 72. Besides, the most common age of chief executive officers is between 39 and 45. Some studies point out the quadratic dependence between age and corporate financial performance. In order to take this feature into consideration, we decided to introduce the variable describing age in quadratic form into the model.

CEO Education Level

Distribution of chief executive officers on the basis of education (designation in the model: *Edu_Dum*) is presented in Figure 5.

Drawing on the experience of previous studies and analysis of collected data, we decided to use the education level in the model as a dummy variable, which takes on the value of 1 if the chief executive officer has a high level of education (an MBA, Doctor of Science or PhD), 0 – otherwise [6]. It is necessary to define a group of chief executive officers with an atypical educational level because almost all the CEOs in the sample have a basic educational level (bachelor's or master's degree).

Figure 5. Distribution of CEO Education Levels



CEO Tenure

The variable representing the chief executive officer's experience (designation in the model: *Tenure*) is continuous and is determined as the number of years of a CEO's employment by the current company in the corresponding year. As we see from Appendix B, the average experience of a chief executive officer from the sample amounts to 6 years, varying from 1 to 37 years. The most common tenure is 1 year. Distribution of chief executive officers by the number of years of tenure in the current company shows that CEO replaceability is characteristic of the sample: 34% of executives occupy their positions for less than 2 years. At the same time, 16% are in office for over 10 years. Note that sometimes there is a quadratic dependence between a chief executive officer's experience and corporate performance. In order to take this feature into account, we decided to introduce a variable describing age in quadratic form into the model.

The variable representing a chief executive officer's internal experience irrespective of the position (designation in the model: *Internal_Exp*) is continuous and is defined as the number of years of the chief executive officer's employment by the company, including subsidiary companies, in the corresponding year. Appendix B offers the descriptive statistics of the variable, which characterizes a chief executive officer's internal experience. The average chief executive officer's internal experience amounts to 10 years, ranging from 1 to 45 years. The most common CEO expe-

rience span is 1 year. Two groups of chief executive officers represent distribution of internal experience: in the first group the experience ranges from 1 to 6 years. As a rule, these executives are employed as CEOs from the start. In the second group, internal experience is significantly more extensive: from 12 to 18 years. These executives were hired by the company a long time ago and made a career up to the chief executive officer position.

CEO External Experience

The variable characterizing CEO external experience (designation in the model: *External_Exp_Dum*) is continuous. It is determined as the number of years of CEO employment by other companies. We did not find information on 3 chief executive officers (13 observations). Appendix B presents the descriptive statistics of the considered variable. On average, chief executive officers occupied the same position in other companies for 3 years. Besides, the most common experience span (mode) is 0 years. At the same time, there are CEOs in the sample with very extensive experience, i.e., 24 years. Taking into consideration the fact that there is a small range of variation of CEO external experience, we used a dummy variable. 1 means that such experience exists (irrespective of its length), 0 – that it doesn't exist.

The next variable is a chief executive officer's government experience (designation in the model: *Gov_Exp*). Government service is understood as an executive position in government authorities. Out of 234 chief executive officers in the sample, 60 have government experience, which amounts to a quarter of the sample (we didn't find validated information about 2 persons). Government experience was introduced in the model as a dummy variable that takes on the value of 1 if the chief executive officer has such experience, and 0 – if there is no evidence of such experience.

CEO Financial Expertise

The variable describing a chief executive officer's financial expertise (designation in the model: *Fin_Exp*) shows their experience in the position of chief financial officer, financial control officer, as well as in the field of audit or financial consulting. Out of 234 chief executive officers in the sample, 78 have corresponding experience, and there is no data about 3 executives. Similar to government experience, this variable was added to the model as a dummy, taking on the value of 1 if the chief executive officer had financial expertise and 0 – otherwise.

Explicative Variables Related to CEO Behavioral Characteristics

Narcissism

In order to create the Narcissism variable (designation in the model: *Narcis*), we used the size of the chief executive officer's photo in his/her speech publication, which is included in the corporate annual report. Such an approach allows to take into consideration the psychological make-up of a person with a narcissistic striving to always be in the limelight and attract as much attention as possible. This method of evaluating narcissism is common among authors (see, for example: [47; 56; 57]. In our research we assigned points on a scale of 1 to 5 to each photo depending on its size [58]. See the methodology of assigning points in Table 1.

Table 1. Methodology of evaluation of the CEO's photo size

Assigned points	Description
1	CEO's speech without a photo
2	CEO's photo together with other managers
3	CEO's photo takes up less than half a page
4	CEO's photo takes up more than half a page
5	CEO's photo takes up the whole page

Having analyzed 880 annual reports of the companies included in the present research sample, the authors presented the distribution of the chief executive officers' photo sizes in Appendix B. In order to add the narcissism variable to the regression at the next stage, we converted the collected data on the CEO photo size into a dummy variable: the observations which obtained 5 points in the narcissism evaluation were assigned the value of 1, all other observations were assigned the value of 0.

Self-confidence

A chief executive officer's self-confidence (designation in the model: *Self_Conf*) was assessed using the approach described in the paper by C. Chahyadi and P. Wineka, i.e., based on the amount of company's net investment [10]. Net investment was evaluated through the difference of investment and depreciation. The reason for this is that self-confident chief executive officers are used to assuming risks and implementing a global investment program in order to achieve swift company development, while others approach major investment with caution and are not willing to take additional risks.

With this approach, company size may produce a significant influence on the results because absolute values are used. For this reason, we decided to move from absolute values to a ratio by means of dividing annual net capital expenditures (CAPEX – R&D) by the enterprise's total assets. Thus, we eliminated the factor of company size when evaluating the actual investment amount. Below is the formula for CEO self-confidence assessment:

$$\frac{(\text{CAPEX-D\&A})}{\text{Total Assets}} \quad (3)$$

where CAPEX is investment per year;

D&A is depreciation and amortization per year;

Total Assets is the amount of total corporate assets.

In this research, CEO self-confidence was evaluated on an annual basis for the period of 2013–2020. The calculated ratio assigned to each chief executive officer was compared to the industry average value. Thus, we eliminated the industry-related factor, because the mean value of the ratio varied significantly in different industries: from –0.023 in telecommunications to 0.021 in the extraction and processing industry. Figure 6 provides summary information on mean values of ratios across industries in 2020.

Figure 6. Industry-related ratio values, 2020

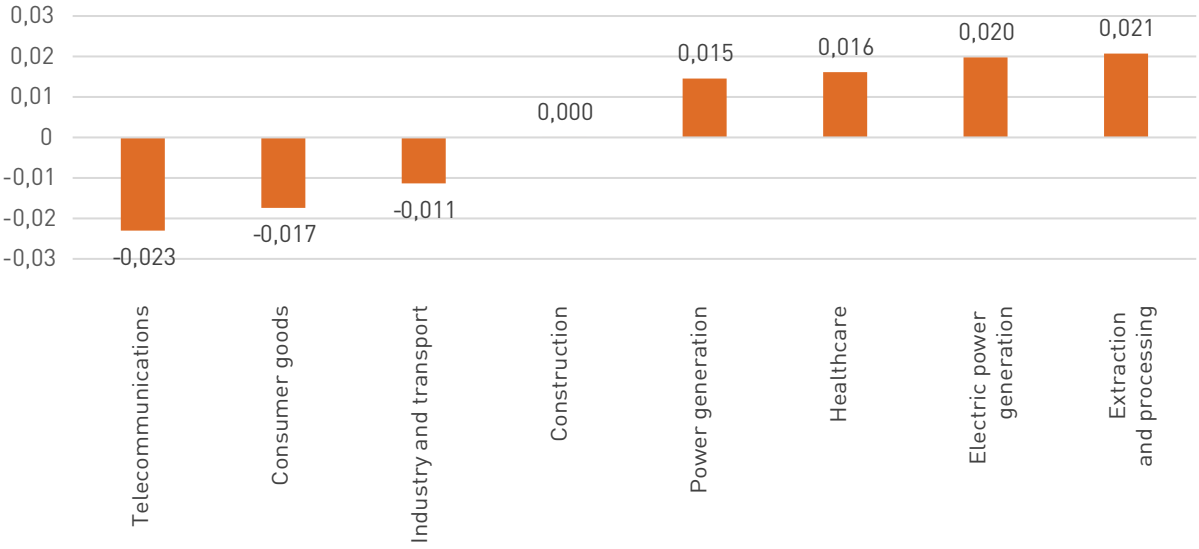
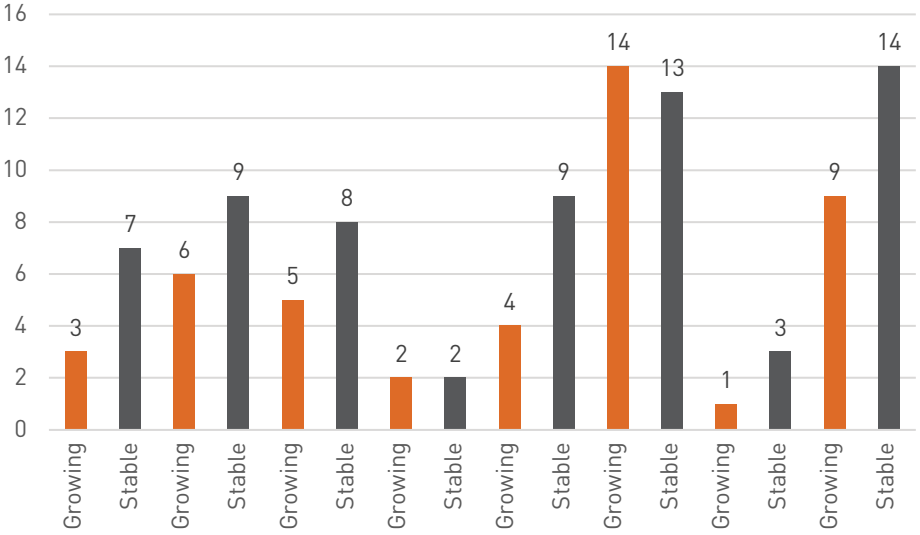


Figure 7. Distribution of companies by life cycle stages within industries



We also made a decision to take an enterprise's life cycle into account because companies at the initial maturity stage are involved in active investment and their CAPEX is significantly higher than the industry average. The principal metric for evaluating an enterprise's life cycle stage was the rate of growth of company revenue. We evaluated the mean growth rate of company revenue in 2013–2020 and compared it to the industry average. If the industry average was exceeded, the company was classified as "growing", otherwise – as "stable". Thus, within each industry companies were divided by lifecycle stage: growing or stable. Figure 7 presents distribution by life cycle stages within industries.

The value of net investment to total assets ratio of a certain company on a yearly basis was compared to the mean value of companies in the same industry and at the same life cycle stage. If this value was exceeded, the chief executive officer was assigned the status of a "self-confident" one. This methodology helped to avoid a number of problems related to the factors of company size, industry affiliation and the life cycle stage of the company.

Explicative variables Related to CEO Power

A chief executive officer's power (designation in the model: *Power_Dum*) was assessed applying the approach described in a paper by M. Sariol and A. Michael, based on the analysis of the share of independent directors in the total number of the members of the board of directors and the CEO being the company founder [54]. The share of independent directors and whether CEO is or is not the company founder were converted into dummy variables. Thus, the share of independent directors in the board of

directors was calculated for each year and compared to the median value of the whole sample. If the median value of the sample for a certain year was exceeded, the value of 0 was assigned, if the value was below the median value – the value of 1 was assigned. The logic consists in the fact that the chief executive officer has a great power, while the share of independent directors is rather small. A high value of the share of independent directors that exceeds the median value across the sample is indicative of tight control by independent directors, which partially limits CEO power. If the chief executive officer is the company founder, it means that he/she has significant power and increased influence on business processes. If the CEO is the founder, this variable takes on the value of 1, otherwise – 0. The summary variable indicative of the power level was calculated as the sum of dummy variables, which characterize the independence of directors and the variable that shows whether the CEO is the company founder. Thus, the classification is as follows: 0 – a low level of power, 1– a medium level of CEO power, 2 – a high level of CEO power.

According to the analysis of the sample, the majority of observations concerning CEO power showed a low and medium level of power, amounting to 56% и 40% respectively. At the same time, just 4% of observations showed a high level of chief executive officers' power. The level of CEO power in the model was used as a dummy variable, which takes on the value of 1 if the chief executive officer has a medium or high power level and 0 – if the power level is low. Table 2 offers a brief list of all variables and their designations.

Table 2. Model variables

Group	Variable	Designation	Description
Biographical characteristics	Age	Age Age_2	CEO age (number of years) Squared CEO age (number of years)
	Education	Edu_Dum	1 – if CEO has an MBA, Doctor of Science degree or PhD 0 – otherwise
Experience	Tenure	Tenure Tenure_2	CEO tenure in the current company Squared CEO tenure in the current company
	Internal experience	Internal_Exp	Internal experience
	External experience	External_Exp_Dum	CEO external experience
Specific skills	Government experience	Gov_Exp_Dum	1 – CEO has government experience 0 – otherwise
	CEO financial expertise	Fin_Exp_Dum	1 – CEO is experienced in finance 0 – otherwise
Behavioral characteristics	Narcissism	Narcis_Dum	1 – CEO is assigned 4 or 5 points on narcissism evaluation 0 – otherwise
	Self-confidence	Self_Conf_Dum	1 – the ratio of self-confidence assessment is above average among the companies from the same industry and with the same life cycle 0 – otherwise
Power	CEO power	Power_Light_Dum	1 – CEO has a medium or high power level 0 – otherwise

Further on, the above-listed variables will be used to build the model.

Empirical Analysis

The research was conducted in several stages. At the first stage, we performed multiple regression analyses in order to assess the individual contribution of each characteristic feature of the chief executive officer in EVA. We also verified two types of dependent variables: EVA in first-order differences (Delta_EVA) and EVA in percentage deviation (Perc_EVA). Finally, the tested equations appear as follows:

$$Delta\_EVA_{i,t} = \beta_0 + \beta_1\, Age\_2_{i,t} + \beta_2 Age_{i,t} + \beta_3\, Tenure\_2_{i,t} + \beta_4 External\_Exp_{i,t} + \beta_5 Internal\_Exp_{i,t} + \beta_6 Edu\_Dum_{i,t} + \beta_7 Gov\_Exp_{i,t} + \beta_8 Fin\_Exp_{i,t} + \beta_9 Self\_Conf_{i,t} + \beta_{10}\, Narcis\_Dum_{i,t} + \beta_{11} Power\_Light\_Dum_{i,t} \sum_{k=2,i=2014}^{k=8,i=2020} i_{year} + \varepsilon_{i,t}; \quad (4)$$

$$Perc\_EVA_{i,t} = \beta_0 + \beta_1\, Age\_2_{i,t} + \beta_2\, Tenure_{i,t} + \beta_3 External\_Exp_{i,t} + \beta_4 Internal\_Exp_{i,t} + \beta_5 Edu\_Dum_{i,t} + \beta_6 Gov\_Exp_{i,t} + \beta_7 Fin\_Exp_{i,t} + + \beta_8 Self\_Conf_{i,t} + \beta_9\, Narcis\_Dum_{i,t} + \beta_{10} Power\_Light\_Dum_{i\,t} + \sum_{k=2,i=2014}^{k=8,i=2020} i_{year} + \varepsilon_{i,t}. \quad (5)$$

At the second stage we compiled two indices: the Depth Index and Width Index. We did it in an attempt to reveal the joint contribution of personal characteristics. The logic of creating indices is described in more detail below in the Index Approach section. The tested equation appears as follows:

$$Delta\_EVA_{i,t} = \beta_0 + \beta_1\, DEPTH_{i,t} + \beta_2 WIDTH_{i,t} + + \beta_3 Self\_Conf_{i,t} + \beta_4\, Narcis\_Dum_{i,t} + + Power\_Light\_Dum_{i,t} + \sum_{k=2,i=2014}^{k=8,i=2020} i_{year} + \varepsilon_{i,t.} \quad (6)$$

v

The resulting sample allows to apply the panel data structure. In this case, the fixed effects and random effects models are most popular. From the viewpoint of econometric justification of the interrelation between a chief executive officer's characteristics and economic value added, the fixed effects model is the best. Not all available variables describe firm behaviour completely (behavioral, psychological aspects, strategic decisions are not fully identified by the set of variables we use). Therefore, there is heterogeneity – individual effects of the firm, which is the principal motive for applying the fixed effects model. These arguments are supported by literature dedicated to this topic, which analyzes the advantages and disadvantages of using the fixed effects model when assessing the influence of a chief executive officer's decisions on corporate operations. At the same time, the literature on this topic confirms that the random external effects model (?) may be better for creating dependences [59]. Graphical data analysis does not eliminate heteroscedasticity unambiguously, therefore we conducted the Breusch-Pagan and White tests. According to them, in all cases the zero hypothesis is rejected in favour of the alternative one, which indicates the presence of heteroscedasticity in the random value of the considered model. For this reason, robust standard errors are subsequently used in all models.

The final list of regressors in the model is compiled based on correlation analysis. Its results are presented in Appendix C. Regressors of Internal_Exp and Tenure_2 are characterized by the strongest relationship of 49.9%. It is generally classified as a moderate relationship, and one may choose not to take it into consideration. Also, often along with square of the variable, the same, but non-squared variable is introduced into the equation – in this case, Age and Age_2. Obviously, in this case correlation analysis will demonstrate a high value of the ratio, but it also does not imply multicollinearity.

At the first stage we evaluated equations (4) and (5). We used a bidirectional fixed effects model in order to take into account structural changes that take place over time for all sample items (specific characteristics of each year, influence on the dependent variable of upsurges and downfalls characteristic of the economy in general). The results are presented in Table 3.

Table 3. Results of model construction (first stage)

VARIABLES	(1) FE_1 Perc_EVA	(2) FE_2 Delta_EVA	(3) RE_1 Perc_EVA	(4) RE_2 Delta_EVA
Age_2	−0.0032**	−0.092*	−0.0011	−0.062**
	(0.002)	(0.050)	(0.001)	(0.028)
Age		9.751*		5.990**
		(5.093)		(2.772)
Tenure_2		−0.130**		−0.0932***
		(0.063)		(0.0267)
External_Exp	0.133	0.627	−0.0303	0.157
	(0.160)	(0.712)	(0.091)	(0.368)
Internal_Exp	−0.156	0.446	−0.0296	0.073
	(0.281)	(0.369)	(0.0340)	(0.206)
Edu_Dum	1.652	−2.746	0.966	−1.992
	(2.366)	(4.394)	(1.192)	(3.331)
Gov_Exp	4.531	−0.711	0.713	−9.408**
	(3.224)	(4.596)	(1.116)	(4.052)
Fin_Exp	−7.298**	3.983	−1.427	−1.614
	(3.069)	(4.182)	(1.125)	(4.214)
Narcis_Dum	4.384**	1.966	3.014	1.747
	(2.140)	(13.75)	(1.898)	(7.410)
Self_Conf	−2.380***	−3.705	−1.841**	0.688
	(0.878)	(10.98)	(0.826)	(7.445)
Power_Light_Dum	−1.622*	1.490	−0.954	6.188*
	(0.943)	(3.820)	(0.801)	(3.171)
Y14	1.809	−3.311	1.844	−3.802
	(1.376)	(13.60)	(1.287)	(13.49)
Y15	−2.607***	−0.0562	−2.497***	−0.580
	(0.897)	(9.086)	(0.627)	(8.794)
Y16	−2.921***	12.09	−2.950***	12.74
	(0.857)	(9.736)	(0.608)	(9.205)

	(1)	(2)	(3)	(4)
	FE_1	FE_2	RE_1	RE_2
VARIABLES	Perc_EVA	Delta_EVA	Perc_EVA	Delta_EVA
Y17	−4.011***	18.93**	−3.569***	20.04**
	(1.096)	(9.483)	(0.732)	(8.515)
Y18	−3.779***	14.49*	−3.475***	15.26**
	(1.198)	(7.447)	(0.681)	(6.430)
Y19	−3.083**	28.65***	−2.856**	30.02***
	(1.404)	(10.66)	(1.130)	(9.822)
Y20	11.16***	−50.52**	11.01***	−47.88**
	(3.480)	(22.39)	(3.619)	(22.39)
Tenure	0.380		0.0129	
	(0.280)		(0.0422)	
Constant	12.31***	−256.0**	7.081***	−144.1**
	(4.182)	(122.4)	(2.625)	(67.35)
Observations	641	758	641	758
R-squared	0.199	0.071		
Number of ID	91	102	91	102

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1.

The results were contradictory. The fixed effects model, where the dependent variable is the first-order differences of EVA cleared from industry influence (FE_2), did not reveal a high significance of the majority of CEO characteristics, and R2 in this model turned out to be extremely low (7.1%). In the random effects model, the majority of significant regressors were obtained when using the dependent variable as first-order differences: CEO power at a 10% significance level, age and government experience at a 5% level, tenure – at a 1% level. Therefore, we will subsequently use this model (RE_2). According to the Hausman test, the zero hypothesis, which claims the absence of correlation between individual effects and regressors is accepted, and in our case the random effects model is found to be more suitable.

Index Approach

Some studies group human capital variables into two indices. The first one – the Width Index – is indicative of the variety of functional and relevant experience of the chief executive officer. It comprises age, education, tenure and external experience. The second index – the depth of chief executive officer's capital – shows his/her involvement in the industry to which the company belongs. Industry-specific expertise is a result of the current or previous experience in the industry and specific financial experience and government service. Therefore, in this research the depth index of a CEO's human capital is included in the tenure, such as financial expertise and government experience. Each index is compiled as the sum of dummy variables. Quantitative variables (age and all types of experience) were transformed into dummy variables as follows. Age (1 – if CEO age exceeds the median value of the sample, 0 – otherwise), tenure (1 – if this experience exceeds the median value of the sample, 0 – otherwise), internal experience (1 – if before the appointment CEO has already been employed by the current company, 0 – otherwise), external experience (1 – if any, 0 – otherwise). Education, which in our research was assessed on a scale of 1 to 5, was transformed into a dummy variable as 1 if a CEO holds an MBA, Doctor of Science degree or PhD, 0 – otherwise. Correlation analysis (Appendix B) did not reveal the regressors that could cause multicollinearity.

Then we evaluated an equation (6) using temporary fixed effects similar to the first stage. Results are presented in Table 4.

Table 4. Results of model construction (second stage)

VARIABLES	(1) FE_3 EVA_Comp	(2) RE_3 EVA_Comp
DEPTH	12.36**	1.292
	(5.231)	(4.863)
WIDTH	−0.407	−2.784
	(4.349)	(4.535)
Narcis_Dum	−30.71	−24.55
	(22.28)	(18.60)
Self_Conf	−11.58	−8.364
	(9.224)	(8.471)
Power_Light_Dum	2.573	−2.004
	(6.400)	(6.871)
Y14	56.92***	56.22***
	(14.55)	(14.65)
Y15	58.85***	55.37***
	(11.95)	(11.72)
Y16	44.43***	41.68***
	(14.60)	(14.14)
Y17	33.52***	31.06***
	(11.58)	(10.80)
Y18	21.47*	19.24*
	(12.08)	(10.98)
Y19	8.324	6.237
	(15.13)	(14.26)
Y20	58.34***	55.25***
	(20.12)	(19.24)
Constant	−4.567	16.41
	(17.01)	(15.42)
Observations	648	648
R-squared	0.09	
Number of ID	91	91

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1.

The Hausman test for these models also showed that the random effects model is more suitable (Appendix C). It confirms again that there are contradictions when choosing the methodology for analyzing the influence of CEO characteristics on the fundamental company value.

When we applied the indices, the fixed effects model with the EVA dependent variable cleared from industry influence revealed a significance of the Depth Index at a 5% significance level. Nevertheless, this model's R2 turned out to be extremely low, which indicates that this model explains the dependent variable poorly and that it cannot be used to verify the hypotheses. Apart from these results, the main problem of use of the index approach is that the variables in the index cannot be interpreted individually.

Analysis of Results

The considered research tested models with various specifications. Variables in the fixed effects model were significant, however, R2 turned out to be extremely low, therefore we had to use other model specifications. We conducted the Hausman test, which showed that the random effects model was more suitable. Nevertheless, the same sign preceding significant variable ratios in both versions of the models was indicative of result sustainability. Let us compare the obtained results with proposed hypotheses.

Hypothesis 1. There is a positive interrelation between CEO age and increment of corporate EVA.

Tests revealed a downward parabolic relationship between CEO age and EVA increment. Thus, CEO age has a positive impact on the increment of economic value added up to a certain point, after which the relationship becomes negative. So, CEOs demonstrate the highest financial performance within a certain age interval. It is a common situation when young CEOs are not experienced enough, while mature ones are too conservative.

Hypothesis 2. The higher the CEO education level, the larger the corporate EVA increment.

The analysis revealed no relationship between the CEO education level and the increment of economic value added. It may be due to a relatively recent implementation of the Bologna Process in Russia, which resulted in the addition of a significant number of executives who had graduated from higher educational institutions in the USSR to the sample.

Hypothesis 3. As CEO tenure increases, the EVA increment grows on a year-to-year basis.

The analysis revealed a parabolic relationship between CEO tenure and EVA increment pointed downward. Thus, we found out that the relationship is of a nature similar to that in Hypothesis 1. So, we detected a positive effect of CEO tenure on the increment of economic value added up to a certain point in a chief executive officer's career.

Hypothesis 4. There is a positive interrelation between the extension of CEO tenure in a company and corporate EVA increment.

Analysis shows no relationship between CEO tenure and EVA increment. Russian economy is an emerging one, which explains its high volatility and frequent change of trends. Consequently, tenure does not always produce a positive impact on the quality of a chief executive officer's management.

Hypothesis 5. CEO external experience exerts a positive influence on the EVA increment.

The performed research did not confirm the influence of a CEO's external experience on the increment of economic value added. It is uncharacteristic of Russian executives to change companies and industries frequently. As a rule, when they embark upon a career from the bottom, they progress up to the top of the career ladder within the same company.

Hypothesis 6. CEO government experience exerts a positive impact on the EVA increment.

The hypothesis was not confirmed, and a negative dependence was discovered between a chief executive officer's government experience and the increment of economic value added in the random effects model (may have an unstable relationship in spite of the results of the Hausman test). It is a common situation in Russia when a public officer is appointed an executive in a company with a major share owned by the government, and such companies demonstrate lower results than private ones. Besides, the sample comprises a significant number of government-regulated companies.

Hypothesis 7. CEO financial expertise has a positive impact on the corporate EVA increment year-to-year.

The analysis revealed no relationship between the considered indicators. The primary objective of the chief executive officer encompasses strategic company governance issues. The chief financial officer is responsible for the financial block and he / she has to have corresponding knowledge.

Hypothesis 8. There is a statistically significant negative interrelation between CEO narcissism and the corporate EVA increment.

The conducted research did not confirm the influence of a chief executive officer's narcissism on the increment of economic value added. It may be due to the nuances of evaluating CEO narcissism level based on his / her photo size in the corporate annual report. As a rule, the PR department is in charge of design and processing of such documents, and it may influence the photo size. It is also possible to use other proxies to represent narcissism.

Hypothesis 9. There is a negative and significant interrelation between CEO self-confidence and the corporate EVA increment.

This research revealed no relationship between CEO self-confidence and the fundamental value. In this study, investment policy was indicative of the chief executive officer's self-confidence, in particular, the amount of net capital investment. At the same time, in large companies several years may pass between making an investment decision (influenced by self-confident CEOs) and an increase of CAPEX on the books.

Hypothesis 10. CEO power has a positive influence on corporate EVA increment.

In this research, we revealed a positive relationship between a significant chief executive officer's power level and the increment of economic value added in the version with random effects. This result may have an unsteady relationship. At the same time, it should be noted that power was understood as CEO's possession of at least one of the following characteristics: CEO is the founder or there is a rather small share of independent directors on the board of directors. In further studies on this topic, one may perform a more rigorous analysis, which would require the executive to possess more characteristics of a high-power level.

Thus, there is no consensus yet in the study of the influence of CEO characteristics on corporate operations. Even when the same sample is used, contradictory conclusions are obtained depending on the model specification. Nevertheless, the same sign preceding ratios of significant variables in both versions of models was indicative of the significance of results. The research allowed to make a range of conclusions on the influence of a chief executive officer's personal characteristics on the generation of the company's economic value added. So, CEOs achieve the best financial performance within a certain age interval because CEOs who are too young are not experienced enough, while mature ones are excessively conservative. This relationship is also observed in case of CEO tenure. Chief executive officers with limited experience do not have comprehensive knowledge of the industry specifics and executives' behavior psychology. At the same time, chief executive officers with vast experience are usually of mature age, which entails a more conservative attitude. We also detected a negative relationship between a chief executive officer's government experience and the company's increment of economic value added, which is explained by a lower efficiency and over-regulation of government-owned companies in comparison to private ones. Apart from that, a significant CEO power level exerts a positive impact on the economic value added. As for other variables used in this research, no significant relation with the economic value added was discovered.

So, CEO characteristics from the following categories influenced corporate operations: in human capital – age, tenure and government experience; and in CEO power (ОБОРВАНА ФРАЗА). Other analyzed characteristics produced no significant impact on the model for the following reasons. The corporate governance institution comprising the interaction between the chief executive officer and the board of directors has been developing in Russia only in the last two decades, which is insufficient for a complete adjustment of the checks and balances system. Apart from that, there is a large number of companies in the Russian economy with a significant share owned by the government; hence, their operations are governed by political, rather than economic incentives. In general, we should mention a rather specific sample where the number of companies differs greatly depending on the industry. In regard to the sample, it is important to note that every

fifth company belongs to the electric power sector, which is under significant government regulation and uses (?) non-market mechanisms of managing the supply and demand balance. Besides, there is a large number of companies with a majority owner who has a stronger impact on corporate operations than CEO or the board of directors. EVA was used in the paper as the dependent variable; it has a range of characteristics that impede its use as a criterion representing the influence of CEO characteristics on corporate operations. It is also essential to remember that EVA is based on accounting indicators and does not take the company size into consideration.

Further studies of this topic may continue along several lines. First, one may verify the applicability of the obtained results in financial companies. Second, behavioral characteristics may be expanded, adding the level of risk acceptance, reputation and optimism, which may be evaluated through an analysis of the text of the chief executive officer's speech from the corporate annual report. Third, the set of metrics evaluating the CEO power level may be expanded. In addition to the ones used in the present research, one may study the share of the chief executive officer's remuneration in the total top management's remuneration, CEO's share in the authorized capital and other variables. Fourth, one may assess the joint influence of characteristics of the chief executive officer and the board of directors on the company's fundamental value.

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Appendix A. Classification of Academic Papers Dedicated to Analysis of Influence of a Chief Executive Officer's Characteristics on Corporate Operations

Table 1. Classification of Empirical Papers about the Influence of Age and Education Level of a Chief Executive Officer on Corporate Operations

No.	Paper	Sample	Dependent variable	Conclusions	Research limitations
			1. CEO Age		
1.1	Robert B. Burney, Hui Liang James, Hongxia Wang (2021) Working Capital Management and CEO Age	2,654 US public non-financial companies from 1993 to 2018	Working capital requirement (WCR) = accounts receivable + inventory – accounts payable Adjustment for revenue and industry	**Young executives employ more aggressive strategies** of working capital management (larger accounts payable and smaller inventories).	Aggressiveness of CEO strategy is analyzed only through the working capital requirement, other indicators of corporate operations have not been taken into consideration.
1.2	Margaret A. Abernethy, Like Jiang, Yu Flora Kuang (2019) [3] Can Organizational Identification Mitigate the CEO Horizon Problem?	3,047 observations, 2001-2015, 8 industries (non-financial)	Natural logarithm of R&D expenses; Number of profit forecasts made by the company for a year.	**CEOs who are approaching retirement** strive to decrease R&D expenses.	The research comprises only CEOs, while a company's chief financial officer and chief operations officer influence the making of corresponding decisions.
1.3	Serfling M.A. (2014) [45] CEO Age and the Riskiness of Corporate Policies	2,356 firms and 4,493 unique chief executive officers, 1992-2010 (Compustat), chief financial officers are eliminated	Risk proneness as volatility of earnings per share. The way in which CEO influences risk is investment policy.	**Maturer CEOs reduce the risk** by means of a less risky investment policy: they invest less in R&D, the operations and company acquisitions are more diversified, the operating leverage is smaller, the financial policy is less risky.	It is assumed that preferences of senior officers in relation to risk are similar to chief executive officer's preferences.
1.4	Jingoo Kang (2016) [2] Labor Market Evaluation Versus Legacy Conservation: What Factors Determine Retiring CEOs' Decisions About Long-Term Investment?	3,536 observations of 579 largest US companies, 1992-2006	Amount of strategic investment made for the purposes of commitment to the principles of corporate social policy.	**As a rule, retiring executives place a priority on short-term results.** The authors point out that in this case CEOs pay the least attention to the labor market evaluation, while they are more preoccupied with further strategic changes.	A biased sample (only large US companies were considered), characteristics of corporate property have not been taken into account (family- and government-owned companies may adhere to other principles of social responsibility).
1.5	Wallace N. Davidson, Biao Xie, Weihong Xu, Yixi Ning (2007) The Influence of Executive Age, Career Horizon and Incentives on Pre-Turnover Earnings Management	597 S&P 1500 companies with replaced CEOs, 1992–1998	Current discretionary accruals act as a proxy for revenue management because this component responds to management manipulations most easily.	**Aged executives (2 years to retirement) are more likely to manipulate corporate revenues.**	Probability of revenue manipulation is related not just to CEO age, but also to the specific character of labor remuneration (ratio of salary and bonuses in the remuneration structure).
			2. CEO Education Level		
2.1	Andrew Urquhart, Hanxiong Zhang (2022) [6] PhD CEOs and Firm Performance	Sample compiled of chief executive officers from 350 companies listed in FTSE, 1999-2017	Company performance (ROA adjusted for the industry)	A PhD chief executive officer increases performance by 3.03%, a chief executive officer with the Doctor of Sciences degree granted by a top 100 university increases the company performance by 4.65%, **which is indicative of value added of the chief executive officer who has graduated from a high-level educational institution**.	Only ROA is used as a measure of performance, the authors do not analyze the effect of special management education (MBA).
2.2	Lifa T., Suying G., Shuming Z. (2010) [4] The Interactive Mechanism of Human Capital and Innovative Strategy on Corporate Performance & Its Empirical Analysis	197 firms in 11 industries listed on Shanghai and Shenzhen stock exchanges in 2008	Human capital (average duration of education) of top management and rank-and-file employees	**Influence of human capital of top management and human capital of employees** on corporate performance **is statistically significant** when they are considered simultaneously.	The specific nature of the industry and corporate expenses on creation and pursuit of an innovation strategy is not taken into consideration. Also employee motivation, morale, mental health and satisfaction with and adherence to corporate values are not taken into account.
2.3	Shuying W., Shuijuan Z., BObO L. (2016) Effect Of Diversity On Top Management Team to the Bank's Innovation Ability-Based on the Nature of Ownership Perspective	17 financial organizations, 2006-2015	Innovation ability of the bank (amount of bank commission)	**When CEO has a higher level of education, their ability to analyze information is greater.**	A biased sample because the prevailing share of the Chinese financial market is represented by government-owned banks.

Table 2. Classification of Empirical Papers by Influence of Chief Executive Officer's Experience on Corporate Operations

Tenure					
3.1	Antia M., Pantzalis C., Park C.J. (2010) CEO Decision Horizon and Firm Performance: An Empirical Investigation	2,389 observations of S&P 1500, 1992-2003	CEO Decision Horizon: $DH_{i,t} = (TENURE_{ind,\,t} - TENURE_{i,\,t}) + (AGE_{ind,\,t} - AGE_{i,\,t})$	**CEO tenure influences decision horizon.** Managers who intend to leave office become "short-sighted," preferring projects with a short payback period, thus, impeding the creation of long-term value.	Chief executive officer's remuneration structure (ratio of salary to bonuses), CEO behavioral characteristics are not taken into account.
3.2	Henderson A. D., Miller D., Hambrick D. C. (2006) [32] How Quickly Do CEOs Become Obsolete? Industry Dynamism, CEO Tenure, and Company Performance	2 industries: IT and food industry in 1955-1994. IT – 228 chief executive officers, food industry – 98 chief executive officers. CEO tenure from 1 to 36 years.	3 annual profitability indexes: ROS = Net income / Sales; ROA = Net income / Net assets; ROIC = Net income / (Shareholders equity + Debt).	**Gain in productivity related to CEO's accrued experience pays off only in the stable industry** of food manufacturing. In the dynamic IT sector, CEO performs strongly just in the first year in office, then corporate productivity inevitably decreases.	Industries with pronounced dynamism (IT) and stability (food manufacturing) are examined. The issue of whether the obtained conclusions may be used in the less dynamic industries remains open.
3.3	Patrick L. McClelland, Vincent L. Barker, Won-Yong Oh (2012) [59] CEO Career Horizon and Tenure: Future Performance Implications under Different Contingencies	Sample of 220 firms is selected randomly from the Standard & Poor's list 500 for 2001	Future ROA (for the period of t+2), Market-to-book multiplier	**CEO paradigm grows obsolete ever-more-rapidly along with prolongation of tenure in dynamic industries,** thus inflicting damage on the future results of corporate operations.	A biased sample because companies from the S&P 500 list were studied, a short research horizon (1 year).
3.4	Jung R., Oh Won-Yong, Chang Y.K. (2018) [46] Experience-Based Human Capital or Fixed Paradigm Problem? CEO Tenure, Contextual Influences, and Corporate Social (Ir) Responsibility	278 US industrial companies (1,652 observations), 2003-2008	CEO tenure	Prolongation of CEO tenure is not the reason for increased costs in projects with corporate social responsibility; in this case **the likelihood of a company's irresponsible behavior towards social obligations decreases**.	The research considers only the mature US market.
3.5	Borgi H., Ghardallou W., Alzeer M. (2021) [60] The Effect of CEO Characteristics on Financial Reporting Timeliness in Saudi Arabia	476 companies listed on the Tadawul stock exchange , 2014-2017	Number of days between the last day of the year and the corporate financial statement publication date	**Companies in which CEOs occupy their position for a longer period publish their IFRS financial statements quicker.**	Saudi Arabia has a range of institutional peculiarities, which makes it difficult to extrapolate the obtained conclusions to other conditions and jurisdictions.
Internal Experience					
4.1	Drobetz W., Meyerinck F., Oesch D., Schmid M. (2018) [9] Industry Expert Directors	1,860 non-financial companies from the S&P 1500 list, 2000-2010	Tobin's Q	**The effect of chief executive officer's vast experience is most pronounced in companies with large investment programs, considerable money reserves and in the midst of crises.** On the contrary, it is weaker in dynamic industries, i.e., those with high indicators from viewpoint of growth rates in sales, R&D expenses and merger operations.	The research analyzed members of the board of directors, i.e., CEO's and board's influence on corporate operations is not taken into consideration.
CEO External Experience					
5.1	Crosland C., Zyong J., Hiller N., Hambrick D. (2014) [11] CEO Career Variety: Effects on Firm-level Strategic and Social Novelty	250 companies from Fortune 250, 1999-2005	**Strategic dynamism** is measured through corporate strategic changes CEO's job history is studied to define coding career experiences	**Chief executive officer's external experience has a positive relationship with strategic novelty,** which manifests itself in strategic dynamism and strategic uniqueness (deviation from the industry's main trends). CEO career variety also manifests itself in staff turnover and non-homogeneity of the top management team.	A biased sample because the largest US companies were studied.

CEO External Experience					
5.2	Chahyadi C., Doan T., Naym J. (2021) [47] Hiring the Right CEO: How Does the Type of CEO Industry Experience Affect Firm Performance, Firm Risk-Taking Behavior, and CEO Compensation?	4,816 observations from the Standard & Poor's database Execucomp, 1992-2017	Return on assets (ROA); Firm's behavior related to risk (CAPEX / Total assets); Amount of chief executive officer's remuneration.	**Hiring of chief executive officers with inter-industry experience does not enhance long-term financial performance.** **Executives with inter-industry experience invest less in R&D.** Also, executives with inter-industry experience get larger remuneration.	In the research, CEO inter-industry experience is considered in general, without breaking up into positions occupied in the past and fields of activities.
5.3	Chahyadi C., Wineka P. (2019) [10] How Does CEO Career Origin Influence Firm's Risk-Taking?	3,006 replacements of chief executive officers from Standard & Poor's Execucomp database, 1992-2010	Company's risk: Investment in R&D = R&D / Total assets; CAPEX = (CAPEX – D&A) / Total assets; Leverage = (Long-term debt + short-term debt) / Total assets.	**Executives who come from other companies make more risky investment decisions:** they invest more in R&D (by 1.77%), reduce CAPEX and use more borrowed funds (increase the leverage).	The research was performed for a mature market; industry-related characteristics of the amount of R&D investment, CAPEX and leverage were not taken into account.
	Dokko G., Wilk S.L., Rothbard N. (2009) Unpacking Prior Experience: How Career History Affects Job Performance	968 observations, analysis of archives of a large American insurance company (the name is not disclosed)	Knowledge and skills that correspond to objectives; Efficiency. Both metrics were taken from annual evaluations of the company employees' competencies.	**Previous relevant experience obtained in another position or in another organization has a positive influence on employee efficiency** through their knowledge and skills.	The research was conducted for one company in a specific industry (insurance).

Table 3. Classification of Empirical Papers by Influence of Specialized Experience of the Chief Executive Officer on Corporate Operations

Government Experience					
6.1	Wei L.-Q., Ling Y. (2015) [14] CEO Characteristics and Corporate Entrepreneurship in Transition Economies: Evidence from China	198 polling forms filled in by CEOs and CFOs of Chinese corporations in 2011	CE (corporate entrepreneurship): sum of the company's innovative, high-risk and strategic investments	**Political orientation of chief executive officer's network contacts has a positive impact on the level of corporate entrepreneurship.**	The research was performed using data from a transitional economy, influence of CEOs' foreign experience and impact of developing network contacts with competitors and suppliers were not assessed.
6.2	Koch-Bayram I.F., Wernicke G. (2018) [48] Drilled to Obey? Ex-Military CEOs and Financial Misconduct	Government-owned US firms that provided share options to executives, 1996-2005 (2,926 observations per year and 1,265 individual CEOs)	Data on companies' financial fraud	**Ex-military executives are less prone to participate in manipulations with financial statements and to provide backdated share options.**	The research considers only government-owned companies, which makes the sample biased.
6.3	Ullah I., Fang H.-X., Ur Rahman M., Iqbal A. (2022) [61] CEO Military Background and Investment Efficiency	224 firms in 2009-2017, Bank of Pakistan database	Return on investment (revenue growth, Tobin's Q)	**Executives with military background produce a positive influence on corporate return on investment (mitigation of the agency problem and mercenary behavior).**	A highly specific sample of Pakistani companies.
CEO Financial Expertise					
7.1	Custodio C., Metzger D. (2014) [15] Financial Expert CEOs: CEO's Work Experience and Firm's Financial Policies	4,277 chief executive officers in 1993-2007	Company's financial policy: account balance, leverage and policy of distribution to shareholders.	**As a rule, companies managed by financial experts have a smaller account balance, more debts and participate more in redemption of shares,** which is more beneficial for shareholders.	Decisions on corporate financial policy are made by a team of top managers, rather than at CEO's sole discretion.
7.2	Yang C., Xia X., Li Y., Zhao Y., Liu S (2021) [63] CEO Financial Career and Corporate Innovation: Evidence from China	Chinese companies listed in A-share, 2008-2015 (4,299 observations)	Number of patents registered by the company within the period	**Executives' previous financial experience produces a significant and negative influence on the corporate innovation activity** (decrease of the number of issued patents by 17.5%).	The number of patents obtained by the company is considered its innovation activity, which is not indicative of the level of innovation implementation.
7.3	Kalelkar R., Khan S. (2016) CEO Financial Background and Audit Pricing	6,811 observations except for non-financial and non-commercial companies from the Compustat database, 2004-2013	Company's expenses for audit	**Companies whose executives have a financial background pay less for audits.**	The cost of audit services is often defined by negotiations between top management and auditors, which is not taken into consideration in this research.

Table 4. Classification of Empirical Papers by Influence of the Chief Executive Officer's Behavioral Characteristics on Corporate Operations

No.	Paper	Sample	Dependent variable	Conclusions	Research limitations
Narcissism					
8.1	Aabo T., Eriksen N.B. (2021) [51] Corporate Risk and the Humpback of CEO Narcissism	475 US manufacturing firms, 2010- 2014	Company risk – volatility of earnings per share	**Moderate narcissism of the chief executive officer – in comparison to a very low and very high level – is related to an increase in acceptance of corporate risks by approximately 12%.**	CEO narcissism is considered in an isolated way, influence of other personal and behavioral characteristics is not taken into consideration.
8.2	Olsen K. J., Dworkis K. K., Young S. M (2014) [58] CEO Narcissism and Accounting: A Picture of Profits	477 largest US companies included in Fortune 500 for 2010	Price of the company's ordinary shares and EPS. One of measures of CEO's narcissism is the size of photo in the annual report (1 to 5).	**Companies with narcissistic executives have higher earnings per share and share price** than firms with non-narcissistic executives.	The cause-and-effect relationship between CEO narcissism and chosen indicators of corporate performance is not obvious.
8.3	Gerstner W.-C., Konig A., Enders A., Hambrick D. (2013) [21] CEO Narcissism, Audience Engagement, and Organizational Adoption of Technological Discontinuities	33 large pharmaceutical companies (revenue over 400 mln per year) headquartered in the USA, 1980-2008	Number of strategic innovations in biotechnology implemented by the company for each year.	**Narcissistic chief executive officers are a factor that hastens the company's response to emergence of new breakthrough technology.**	The authors do not divide innovations into successful and unsuccessful, showing that a narcissistic CEO will eagerly implement any new technology irrespective of its commercial efficiency.
8.4	Zhang H., Ou A. Y., Tsui A. S., Wang H. (2017) [28] CEO Humility, Narcissism and Firm Innovation: A Paradox Perspective on CEO Traits	206 chief executive officers from Chinese companies	Feeling towards innovation activity among company employees	Chief executive officer's narcissism **combined with** humility **increases** corporate innovation activity.	The authors emphasize that combination of humility and narcissism is characteristic of Chinese philosophy in particular. Consequently, it makes one wonder whether the obtained research results can be reasonably extrapolated onto other cultures.
8.5	Chaterjee A., Hambrick D. C. (2011) [56] Executive Personality, Capability Cues, and Risk Taking: How Narcissistic CEOs React to Their Successes and Stumbles	152 chief executive officers in 134 unique IT companies, 1992-2006	Risk acceptance: CAPEX, D&A, M&A	**Highly narcissistic executives are much less sensitive to recent unbiased results and much more susceptible to social approval and praise**, which influences investment decision-making.	Such measures of risk acceptance as total costs, CAPEX, D&A and M&A has certain limitations. The costs are considered in their entirety, without an analysis of investment riskiness and portfolio diversification.
Self-Confidence					
9.1	Hirshleifer D., Low A., Teog S. (2012) [32] Are Overconfident CEOs Better Innovators?	2,577 executives from 9,807 observations, 1993-2003	Standard deviation of daily earnings per share during the financial year	**Self-confident executives exploit** opportunities of innovation growth **more efficiently** and transform them into company value. The maximum effect is observed when CEO assumes office during a company's growth stage.	Using innovation growth opportunities may result in serious victories, as well as serious losses of the company. Influence of industry-related specifics on research results.
9.2	Mundi H.S., Kaur P. (2019) [31] Impact of CEO Overconfidence on Firm Performance: An Evidence from S&P BSE 200	157 firms and 2,371 observations, 2000-2015	Tobin's Q and return on assets	Corporate performance indicators show that **organizations with self-confident chief executive officers have a higher return on assets and Tobin's Q** in comparison to other firms in the sample.	A biased sample because only companies from S&P 200 were studied.

Table 5. Classification of Empirical Papers by Influence of Chief Executive Officer's Power on Corporate Operations

№	Paper	Sample	Dependent variable	Conclusions	Research limitations
CEO Power					
10.1	Park J.-H., Kim C., Chang K., Lee D.-H., Sung Y.-D. (2018) [43] CEO Hubris and Firm Performance: Exploring the Moderating Roles of CEO Power and Board Vigilance	200 largest com panies listed, including the Korean Stock Exchange (KOSPI 200) for 2001–2008	Financial performance of the firm was measured through the industry average return on assets (Ad-ROA). For control of industry influence on corporate performance: Ad-ROA= industry median ROA – ROA of the company; The indicator is averaged for two years to reduce error.	**Chief executive officer's power aggravated the negative influence of the** hubris **characteristic** on corporate financial performance.	The authors point out that it is difficult to reveal an "isolated" impact of power on corporate financial performance taking into consideration various internal and external factors that define the organization's performance. Such factors comprise: luck, natural environment and other CEO characteristics.
10.2	Chiua J., Chen C.-H., Cheng C., Hung S. (2021) [40] Knowledge Capital, CEO Power, and Firm Value: Evidence from the IT Industry	US companies from the IT industry, 2007-2014	Tobin's Q and return on assets	**Organizations with powerful executives** and increased knowledge capital **have strong financial performance.** Hence, it follows that probability of financial crisis in the company is reduced.	The research study comprises only companies from the IT industry, thus, the obtained results cannot be the same for companies from other industries due to unique characteristics.
10.3	Sariol M., Michael A. (2017) [54] The Influence of CEO Power on Explorative and Exploitative Organizational Innovation	300 companies, number of years > 5, 2006–2013. We checked each of 220 chief executive officers for the above period.	Degree of radical and incremental innovation. These variables were measured through the number of presentations of new products of any type.	**More powerful executives – taking into consideration their proneness to risk – will strive to increase radical innovation.** The obtained results explain the creation of the corporate innovation program from the point of view of power.	A small sample and a short research period. To provide a higher veracity of obtained results, the authors propose to use more CEO power-related characteristics.
10.4	Chiu J., Li Y.-H., Kao T.-H (2022) [40] Does Organization Capital Matter? An Analysis of the Performance Implications of CEO Power	US firms listed on the NYSE, AMEX and NASDAQ stock exchanges, 1992-2014. The sample consists of 14,000 observations.	Tobin's Q	A chief executive officer may influence company value by controlling company equity. **The greater power the chief executive officer has,** the greater his/her opportunities for corporate growth and development are, which increases the company value.	A biased sample due to use of data on the companies only from the American market.

Appendix B. Characteristics of CEO Human Capital for the Sample of CEOs from Russian Companies

We collected 10 variables for each company, which describe the chief executive officer for each year. 5 out of 10 variables are continuous, the remaining ones are binary. The description and analysis of each variable is presented below.

CEO Age

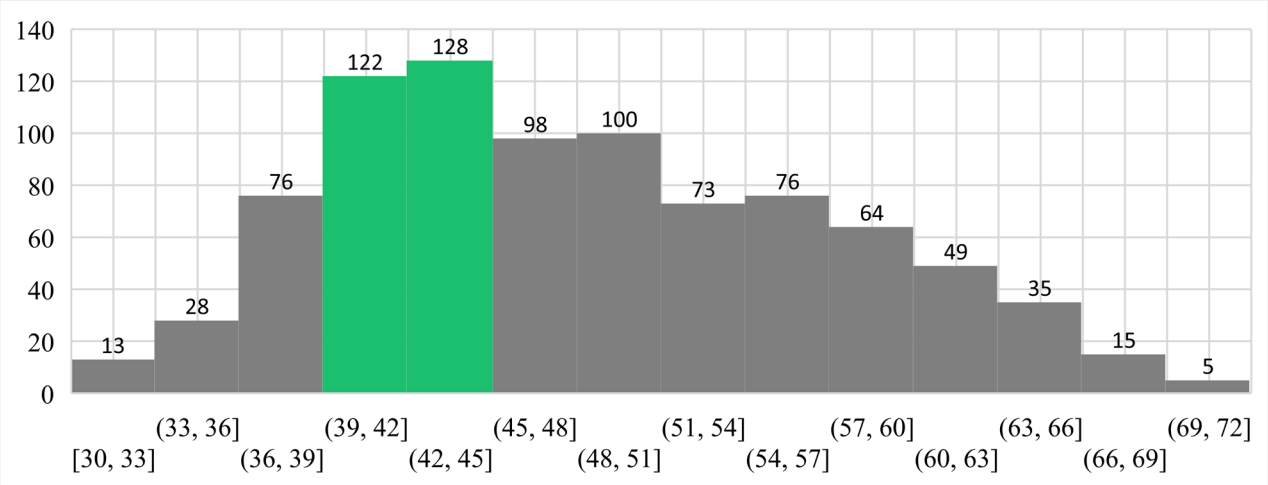
The variable representing CEO age (model designation: *Age* and *Age_2*) is a continuous variable and is defined as the number of years of a chief executive officer's age in a corresponding year. The data has been collected manually from official corporate websites, annual reports and publicly available Internet sources. The descriptive statistics of the age variable is presented in Table 1.

Table 1. Descriptive statistics of the CEO age variable

Mean	Median	Mode	Standard deviation	Minimum	Maximum
48	48	43	8.66	30	72

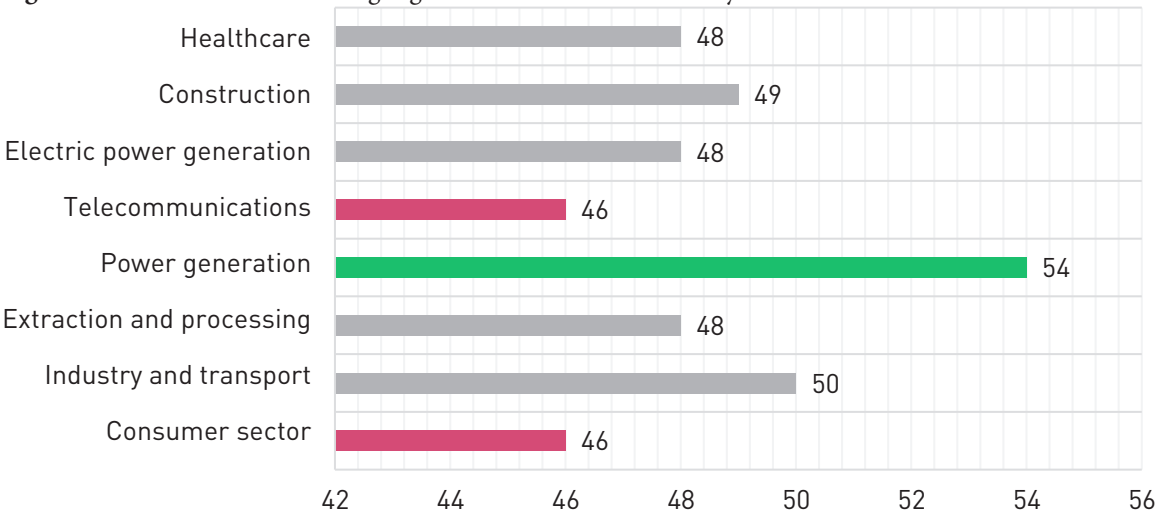
The average age in the sample is 48, and it varies from 30 to 72. Besides, the most common age of chief executive officers is between 39 and 45. Distribution of chief executive officers by age is offered in Figure 1.

Figure 1. Distribution of chief executive officers' age in the sample



Analyzing the distribution of the chief executive officers' average age by sectors, which is presented in Figure 2, we would like to note that young chief executive officers prevail in the consumer and telecommunications sectors, which may be due to a rather short CEO tenure in the above industries. At the same time, more mature chief executive officers prevail in the power generation industry. It may be caused by the need for significant experience and the specific nature of the industry.

Figure 2. Distribution of the average age of chief executive officers by sectors



Some studies point out the quadratic dependence between age and corporate financial performance [2]. In order to take this feature into consideration, we decided to introduce the variable representing age in quadratic form into the model.

CEO Education Level

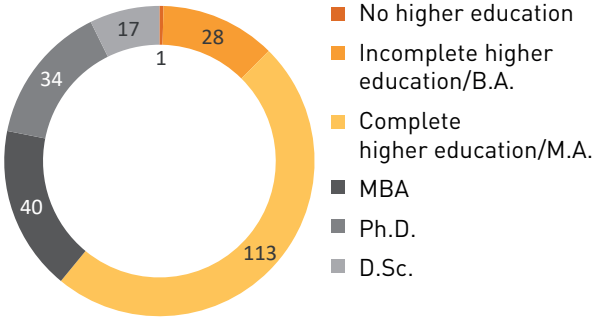
Education level was evaluated according to the chief executive officer's education (designation in the model: *Edu_Dum*). Each observation was assigned the value of 0 to 5 in conformance with the methodology presented in Table 2.

Table 2. Methodology of Evaluation of CEO Education Level

Points	Education level
0	No higher education
1	Incomplete higher education or a bachelor's degree
2	Complete higher education or master's degree
3	Master of Business Administration (MBA)
4	Doctor of Science
5	PhD

Distribution of chief executive officers by the education level is shown in Figure 3.

Figure 3. Distribution of CEO education levels



We should note that 48.7% of executives hold a complete higher education degree or a master's degree, 40 persons (17%) have an MBA, 34 persons (15%) are Doctors of Science. CEOs with a PhD degree and incomplete higher education are less frequent – 17 (7%) and 28 persons (12%), respectively. Only one chief executive officer doesn't have a higher education degree, and there is no data on 2 persons. Taking into consideration the specific character of the chief executive officer's activity, which implies a profound understanding of corporate business processes as well as the ability to manage a significant number of subordinates in a competent way, it is no less important to determine the number of CEOs with an MBA. Our sample comprises 40 such CEOs.

Drawing on the experience of previous studies and analysis of collected data, we decided to use the education level in the model as a dummy variable which takes on the value of 1 if chief executive officer has a high level of education (an MBA, Doctor of Science or PhD), 0 – otherwise [7]. It is necessary to define a group of chief executive officers with an atypical educational level because almost all CEOs in the sample have the basic educational level (bachelor's or master's degree).

CEO Tenure

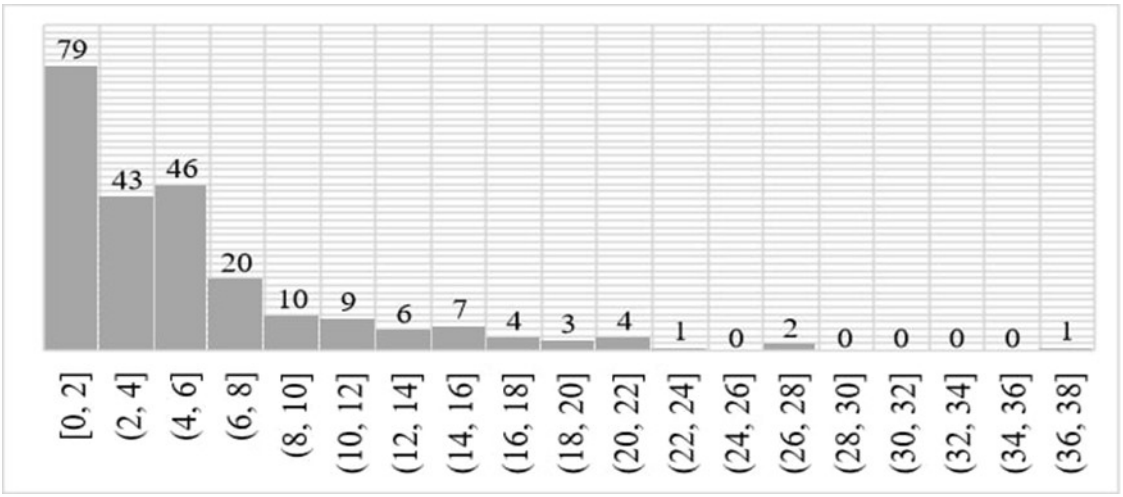
The variable representing the chief executive officer's experience (designation in the model: *Tenure*) is continuous and is determined as the number of years of a CEO's employment by the current company in the corresponding year. Table 3 presents the descriptive statistics of the CEO tenure variable.

Table 3. Descriptive statistics of the CEO tenure variable

Mean	Median	Mode	Standard deviation	Minimum	Maximum
5	4	1	5.7	1	37

The average experience of a chief executive office from the sample amounts to 6 years, varying from 1 to 37 years. The most common tenure span is 1 year. The distribution of chief executive officers' experience is presented below in Figure 4.

Figure 4. Distribution of chief executive officers' experience in the sample



Distribution of chief executive officers by the span of tenure in the current company shows that CEO replaceability is characteristic of the sample: 34% of executives occupy their positions for less than 2 years. At the same time, 16% are in office for over 10 years.

Note that sometimes there is a quadratic dependence between a chief executive officer's experience and corporate performance [52]. In order to take this feature into account, we decided to introduce a variable describing age in quadratic form into the model.

Internal Experience

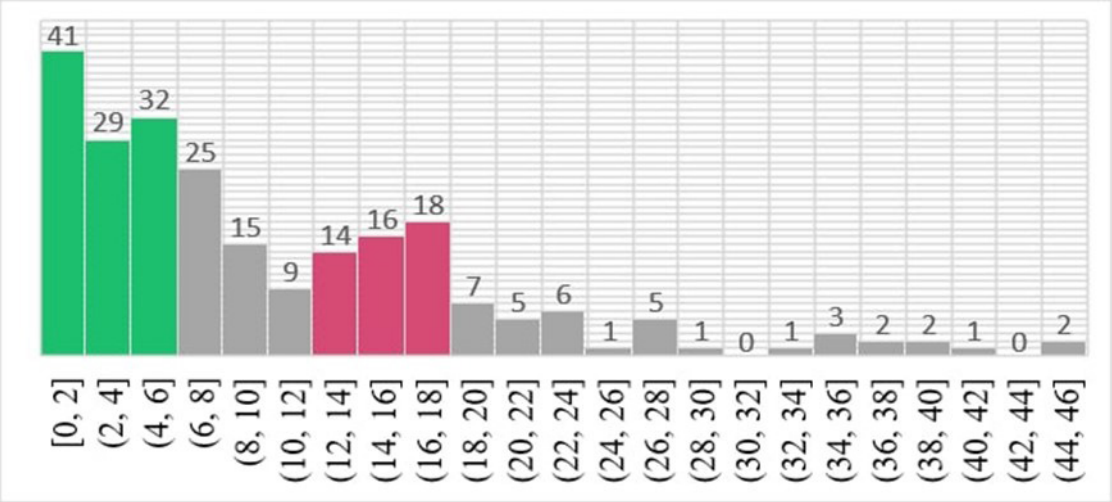
The variable representing a chief executive officer's internal experience irrespective of the position (designation in the model: *Internal_Exp*) is continuous and is defined as the number of years of the chief executive officer's employment by the company, including subsidiary companies, in the corresponding year. Please refer to Table 4 for the descriptive statistics of the variable that characterizes the chief executive officer's internal experience.

Table 4. Descriptive statistics of the internal experience variable

Mean	Median	Mode	Standard deviation	Minimum	Maximum
10	8	1	9.38	1	45

The average chief executive officer's internal experience amounts to 10 years, ranging from 1 to 45 years. The most common CEO experience span is 1 year. Figure 5 below presents the distribution of the CEOs' internal experience across the sample.

Figure 5. Distribution of the CEOs' internal experience across the sample



The internal experience distribution diagram shows 2 groups of chief executive officers: in the first group, internal experience ranges from 1 to 6 years. As a rule, these executives are employed as CEOs from the start. In the second group, internal experience is significantly longer: from 12 to 18 years. These executives were employed by the company a long time ago and made a career up to the chief executive officer.

External Experience

The variable characterizing a CEO's external experience (designation in the model: *External_Exp_Dum*) is continuous. It is determined as the number of years of a CEO's employment by other companies. We did not find information on 3 chief executive officers (13 observations). Table 5 presents the descriptive statistics of the considered variable.

Table 5. Descriptive statistics of the external experience variable

Mean	Median	Mode	Standard deviation	Minimum	Maximum
3	1	0	4.81	0	24

On average, chief executive officers occupied the same position in other companies for 3 years. Besides, the most common experience span (mode) is 0 years. At the same time, there are CEOs in the sample with very extensive experience, i.e., 24 years.

Taking into consideration the fact that there is a small range of variation of CEO external experience, it is reasonable to introduce this variable as a dummy. 1 means that such experience exists (irrespective of its length), 0 – that it doesn't exist.

Government Experience

The next variable is a chief executive officer's government experience (designation in the model: *Gov_Exp*). Government service is understood as an executive position in government authorities. Out of 234 chief executive officers in the sample, 60 have government experience, which comprises a quarter of the sample (we didn't find validated information about 2 persons).

Government experience was introduced into the model as a dummy variable that takes on the value of 1 if the chief executive officer has such experience, and 0 – if there is no evidence of such experience.

CEO Financial Expertise

The variable describing a chief executive officer's financial expertise (designation in the model: *Fin_Exp*) shows their experience in the position of the chief financial officer, financial control officer, as well as in the field of audit or financial consulting. Out of 234 chief executive officers in the sample, 78 persons have corresponding experience, and there is no data about 3 executives.

Similar to government experience, this variable was added to the model as a dummy, taking on the value of 1 if the chief executive officer had financial expertise and 0 – otherwise.

Appendix C. Results of Correlation Analysis

	Delta_EVA	Age_2	Age	Tenure_2	External_Exp	Internal _Exp	Edu_Dum	Gov_Exp	Fin_Exp	Narcis_Dum	Self_Conf	Power_Light_ Dum
Delta_EVA												
Age_2	−0.102											
Age	−0.095	0.996										
Tenure_2	−0.192	0.312	0.297									
External_Exp	0.027	0.065	0.062	-0.111								
Internal _Exp	−0.093	0.342	0.339	0.499	−0.255							
Edu_Dum	−0.043	0.175	0.172	0.079	−0.080	0.056						
Gov_Exp	−0.072	0.243	0.246	0.122	−0.103	0.038	0.279					
Fin_Exp	−0.043	-0.139	-0.153	0.139	0.024	−0.026	0.210	0.018				
Narcis_Dum	−0.019	0.049	0.039	0.074	0.029	0.065	0.146	−0.003	0.106			
Self_Conf	−0.004	0.084	0.081	0.015	0.033	0.087	0.073	0.035	0.003	0.096		
Power_Light_ Dum	0.042	−0.056	−0.045	0.006	0.048	0.022	−0.045	−0.075	−0.251	−0.098	−0.118	