DOI: https://doi.org/10.17323/j.jcfr.2073-0438.16.4.2022.93-118
JEL classification: G30, G32, G35

How CEO Affects ESG and the Financial Performance of Companies

Inzilya Farrakhova
Analyst, Ranks LLC, Moscow, Russia,
inzilafarrahova@gmail.com, ORCID

Abstract

In the past decade the society grew more interested in corporate operations concerning environmental, social, and corporate governance (ESG). This paper is dedicated to study of influence of CEO's personal characteristics on financial performance of companies and interrelation between ESG indicators and corporate financial performance. For this purpose we have conducted a review of scientific literature on this topic, established interrelation between financial indicators and ESG indicators, determined the main characteristics which influence corporate financial indicators. For this purpose we developed a model of CEO's personal characteristics.

The paper studied characteristics of CEOs from Russian companies, compiled a rating of CEOs taking into consideration financial and ESG indicators of companies, considered influence of the CEO's position in this overall rating on financial indicators of a company.

The research sample comprises 81 Russian companies of the real sector which are in the Moscow Exchange index and 123 CEOs. The time interval covered by this research is seven years since 2013 to 2019. Analysis was performed in the statistics package STATA applying panel data analysis as a method. Return on assets, return on equity and the market capitalization indicator were used as dependent variables. We chose disclosure of ESG information by a company, CEO's score in the overall rating and such CEO's characteristics as age, tenure and financial education as explicative variables. Financial leverage and company size were used as control variables. We also added return on assets to some model specifications in order to improve the model quality.

Keywords: CEO, CEO's personal characteristics, disclosure of ESG indicators, CEOs' rating

For citation: Farrakhova, I. How CEO Affects ESG and the Financial Performance of Companies. *Journal of Corporate Finance Research.* 2022;16(4): 93-118. https://doi.org/10.17323/j.jcfr.2073-0438.16.4.2022.93-118

Introduction

Nowadays there are a lot of papers dedicated to study of financial indicators and companies' performance. However, researchers as well as other concerned parties become more interested in the factors which have the greatest influence on profitability, reliability and success of companies.

In the corporate hierarchy CEO is one of the main persons capable of influencing management decisions and responsible for such decisions. It is believed that CEO plays a significant part in company's chances for financial success in the near future. Decisions taken by CEOs depend largely on their behaviour and cognitive capacities which in their turn are related to such characteristics as sex, age, education level, relevant experience etc.

In the past decade the society grew more interested in corporate operations concerning environmental, social, and corporate governance (ESG). Disclosure of ESG indicators is a new type of reporting which states in detail information about the impact a company exerts on the environment, its attitude to the employees and its distinctive features of corporate governance. Disclosure of these indicators is of such importance because the company has to do both: satisfy the needs of its shareholders aimed at making more profit and also respect the interests of other stakeholders – customers, employees, investors. If a company accommodates interests of all parties and discloses corresponding ESG information, later on it will be rewarded with larger contribution amounts from investors, a higher consumption from consumers and an increasing productivity from its employees. According to the research conducted by KPMG experts in 2020 80% of top 100 companies largest by revenue in 49 countries disclose their ESG indicators. It is expected that in the near future the number of such companies will grow because, according to many experts disclosure of ESG information results in profitability increase and, further, in enhancement of the company value.

In this paper we use the score assigned to CEO on the basis of the position in the overall rating as one of characteristics. The rating consists of two components: corporate financial indicators and ESG indicators. We compiled our own rating of CEOs in order to assign the score.

During the research we performed econometric analysis of panel data and used the statistics package STATA for it. Data on 81 Russian companies for a seven-year period since 2013 to 2019 was obtained from the Capital IQ and Bloomberg databases, data about 123 CEOs was collected from corporate annual reports and from the Capital IQ database.

Review of Scientific Literature Dedicated to the Relation between CEO's Characteristics, ESG Indicators and Corporate Financial Indicators

The papers dedicated to analysis of influence of CEO's characteristics on financial indicators and corporate indicators related to environment, social responsibility and corporate governance (ESG) may be divided into two big groups. A lot of authors study the cause-and-effect relationship between financial and ESG indicators of companies. Representatives of the second group study CEO's characteristics and personal traits which may have an impact on the extent and quality of disclosure of ESG information of companies, if any, and on financial performance of companies.

Interrelation between ESG Indicators and Financial Indicators of Companies

A large layer of research is dedicated to study of the interrelation between ESG and financial indicators. From the point of view of the stakeholder theory and the legitimacy theory a company should pay attention to values and norms existing in the society where it operates [1]. It is of crucial importance because recognition by the community is used as the factor which may influence corporate stability. According to the stakeholder (interested parties) theory [2] satisfaction of their needs will result in a long-term success of company's products and services and will provide stability of corporate financial indicators. According to this concept, if a company fails to disclose necessary ESG information it is unable to satisfy needs of stakeholders which are not shareholders. In this case the market defines such companies as riskier ones which will result in higher risk premiums and, finally, in reduced financial indicators. And vice versa, companies with higher indicators and a good ESG reputation will be awarded by stakeholders (for example, by investors and consumers) by means of increase in investment and consumption [3]. Otherwise speaking, companies with disclosed ESG indicators will attract customers ready to pay more for the goods and services made particularly by this firm; employees ready to work harder; and investors trusting the company in its operations [4]. The stronger the confidence of stakeholders the more resources the company obtains. Thus, transparency of ESG information will influence directly the corporate financial indicators. Besides, disclosure of information may be used by companies in order to explain the changes in the ESG policy or to improve the company's ill reputation which will further result in increase of financial indicators. Disclosure of ESG indicators is a new type of reporting related to sustainable development which starts from separate reporting on corporate social responsibility (CSR) followed by integrated reporting [5]. ESG is used to assess corporate information on sustainable development in a holistic way. ESG assessment comprises three aspects: environmental, social and governmental. Each aspect has its own indicators for evaluation of corporate sustainability. Due to use of a new way of assessment which comprises three aspects of corporate social responsibility evaluation of ESG may be used by investors as an instrument for a complete evaluation of corporate sustainability indicators [6].

There is no uniform methodology for assigning ESG scores and compiling a rating. Various analytical agencies define themselves the methodology of assigning scores related to environment, social responsibility and corporate govern-

ance, calculate the overall ESG score and compile ratings. In the papers we have considered the authors use in their models ready ESG scores from the Bloomberg and Capital IQ databases.

Such variables as return on assets, return on equity and Tobin's Q are used most frequently as financial indicators and company value indicators. Profitability ratios are the key indicators which characterize companies' profitability and show the extent of efficiency of corporate operations. Market capitalization shows the company's current value at the stock exchange. Some studies show that there is a significant positive correlation between ESG and financial indicators meaning that ESG disclosure results in improvement of financial indicators and raises companies' value due to increase in transparency and accountability. Thus, panel data of British companies included in FTSE 350 listing for 2004–2013 [7] shows that companies with a higher degree of ESG disclosure are of higher value. The authors chose Tobin's Q as an indicator of the company value. They considered not just the aggregate ESG indicator but also environmental and social factors as independent variables. Besides, they performed a sensitivity test by replacing Tobin's Q with return on assets. Consequently, all conducted tests showed that companies with higher ESG indicators have higher financial indicators and higher value.

Empiric study [8] of 775 German companies for 2010–2018 confirms the hypothesis that ESG disclosure of a higher quality brings about higher financial indicators. In this paper we chose ROA as the dependent variable, and the aggregate ESG indicator and three factors of the aggregate indicator as independent variables, also we also conducted regression analysis with fixed variables. As in the previous paper, the authors performed a sensitivity test replacing ROA with ROE and Tobin's Q. The results remained the same – ESG indicators have a significant positive impact.

Results of paper [9] show that there is no interrelation between individual and combined ESG factors and return on equity (ROE) as well as the company value (Tobin's Q). Moreover, taken separately not a single ESG factor influences the cost of capital (weighed average cost of capital (WACC)), however, the overall ESG score exerts a positive and significant influence on the cost of company's capital (WACC).

Paper [10] conducted meta-analysis on the basis of 142 primary studies in order to consider the interrelation between environmental factors and financial indicators. The results show that in the short term (one year) financial indicators and resources may improve environmental performance of the company in line with the resource scarcity hypothesis; however, the effects vanish over the long term (more than a year). And vice versa, improvement in environmental performance has no short-term impact on corporate financial performance but the company benefits greatly in the long term.

In paper [1] using data of 159 Indonesian companies from 2012 to 2016 the authors found out that ESG disclosure has a positive impact on return on equity. The higher the disclosure quality the higher ROE.

There are also papers which show other conclusions. Some empiric studies emphasize that there is an obvious trade-off between financial performance and ESG indicators and companies have to choose the indicator which is more important for them. So, in paper [11] the authors studied 100 leading CEOs in a group of companies from S&P Global 1200 ranged according to the common rating variable. Their hypothesis stated that ESG and financial indicators had a positive significant correlation. In order to verify the hypothesis they calculated the Pearson correlation coefficients which showed a significant negative correlation between these indicators. These results may be explained by the trade-off theory [12] focused on expenditures used to improve ESG information disclosure which has a negative influence on financial performance. The companies which strive to improve ESG disclosure have higher expenditures (for example, for higher salaries). In future such companies will be eliminated by competitors which do not comply with ESG properly and do not have such expenditures [13]. Other authors [3] presume that managers engaged in ESG activities disregard alternative costs related to ESG actions and, consequently, sacrifice the activity which would have been profitable for the company. Over time such ESG activity results in low financial performance.

At the same time some studies [8; 14] fail to reveal a significant interrelation between the level of ESG indicators' disclosure and the company value. On the basis of the stakeholder theory and the majority of empiric studies we put forward the following hypothesis.

Hypothesis 1. Companies which disclose ESG indicators have higher financial performance.

It is expected that companies which disclose ESG indicators will have higher financial performance than the companies which do not disclose such information.

Infrastructure of CEO's Personal Characteristics on Financial Performance and ESG Indicators

A lot of studies are dedicated to CEO's characteristics, in particular, membership in the Board of Directors, education, tenure, age etc. Their authors consider the characteristics which are easier to measure (for example, sex, age, education level, experience). Moreover, there is no subjectivity in measuring of these indicators, therefore they are the most universal characteristics and the ones convenient to analyze their influence on financial performance and ESG indicators.

Until recent times CEO's performance was mainly measured with financial indicators such as Tobin's Q, return on assets, return on equity and similar financial ratios. However, alongside with the increasing significance of ESG indicators measurement of performance by means of financial indicators only is considered to be too limited. While financial performance is aimed at shareholders' welfare ESG takes into consideration not just shareholders' interests but also impact on the environment (for example, climate change, energy and water waste) as well as social

responsibility issues (for example, human rights, gender equality) and management issues (for example, structure and gender composition of directors, top management's remuneration, bribery and corruption).

In particular, many authors study companies' response to the necessity to disclose the indicators which show their activity in the sphere of environment, social responsibility and corporate governance. There is a belief that as long as expenses and benefits from information disclosure are often uncertain decisions on the company's response fall under responsibility of the management [15]. Consequently, these decisions may depend on the manager's personal characteristics [16]. This is precisely why CEO's characteristics play an important role in the extent to which a company is financially sound and profit-making, in quality of disclosure of company's indicators on the environment, social responsibility and corporate governance and whether the company discloses such information at all.

CEO's Tenure

One of the most popular characteristics studied by the modern literature is CEO's tenure. In the majority of cases studies show an inverse dependence between tenure and organizational adjustment [17]. Closer to the end of their tenure CEOs become more committed to their own views on the company, rely short-sightedly on obsolete paradigms and are less prone to adapt to the external environment, for this reason they have lower ESG indicators [18; 19]. Paper [20] showed that only appointed managers were more inclined to experiment and pursued innovative strategies while managers with long tenures resisted strategic changes. Early paper [21] dedicated to this topic found out that all main key actions taken by CEOs occurred in the first two and a half years of time in power.

At the same time many theorists assert that a negative interrelation between tenure and organizational adjustment often manifested itself as the manager's commitment to status quo [22]. Otherwise speaking, tenure is related to firmness and commitment to the established policy and practical activity because over time managers think increasingly that their views are right. Paper [20] describes this CEO's state as "stale in the saddle", i.e. commitment to status quo, risk avoidance, isolation from new information and confidence that their opinions and beliefs are correct. This behaviour is due to increase of CEO's power as tenure lasts [23]. These authors assert that CEO's unofficial power grows over time for several reasons. First, boards of directors may coopt with appointed CEOs; second, CEOs get their subordinates' loyalty; and third, informal power becomes institutionalized. Apart from that, managers with greater unofficial power have an opportunity to hire and promote other managers who share their views and beliefs [24]. At the same time managers with greater power stand up to pressure better when introducing changes because their independence and influence allow to veto the projects which disagree with the established paradigm [20].

There is a range of late empiric studies which confirm theoretical justification of negative dependence between the CEO's tenure and the level of ESG disclosure. The authors of [25] assert that as a result of a long time in office CEOs do not respond to recent developments. Using the data of Chinese government companies in the period of 2008 to 2016 they revealed a negative influence of a long-term tenure on disclosure of CSR information. Paper [26] based on data about American companies in the period of 2002–2008 found out that CEO's tenure influences the probability of disclosure of environmental information by a company. The authors showed that companies managed by new directors disclose voluntarily environmental information more often than other companies, and new directors accept concessions substantially more often and are not so much committed to their own opinions and beliefs.

An empiric research based on a sample of non-financial Chinese companies listed on the Shanghai and Shenzhen stock exchanges in 2009–2015 shows that CEO's tenure has an inverse significant impact on social and environmental indicators [27]. The main reason for such inverse dependence is the CEO's career horizon. They assert that as long as CEOs in the first years in office have a longer expected career horizon than the ones at the late stages of their career they demonstrate their abilities contributing more to ESG practices. Further, in the last years in office CEOs will be remunerated by increased financial indicators of their company. That is why recently appointed CEOs are more motivated to improve ESG indicators than CEOs at the final stages of their career.

The results of this paper are in line with results of another empiric research based on data of 100 leading CEOs in a group of companies from S&P Global 1200 [11]. Analysis shows that CEOs with longer tenures demonstrate worse ESG indicators while their financial performance is higher.

Paper [28] is dedicated to study of influence of tenure on change of the value of transport companies which is defined by Tobin's Q. It makes the conclusions that CEO's tenure has a negative impact on the companies' value because in this case the difference between the theoretical value and the observed (actual) one turned out to be negative. This research covers a large time interval (from 2000 to 2011), however, its drawback is that the sample consists of 53 companies from 17 countries but it does not take into consideration the countries' characteristics and economic environment.

Paper [29] based on a sample of 10,096 observations for a year comprising 1,450 companies in the period from January 1, 2006 to December 31, 2015 discloses the extent to which firmness in information disclosure on behalf of the company management which depends on managers' tenure influences corporate strategies of ESG disclosure. It shows a significant negative interrelation between the manager's tenure and transparency. Companies where managers occupy their positions for a longer time disclose less information demonstrating lesser variability. Such negative relation is confirmed in three ways. First, it is shown that transfer from the 25th to the 75th percentile of the average time in executive positions is related to decrease in the average estimate of ESG information disclosure and

average variability of information disclosure by 9.3 and 20.1%, respectively. Second, a similar change in the percentile of CEO's tenure results in decrease in the ESG estimate by 4.5% and variability of information disclosure – by 14.6%. Third, there is an interruption in information disclosure after change of CEO. The aggregate indicator of ESG information disclosure improves on average by 9.7% in two years after replacement of CEO.

Paper [1] considers CEO's tenure as a variable which moderates interrelation of ESG and financial indicators of a company. The authors revealed that companies with a high-quality disclosure of environmental indicators have higher ROE and, as a consequence, growth of the company value. However, CEO's tenure enfeebles the interrelation of ESG disclosure and ROE.

On the basis of previous studies and new papers [11] we put forward the following hypothesis.

Hypothesis 2. There is a positive relation between CEO's score in the overall rating and company's financial performance.

We expect that the higher the CEO's score in the overall rating which takes into account both financial performance and ESG indicators the higher the company's financial performance. The CEOs' rating for verification of this hypothesis was compiled on the basis of the methodology of Top 100 Best-Performing CEOs in the World described in detail below.

Hypothesis 3. There is a significant positive relation between CEO's tenure and corporate financial performance.

We assume that directors who occupy their position for a long time show higher financial indicators.

CEO's Age

Literature asserts that person's age is of great importance in taking strategically significant decisions [30]. The authors point out that with advancing age a person loses flexibility and risk proneness and, thus, becomes more resistant to necessary changes. At the same time, in their opinion, older directors, as a rule, are more conservative and, consequently, less inclined to risk [31]. Such behavoiur is due to psychological reasons and motives. Older directors lack physical and mental stamina to carry out organizational adjustments, they are less able to study something new. Apart from that, older directors have less incentives for making risky investment, for example, in research and development. The reason is that they will have to face a negative influence of such investment on current profitability because, probably, the company will have profit from investment over the long term [32]. Consequently, young executives, as a rule, challenge the existing state of things and introduce revolutionary changes in company's orientation to solving important issues to a greater extent.

Empiric studies continue to explore CEO's age. Early paper [32] shows that there is a decrease in research and development expenses when CEOs achieve a mature age. In article [33] the authors proved existence of a negative correlation between CEOs' age and corporate investment in the corporate social responsibility policy (CSR). Paper [11] dedicated to study of CEOs characteristics verifies the assumption of a negative interrelation of CEO's age and overall corporate performance which take into account financial indicators weighted 80% and ESG indicators weighted 20%, however, the results turned out to be statistically insignificant.

In spite of numerous theoretical interpretations of why more aged directors show weaker financial and ESG indicators there is a range of papers which use actual data to prove that age is related positively to corporate financial performance. Thus, in paper [28] the authors showed that there was a significant positive relation between CEO's age and company value. On the basis of a frontier model of stochastic analysis they generate the optimal and theoretical company value which a transport company could have if its directors acted exceptionally reasonably and used optimally their productive factors. Then they try to explain a decrease in the company value which is a difference between the optimal and observed company value. Results of their model show that directors' age may cut the deficit and, thus, increase the company value.

Authors of paper [34] also managed to show that managers at a mature age have higher financial performance of their companies. As a theoretical explanation they offer an assumption that directors' age is predominantly related to their experience.

Taking into consideration the fact that papers dedicated to study of CEO's age produce different results but the majority of researchers indicate a positive influence we put forward the following hypothesis.

Hypothesis 4. There is a positive relation between CEO's age and corporate financial performance.

Education and Experience

Another important characteristic feature which influences ESG and financial results of a company is CEO's education. Previous studies have shown that director's education may have a significant impact on behaviour and corporate performance [17].

Paper [35] explains that education may have effect on quality of performing CEO's functions because it influences his/her cognitive capacity, behaviour and social capital. Later on it will have effect on fulfilling of his/her functions and efficiency.

At present there is no agreement of opinion in literature on the issue of what should be considered as the variable characterizing the education level. Empiric research [11] considers an MBA degree and engineering education as such variable. The authors premised on the methodology of the rating of Top 100 Best-Performing CEOs in the World. In their opinion, directors with engineering education usually had significantly higher ESG indicators and, as a consequence, higher overall indicators. An MBA degree is associated with lower financial performance, ESG and overall indicators, however, the results are not statistically significant. Another research shows that CEOs with an MBA degree do not have higher ESG indicators than CEOs without such degree [35]. These results stem from the fact that CEOs with an MBA degree are more aggressive [36].

Thus, paper [36] shows that companies managed by CEOs with an MBA degree spend more on capital expenditures, incur more debts, pay smaller dividends than companies with other CEOs. Such aggressive behaviour is aimed at short-term results therefore CEOs do not bother with ESG information disclosure intended to long-term results [11]. Paper [37] states a similar opinion: MBA programs are focused on short-term results based on innovation instead of long-term results.

However, other authors offer their explanation of such aggressive behaviour. Directors with an MBA degree are more experienced in taking strategic decisions, hence, they have a greater capability to identify and use the opportunities which increase the company value [38]. The authors of paper [39] revealed that chief financial officers with an MBA degree apply more complex evaluation methods than the ones without an MBA degree. Apart from that, the paper shows that American railroad companies with a large number of directors having an MBA degree are more likely to change their strategies in response to deregulation. Therefore, taking into consideration such conclusions one may also presume that directors with an MBA degree are more likely to think of the necessity to disclose environmental, social and governmental indicators of a company as of a strategic opportunity than other directors. Besides, directors with an MBA are more likely to take voluntary information disclosure as an opportunity to enhance the corporate reputation in the eyes of all concerned parties [40]. Empiric research [26] conducted on the basis of data of American companies in the period of 2002 to 2008 confirms the hypothesis that companies managed by CEOs with an MBA degree disclose voluntarily environmental indicators more often than other companies. Building upon this the authors assert that principal officers who have more academic achievement have a more sophisticated understanding of the sphere and exert a greater impact on corporate performance.

Technical and engineering education is studied less in literature. The existing empiric papers point out that CEOs with technical education usually spend more on investment projects related to research and development than other CEOs [31]. Therefore, it is expected that managers with engineering and technical education will spend more money on disclosure of ESG information. Further this will result in higher financial performance. In paper [28] the authors confirmed such assumption. It turned out that companies managed by directors with technical education have a higher company value expressed by Tobin's Q.

Other papers explore economic / financial education or experience in finance. It is expected that high financial skills and a vast experience will have a positive effect on corporate financial performance which is confirmed by [41].

Taking into consideration the fact that the majority of CEOs in Russia have financial or engineering education and a rather small number have an MBA degree the hypothesis about influence of education looks as follows.

Hypothesis 5. There is a significant positive relation between CEO's financial / economic education and corporate financial performance.

We presume that financial or economic education provides CEO with relevant knowledge and abilities which later results in high financial indicators of a company.

Methodology

Sample Description

The paper uses data of Russian companies of the real sector from the Moscow Exchange index for seven years from 2013 to 2019. In view of absence of some data the panel data is unbalanced. The final sample comprises 82 Russian companies providing 527 observations.

Hypothesis 1 is tested on the complete sample of companies, hypotheses 2–5 – on a reduced sample for five years – since 2015 to 2019. Using these hypotheses influence of CEO's characteristics on corporate financial performance is verified. One of the characteristics included in the model is the CEO's score in the overall rating which was compiled for each year since 2015 to 2019.

Description of Variables

ROA, ROE and market capitalization of companies will be used as *dependent variables* because these indicators exactly are the indicators of financial efficiency most commonly used in literature. ROA and ROE are measured as net income divided by total assets and net income divided by equity, respectively. The variable market capitalization represents company value at the stock exchange. Data on these indicators was obtained from Capital IQ Market Intelligence.

In the first model the fictitious variable of ESG Participation is used as an *independent variable*, it equals 1 if the company discloses ESG indicators or 0 – if the company does not disclose ESG indicators. The data whether the company discloses or does not disclose ESG information was also obtained from Capital IQ Market Intelligence.

The following variables are used as the independent variable in the second model: the CEO's score in the rating, age, CEO's tenure and the fictitious variable which indicates that CEO has or does not have financial or economic education.

In this paper we compiled our own CEOs rating for each year since 2015 to 2019 on the basis of the methodology of the Top 100 CEO rating issued annually by Harvard Business Review since 2013 to 2019 and which idea belongs to researchers of the French business school INSEAD [42]. The rating shows which directors of large public companies have the best performance during their time in office. The distinctive feature of the rating is the fact that it takes into account not just corporate financial performance but also ESG indicators.

Then we describe the methodology on the basis of which a CEO is assigned the score and the rating is compiled.

In order to compile the CEOs rating we selected from the initial sample of 81 Russian public companies only the ones with disclosed ESG indicators and which, consequently, were assigned an ESG score. Thus, the final sample consisted of 43 CEOs representing 33 companies from 11 various industries. The number of CEOs in the sample is bigger than the number of companies for obvious reasons: in some companies CEO was replaced during the considered period. It should also be noted that the rating for each year comprises a different number of CEOs because each year the number of companies which disclose ESG indicators grows. Thus, for example, the rating of 2015 comprises 19 CEOs, the rating of 2016 – 20, 2017 – 24, 2018 – 21, and the rating of 2019 – 33 directors. The ratings were compiled for each year since 2015 to 2019. Thus, there are 117 observations.

In order to compile the financial rating the authors of this methodology used three metrics:

- company profitability with adjustment for the country;
- company profitability with adjustment for the industry;
- change of market capitalization.

As long as our sample comprises only Russian companies the overall financial rating was calculated on the basis of two metrics:

- companies' profitability;
- change of market capitalization.

In order to determine the company profitability the total shareholder return was calculated for the whole CEO's tenure. Such metrics as the total shareholder return was used because it is the most convenient indicator for comparison of companies from various industries. Such indicators as sales, profitability and innovation level are also useful but they differ in various industries and this impedes comparison [43].

The total shareholder return (TSR) is evaluated on the basis of growth of share price and dividend yield per share of a company for this period (BCG Value Creators). We used the following formula to calculate this indicator:

TSR = (Share price as at the end of the period – Share price as at the beginning of the period + Dividend yield) / Share price as at the beginning of the period.

The data on share prices and dividend yield was obtained from the Capital IQ database.

The adjustment of the total shareholder return is determined by subtracting the average return in the industry. This is done to exclude any increase in income which was a result of growth of the whole industry but not the result of achievements and personal characteristics of CEO. In order to get the industry adjustment we obtained from Thompson Reuters the industry average of shareholders' total return for each year since 2015 to 2019. It turned out that after the industry adjustment this indicator is negative for the majority of companies. It means that their profitability was lower than in the whole industry and it does not need adjustment. Therefore we decided not make the adjustment for industry.

Then we calculated change of market capitalization of companies for each year. The directors were assessed by both indicators from 1 (the best) to 33 (the worst). The weighted average of both ratings was the overall financial rating.

At the same time managers were evaluated according to the ESG indicator. For this purpose we took ESG indicators and also assessed directors from 1 (the best) to 33 (the worst). The final rating of CEOs from Russian public companies was obtained on the basis of the overall financial rating with the weight of 70% and ESG rating with the weight of 30%. Then. On the basis of the rating CEOs were assigned scores from 1 to 100 depending on the position in the rating. All ratings are presented in Appendix 2.

The data related to the rest of CEO's characteristics: age, tenure and education was collected manually from publicly available sources, namely annual reports of companies and Capital IQ.

Analysis of existing literature showed that the most common *control variables* used for study of the relation between financial and ESG indicators are the company size and financial leverage. In this paper we also use these variables.

The authors of many studies assert that the *company size* influences both financial performance and ESG indicators. It is emphasized that the larger the company size the higher the probability that the company will disclose ESG information and the higher its ESG indicators because large companies have more resources for disclosure of such information [44]. Apart from that, large companies attract more attention of the society and are always in the limelight, therefore disclosure of ESG information is important for them in order to uphold their reputation [1]. As for influence of the company size on financial indicators the authors of paper [45] point out that a large company size results in economy of scale, such companies have a better access to resources and have a great market power, hence, they have better competitive advantages than small companies.

In the studied literature the company size is defined as a natural logarithm of total assets. In this paper the company size is determined in a similar way.

The *leverage* indicator is associated with business risk which may influence future corporate financial performance [9]. Some papers showed that there was a negative relation between this indicator and corporate financial performance because risks influence the decisions taken by the company management [1].

Various coefficients are used in literature to measure the leverage. The most common are the ratio of total net borrowing to total assets or the ratio of total net borrowing to equity. In our paper we use the leverage measured as the ratio of total debt to equity of the company.

Regression analysis of panel data is the method applied in the empiric part of the paper. In order to conduct this analysis we use the statistical package STATA.

The *model* for verification of the first hypothesis appears as follows:

ROA_{it} / ROE_{it} / Market $Capitalization_{it} = \beta_0 + \beta_1 \cdot ESG\_Participation_{it} + \beta_2 \cdot Firm\ size_{it} + \beta_3 \cdot Leverage_{it} + u_{it} + e_{it}$,

where ROA – the natural logarithm of return on assets;

ROE – the natural logarithm of return on equity;

Market Capitalization – the natural logarithm of market capitalization;

ESG_ Participation – the fictitious variable equaling 1 if the company discloses ESG indicators and 0 – if the company does not disclose ESG indicators;

Firm size – the natural logarithm of total assets;

Leverage – the natural logarithm of the ratio of borrowed assets to equity;

u_{it} – unobserved individual effects;

e_{it} – residual disturbance.

After corresponding tests for choosing the functional model we chose the loglinear model because it allows to approximate distribution of residues to normal ones.

The general arrangement of the model for verification of hypotheses 2–4 is as follows:

ROA_{it} / ROE_{it} / Market $Capitalization_{it} = \beta_0 + \beta_1 \cdot Presence\ in\ rating_{it} \cdot CEO\ score_{it} + \beta_2 \cdot CEO\ age_{it} + \beta_3 \cdot CEO\ tenure_{it} + \beta_4 \cdot Financial\ degree_{it} + \beta_5 \cdot Firm\ size_{it} + \beta_6 \cdot Leverage_{it} + u_{it} + e_{it}$,

where Presence in rating – a fictious variable equaling 1 if CEO in included in the rating; 0 – if CEO is not included in the rating;

CEO score – CEO's score in the rating;

CEO age – CEO's age;

CEO tenure – CEO's time in office;

Financial degree – a fictious variable equaling 1 if CEO has financial / economic education; 0 – if CEO does not have financial / economic education.

Empiric Analysis Results. Conclusions and Discussion

Descriptive Statistics

This section presents information on descriptive statistics of dependent, explicative and main control variables used in the paper (Appendix 1).

Table 1. Descriptive statistics

	Number of observations	Mean value	Standard deviation	Minimum	Maximum
Return on assets (ROA)	527	0.056	0.16	–2.46	1.12
Return of equity (ROE)	527	0.159	1.19	–9.27	17.59
Market capitalization, mln RUB	527	298,999.4	638,301.6	52.4	4,765,920
Total assets, mln RUB	527	791,251	1,925,087	592.17	17,300,000
Leverage	527	1.96	5.623	0	73.65

Source: the author's calculations.

As we see from Table 1 ROA and ROE in our sample take on both positive and negative values. Besides, ROE has a wider range of values. Mean values of both indicators, however, are positive and amount to approximately 5.6% for ROA and about 15.9% for ROE.

ROA and ROE are measured as net income divided by total assets and net income divided by equity, respectively. They are important indicators for investors because they show the efficiency with which company uses its assets and resources, the income which they generate for the company. The higher ROA the more efficiently the company manages its assets, i.e. the company generates more income with smaller investment. Unlike ROE ROA takes into consideration not just shareholders' funds but also borrowed assets. Therefore, the more borrowed funds the company attracts the bigger the difference between ROA and ROE. As for ROE the rule "the higher ROE the better" is not always true. In this case one has to define the reasons for high ROE. On the one hand, if ROE is extremely high it may mean that net income is very high in comparison to equity and this may indicative of high corporate performance. On the other hand, high indicators may be due to the fact that in comparison to net income corporate equity is very small because of a high leverage.

As we see from Table 1 mean values of both indicators are positive, consequently, our sample of companies shows high financial performance and in general companies are attractive for investors.

The market capitalization variable also has a wide range of values. It stems from the fact that the sample comprises both small companies and large corporations. In our case it is not a problem for the research, it just shows the variety of companies in the sample. Apart from that, the differences will be mitigated in transfer to the loglinear model.

The leverage variable is defined as the ratio of borrowed funds to equity of the company. The optimal value of this indicator is the range from 1 to 2 (for larger companies this indicator may exceed 2). However, there is a belief that in case

of too high indicators the financial standing of the company becomes unstable because borrowed funds exceed equity greatly and the company loses its independence. A too low ratio may mean that the company fails to use opportunities. As we see from Table 1 the leverage indicator in our sample ranges from 0 to 73. This parameter cannot be negative because it is calculated by dividing total debt by equity and both of them cannot be below zero. The zero value of this indicator may be interpreted as absence of company's debts and risks related to it. At the same time there are companies with borrowed funds significantly exceeding equity, therefore the indicators exceed seriously the commonly-accepted optimal values. It means that there are outliers in the sample which may actually make our model worse and cause distortion of statistical evaluations and parameters. However, as long as these outliers are not a result of errors in measurement and they provide actual information about our sample and are important data we decided to keep these outliers in the sample. As we see the leverage mean value equaling 1.96 is at the level of the optimal value for this indicator.

The value of "total assets" representing the company size also shows a wide spread but this phenomenon is again due to variety of our sample. As long as the spread of this indicator is too large, on the basis of studied literature we decided to take the logarithm of total assets as a proxy for companies' size.

Then Table 2 presents descriptive statistics of the reduced sample on the basis of which we compiled the rating of CEOs and verified hypotheses about influence of CEO's characteristics on financial performance and influence of the CEO's position in the overall rating. Table 2 shows that ROA and ROE take on positive and negative values. At the same time ROE again has a wide range of values. Mean values of both indicators are positive and amount to approximately 6.9% for ROA and about 18.9% for ROE. The maximum and minimum values of the leverage were at the same level, it means that on average the companies' sample does not differ greatly from the previous one.

Table 2. Descriptive statistics of the reduced sample

	Number of observations	Mean value	Standard deviation	Minimum	Maximum
Return on assets (ROA)	397	0.069	0.11	–0.702	0.65
Return on equity (ROE)	397	0.189	1.45	-9.27	17.59
Market capitalization, mln RUB	397	333,486.2	695,531.3	121.55	4,765,920
Total assets, mln RUB	397	894,025.6	2,200,960	3,178.84	17,300,000
CEO score	397	15.5	28.57	0	100
CEO age	397	49.84	8.89	30	71
Tenure	397	6.59	5.96	1	36
Leverage	397	2.35	7.09	0	73.65

Source: the author's calculations.

There are 123 CEOs in the sample which provide 397 observations. Their average age is 50 years old because the sample comprises younger directors of 30 years old and older ones – of 70 years of age. As for tenure the average time is over six years while the spread of this indicator is also wide: from one year to 36 years. The CEO's score, as explained above, was assigned on the basis of the CEO's position in the overall rating which takes into consideration both corporate financial performance and quality of disclosure of ESG information.

Panel Data Analysis

Hypothesis 1. Companies which disclose ESG indicators have higher financial performance.

Verification of this hypothesis implies answering the question: whether disclosure or non-disclosure of ESG information of the company in its reports has an impact on its financial performance. The hypothesis was verified on the complete sample of companies which comprised 527 observations. For this purpose we built three model specifications which differ in dependent variables. We chose a dummy variable as an independent variable which takes on the value of 1 if the company had been assigned an ESG score or the value of 0 – if the company did not disclose ESG information, and consequently, it had not been assigned a ESG score. For the reason that this variable is not a time invariant one it is impossible to use the fixed effects regression model because in this case time invariant regressors

are eliminated. For this reason, we evaluated a pooled regression and a random effect model. In order to choose the most suitable model from the two abovementioned models we applied the Breusch-Pagan test which verified the model for a random individual effect. The test was conducted for all three model specifications and showed that the zero hypothesis which stated absence of individual effects was rejected at a 1% significance level for all model specifications. Thus, in order to verify the first hypothesis we chose the individual random effects model. The model looks as follows:

$$ROA_{it} / ROE_{it} / \text{Market Capitalization}_{it} = \beta_0 + \beta_1 \cdot ESG\_Participation_{it} + \beta_2 \cdot \text{Firm size}_{it} + \beta_3 \cdot Leverage_{it} + u_{it} + e_{it}.$$

Before interpreting the model results it is necessary to verify it for multicollinearity. For this purpose we calculated VIF. If VIF exceeds 10 there may be serious multicollinearity problems [46]. In our case VIF does not exceed 7.66, therefore multicollinearity should not influence our results.

Table 3 shows the results of the model we obtained. See the complete information on them in Appendix 3.

Table 3. Results of models' evaluation

	ROA	ROE	Market_Capitalization
ESG_Participation	0.311**	0.321**	0.748***
Leverage	–0.147***	0.207***	–0.113***
Firm_size	–0.07	–0.062	0.267***
Constant	–2.175***	–1.099*	7.602***
Number of observations	409	416	493

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

Source: the author's calculations.

As we see in Table 3 the variable responsible for company's disclosure or non-disclosure of ESG information (ESG Participation) is significant in all specifications of the model. In the model with ROA and ROE as a dependent variable it is significant at a 5% significance level and in both cases it is above zero. Moreover, influence of this indicator on ROA and ROE is virtually the same (0.311 and 0.321 respectively). According to the model with market capitalization as the dependent variable this variable is significant at a 1% significance level. Its influence on market capitalization of the company is also positive but is more than twice as high as on ROA and ROE (0.748). It is remarkable that the company size variable is significant at a 1% significance level only in the model with market capitalization. The leverage variable is significant at a 1% significance level in all three model specifications, however, the results concerning influence of this variable are controversial. It was found out that there is a negative relation between the leverage and return on assets as well as between the leverage and market capitalization of companies which conforms to the results obtained in other papers. At the same time it was revealed that the relation between the leverage and return on equity is positive.

It follows that companies disclosing ESG indicators have higher financial indicators and higher market capitalization in comparison to those which do not disclose such information. This means that hypothesis 1 is confirmed.

Hypothesis 2. There is a positive relation between CEO's score in the overall rating and company's financial performance.

In order to verify this hypothesis we used a reduced sample of companies in order to define influence of the CEO's position in the rating on corporate financial performance. CEOs' rating was compiled for each year from 2015 to 2019. It is due to the fact that before 2015 there had been a small number of companies disclosing ESG indicators.

In order to verify the hypotheses we built three model specifications which differed in dependent variables (ROA, ROE, market capitalization). For verification we used a pooled regression and an individual random effects model. The fixed effects model was not verified because there was a fictious variable in it which showed whether CEO had / did not have financial education. It is a time invariant variable, therefore use of the fixed effects model is impossible. The Breusch-Pagan test showed, as in the previous case, that the random effects model is the most suitable one for our regression.

All three model specifications, as in the previous case, were verified for multicollinearity. Analysis of VIF showed that there was multicollinearity in the models. In order to eliminate it we decided to remove the control variable representing the company size. After the second verification VIF did not exceed the optimal values, therefore multicollinearity was not a problem any more. We also conducted tests for heteroscedasticity which proved its presence. So, further we built robust regressions.

The final random effects model for verification of hypotheses 2–5 is as follows:

$$ROA_{it} / ROE_{it} / \text{Market Capitalization}_{it} = \beta_0 + \beta_1 \cdot \text{Presence in rating}_{it} \cdot \text{CEO score}_{it} + \beta_2 \cdot \text{CEO age}_{it} + \beta_3 \cdot \text{CEO tenure}_{it} + \beta_4 \cdot \text{Financial degre}_{it} + \beta_5 \cdot Leverage_{it} + u_{it} + e_{it}.$$

The results of all specifications are presented in Table 4. All obtained results are shown in Appendix 4.

Table 4. Results of specifications

	ROA	ROE	Market_Capitalization
Rating Score	0.0005***	0.002	0.0065***
CEO age	–0.001	0.012	0.02767
CEO tenure	0.002	–0.015	0.0403*
Financial degree	–0.009	–0.016	0.3017*
Leverage	–0.002***	–0.035***	–0.002
ROA	–	–	0.934***
Constant	0.109**	–0.264	9.446***
Number of observations	397	397	397

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

Source: the author's calculations.

Further we are going to consider results of each specification and provide a conceptual interpretation of influence of each variable. In view of the fact that the quality of models is low we decided to add return on assets as a dependent variable to the model with market capitalization in order to improve the model quality. In point of fact, the model quality improved a little because the Wald statistic value increased, therefore we decided to keep the return on assets variable as the explanatory variable in the model with market capitalization. In our case this model is the principal one. Let us pass on to results interpretation.

As we see from Table 4 the variable which we determined as multiplication of the fictious variable of CEO's presence in the rating by his/her score in the rating turned out to be significant at a 1% level in the model with market capitalization. Predictably, influence of this indicator is positive – the higher the CEO's score in the rating the higher the company's market capitalization. The coefficient value amounts to 0.007. It means that if the score grows by 1 point market capitalization increases by 0,7%.

Influence of this indicator in the model with return on assets as the dependent variable was verified in two ways – with the time lag and without the time lag. It was expected that the CEO's position in the rating could influence return on assets with some delay. It turned out that in both cases the variable is significant: in the model with the time lag – at a 1% significance level, in the model without the time lag – at a 5% significance level. We decided to keep the model without the time lag as the final one because of its higher quality. Influence of this indicator on return on assets turned out to be positive (0.0005) which is consistent with our hypothesis on the positive relation between the CEO's position in the rating and corporate financial performance. This leads us to the conclusion that when the CEO's score grows by one point return on assets increases by 0.0005.

In the model with return on equity influence of the CEO's position in the rating was verified in a similar way. However, the results showed that in both models – without the tame lag and with the time lag – the variable was not statistically significant.

Thus, hypothesis 2 was confirmed for two model specifications – for the model with market capitalization and the model with return on assets.

Hypothesis 3. There is a significant positive relation between CEO's tenure and corporate financial performance.

This hypothesis is verified on the same model which is used to verify hypothesis 2. See the obtained results in Table 4.

In the principal model – the one with market capitalization – the "CEO's tenure" variable turned out to be significant at a 10% level. Influence of this variable on corporate financial performance is positive which is consistent with the results obtained in some papers. The coefficient preceding the variable is 0.043. It means that when CEO's tenure increases by one year company's market capitalization grows by 4.3%, i.e. the longer the CEO's time in office the higher the company's market capitalization.

In the other two models – with return on assets and return on equity as dependent variables – the CEO's tenure variable turned out to be insignificant.

Thus, the hypothesis on a positive relation between CEO's tenure and corporate financial performance was confirmed for one model specification out of three – the model with market capitalization.

Hypothesis 4. There is a positive relation between CEO's age and corporate financial performance.

This hypothesis was put forward on the basis of results of previous empiric studies and it was expected that CEO's age is related positively with corporate financial performance.

This hypothesis as well as previous ones was verified for three model specifications. However, in all three specifications the variable of CEO's age turned out to be statistically insignificant.

Thus, hypothesis of a positive relation between CEO's age and corporate financial performance was not confirmed.

Hypothesis 5. There is a significant positive relation between CEO's financial / economic education and corporate financial performance.

According to this hypothesis it was expected that directors with financial and economic education had more relevant knowledge and experience for management of the company. Consequently, it was presumed that companies managed by such directors showed higher financial indicators. The variable responsible for presence or lack of financial education was determined as a fictitious variable. See the results in Table 4.

In the principal model – the one with market capitalization – the variable turned out to be significant at a 10% level. The influence coefficient is positive (0.301). It means that if CEO has financial / economic education the company market value is higher by 30%.

The education variable was also verified using the other two model specifications, however, the results turned out to be statistically insignificant.

Thus, the hypothesis on a positive relation between CEO's financial education and corporate financial performance was confirmed just for one model specification.

Conclusions

The analysis performed in this research paper showed that disclosure of ESG information by a company plays an essential role. The stakeholder theory was confirmed – disclosure of ESG information by a company is perceived positively by buyers, investors and company employees which further results in improvement of financial indicators.

Analysis showed that the CEO's position in the rating which takes into consideration financial indicators as well as ESG indicators exerts a positive impact on market capitalization and return on assets. It was found out that CEO's tenure is related positively with market capitalization and return on assets. Probably, it is due to the fact that a longer time in office allows to obtain relevant experience, consequently, CEO is able to provide higher financial performance for the company. Finally, hypothesis 5 based on the assumption of a positive influence of financial education on corporate financial performance was confirmed partially. The results showed that companies managed by a director with financial education have higher market capitalization.

Thus, all hypotheses put forward in this paper were confirmed in full or partially, except for the hypothesis about a positive influence of CEO's age on corporate financial performance. In all models this CEO's characteristic feature produces no significant impact on considered financial indicators.

Conclusive Statement

In this paper we studied characteristics of CEOs from Russian companies and compiled a rating of CEOs taking into consideration financial and ESG indicators of companies, considered influence of CEO's position in this overall rating on corporate financial performance. We performed corresponding tests in order to choose the best model and a test for possible errors. The random individual effects model was considered to be the best one for verification of suggested hypotheses.

The analysis showed that there was a significant positive relation between the fact of company's disclosure of ESG information and financial indicators which were defined as return on assets and return on equity as well as the market capitalization indicator. The next conclusion states that there is a significant positive relation between the CEO's score in the rating and market capitalization indicator of the company as well as between the CEO's score in the rating and return on assets. We also found out that CEO's financial education exerts a positive impact on market capitalization of the company. Moreover, tenure is related positively to return on assets and market capitalization. However, it turned out that CEO's age did not have a significant influence on corporate financial performance.

References

1. Triyani, A., Setyahuni, S. W., & Kiryanto, K. (2020). The Effect Of Environmental, Social and Governance (ESG) Disclosure on Firm Performance: The Role of Ceo Tenure. *Jurnal Reviu Akuntansi Dan Keuangan*, *10*(2). https://doi.org/10.22219/jrak.v10i2.11820
2. Freeman, S., & Cavusgil, S. T. (1984). Strategic management. A stakeholder approach. *Journal of International Marketing*, *15*(4).
3. Schuler, D. A., & Cording, M. (2006). A corporate social performance-corporate financial performance behavioral model for consumers. In *Academy of Management Review* (Vol. 31, Issue 3). https://doi.org/10.5465/AMR.2006.21318916
4. Baron, D. P. (2008). Managerial contracting and corporate social responsibility. *Journal of Public Economics*, *92*(1–2). https://doi.org/10.1016/j.jpubeco.2007.05.008
5. Faisal, F., Prastiwi, A., & Yuyetta, E. N. A. (2018). Board Characteristics, Environmental Social Governance Disclosure and Corporate Performance : Evidence From Indonesia Public Listed Companies. *The 2018 Fifth International Conference on Governance and Accountability*.
6. Aureli, S., Gigli, S., Medei, R., & Supino, E. (2020). The value relevance of environmental, social, and governance disclosure: Evidence from Dow Jones Sustainability World Index listed companies. *Corporate Social Responsibility and Environmental Management*, *27*(1). https://doi.org/10.1002/csr.1772
7. Li, Y., Gong, M., Zhang, X. Y., & Koh, L. (2018). The impact of environmental, social, and governance disclosure on firm value: The role of CEO power. *British Accounting Review*, *50*(1). https://doi.org/10.1016/j.bar.2017.09.007

8. Velte, P. (2019). Does CEO power moderate the link between ESG performance and financial performance?: A focus on the German two-tier system. *Management Research Review*, *43*(5). https://doi.org/10.1108/MRR-04-2019-0182
9. Atan, R., Alam, M. M., Said, J., & Zamri, M. (2018). The impacts of environmental, social, and governance factors on firm performance: Panel study of Malaysian companies. *Management of Environmental Quality: An International Journal*, *29*(2). https://doi.org/10.1108/MEQ-03-2017-0033
10. Hang, M., Geyer-Klingeberg, J., & Rathgeber, A. W. (2019). It is merely a matter of time: A meta-analysis of the causality between environmental performance and financial performance. *Business Strategy and the Environment*, *28*(2). https://doi.org/10.1002/bse.2215
11. Garcia-Blandon, J., Argilés-Bosch, J. M., & Ravenda, D. (2019). Exploring the relationship between CEO characteristics and performance. *Journal of Business Economics and Management*, *20*(6). https://doi.org/10.3846/jbem.2019.10447
12. Navarro, P. (1988). Why Do Corporations Give to Charity? *The Journal of Business*, *61*(1). https://doi.org/10.1086/296420
13. Jensen, M. C. (2002). VALUE MAXIMIZATION, STAKEHOLDER THEORY, AND THE CORPORATE OBJECTIVE FUNCTION Michael C. Jenseti. *Business Ethics Quarterly*, *12*(2).
14. Aerts, W., Cormier, D., & Magnan, M. (2008). Corporate environmental disclosure, financial markets and the media: An international perspective. *Ecological Economics, 64(*3). https://doi.org/10.1016/j.ecolecon.2007.04.012
15. Clarkson, P. M., Li, Y., Richardson, G. D., & Vasvari, F. P. (2008). Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, Organizations and Society*, *33*(4–5). https://doi.org/10.1016/j.aos.2007.05.003
16. George, E., Chattopadhyay, P., Sitkin, S. B., & Barden, J. (2006). Cognitive underpinnings of institutional persistence and change: A framing perspective. *Academy of Management Review*, *31*(2). https://doi.org/10.5465/AMR.2006.20208685
17. Finkelstein, S., & Hambrick, D. C. (1990). Top-Management-Team Tenure and Organizational Outcomes: The Moderating Role of Managerial Discretion. *Administrative Science Quarterly*, *35*(3). https://doi.org/10.2307/2393314
18. Miller, D. (1991). Stale in the saddle: CEO tenure and the match between organization and environment. *Management Science*, *37*(1). https://doi.org/10.1287/mnsc.37.1.34
19. Levinthal, D. A., & March, J. G. (1993). The myopia of learning. *Strategic Management Journal*, *14*(2 S). https://doi.org/10.1002/smj.4250141009
20. Miller, D., & Shamsie, J. (2001). Learning across the life cycle: Experimentation and performance among the Hollywood studio heads. *Strategic Management Journal*, *22*(8). https://doi.org/10.1002/smj.171
21. Gupta, A. K. (1988). The dynamics of taking charge, by John J. Gabarro, Boston: Harvard Business School Press, 1987, 204 pp. $22.95. *Human Resource Management*, *27*(4). https://doi.org/10.1002/hrm.3930270406
22. Hambrick, D. C., Geletkanycz, M. A., & Fredrickson, J. W. (1993). Top executive commitment to the status quo: Some tests of its determinants. *Strategic Management Journal*, *14*(6). https://doi.org/10.1002/smj.4250140602
23. Finkelstein, S., & D'aveni, R. A. (1994). CEO Duality as a Double-Edged Sword: How Boards of Directors Balance Entrenchment Avoidance and Unity of Command. *Academy of Management Journal*, *37*(5). https://doi.org/10.5465/256667
24. Westphal, J. D., & Zajac, E. J. (1995). Who Shall Govern? CEO/Board Power, Demographic Similarity, and New Director Selection. *Administrative Science Quarterly*, *40*(1). https://doi.org/10.2307/2393700
25. Zhuang, Y., Chang, X., & Lee, Y. (2018). Board composition and corporate social responsibility performance: Evidence from Chinese public firms. *Sustainability (Switzerland)*, *10*(8). https://doi.org/10.3390/su10082752
26. Lewis, B. W., Walls, J. L., & Dowell, G. W. S. (2014). Difference in degrees: CEO characteristics and firm environmental disclosure. *Strategic Management Journal*, *35*(5). https://doi.org/10.1002/smj.2127
27. Khan, T. M., Gang, B., Fareed, Z., & Yasmeen, R. (2020). The impact of CEO tenure on corporate social and environmental performance: an emerging country's analysis. *Environmental Science and Pollution Research*, *27*(16). https://doi.org/10.1007/s11356-020-08468-y
28. Ben Mohamed, E., Jarboui, S., Baccar, A., & Bouri, A. (2015). On the effect of CEOs' personal characteristics in transport firm value? A stochastic frontier model. *Case Studies on Transport Policy*, *3*(2).
29. McBrayer, G. A. (2018). Does persistence explain ESG disclosure decisions? *Corporate Social Responsibility and Environmental Management*, *25*(6). https://doi.org/10.1002/csr.1521
30. Wiersema, M. F., & Bantel, K. A. (1992). Top Management Team Demography and Corporate Strategic Change. *Academy of Management Journal*, *35*(1). https://doi.org/10.5465/256474

31. Barker, V. L., & Mueller, G. C. (2002). CEO characteristics and firm R&D spending. *Management Science*, *48*(6). https://doi.org/10.1287/mnsc.48.6.782.187
32. Dechow, P. M., & Sloan, R. G. (1991). Executive incentives and the horizon problem. An empirical investigation. *Journal of Accounting and Economics*, *14*(1). https://doi.org/10.1016/0167-7187(91)90058-S
33. Borghesi, R., Houston, J. F., & Naranjo, A. (2014). Corporate socially responsible investments: CEO altruism, reputation, and shareholder interests. *Journal of Corporate Finance*, *26*. https://doi.org/10.1016/j.jcorpfin.2014.03.008
34. Chaganti, R. S., Zimmerman, M. A., Kumaraswamy, A., Maggitti, P., & Arkles, J. B. (2016). TMT Characteristics , Time-to-IPO and Firm Performance. *Journal of Management & Public Policy*, *7*(2).
35. Gottesman, A. a, & Morey, M. R. (2010). CEO educational background and firm financial performance. *Journal of Applied Finance*, *2*.
36. Bertrand, M., & Schoar, A. (2003). Managing with style: The effect of managers on firm policies. *Quarterly Journal of Economics*, *118*(4). https://doi.org/10.1162/003355303322552775
37. Mintzberg, H. (2005). Seven — Plus or Minus a Couple. *Academy of Management Learning Education*, *4*(2).
38. Geletkanycz, M. A., & Black, S. S. (2001). Bound by the past? Experience-based effects on commitment to the strategic status quo. *Journal of Management*, *27*(1). https://doi.org/10.1016/S0149-2063(00)00084-2
39. Graham, J. R., & Harvey, C. R. (2001). The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics*, *60*(2–3). https://doi.org/10.1016/S0304-405X(01)00044-7
40. Slater, D. J., & Dixon-Fowler, H. R. (2010). The future of the planet in the hands of MBAs: An examination of CEO MBA education and corporate environmental performance. *Academy of Management Learning and Education*, *9*(3). https://doi.org/10.5465/AMLE.2010.53791825
41. Arayssi, M., Jizi, M., & Tabaja, H. H. (2020). The impact of board composition on the level of ESG disclosures in GCC countries. *Sustainability Accounting, Management and Policy Journal*, *11*(1). https://doi.org/10.1108/SAMPJ-05-2018-0136
42. Hansen, M. T., Ibarra, H., & Peyer, U. (2010). The best-performing CEOs in the world. *Harvard Business Review*, *88*(1–2).
43. Hansen, M., Ibarra, H., & Peyer, U. (2013). The Best-Performing CEOs in the World: (cover story). *Harvard Business Review*, *91*(1), 81–95.
44. Velte, P. (2017). Does ESG performance have an impact on financial performance? Evidence from Germany. *Journal of Global Responsibility*, *8*(2). https://doi.org/10.1108/jgr-11-2016-0029
45. Roberts, P. W., & Dowling, G. R. (2002). Corporate reputation and sustained superior financial performance. *Strategic Management Journal*, *23*(12). https://doi.org/10.1002/smj.274
46. Hair J.F, Black W.C, Babin B.J, A. R. E. (2010). Multivariate data analysis. In *Prentice-Hall, Upper Saddle River.* (Vol. 232).

Appendices

Appendix 1. Description of variables

Variable	Description	Source
ROA	Return on assets	Capital IQ
ROE	Return on equity	Capital IQ
Market Capitalization	Market capitalization	Bloomberg
ESG Participation	Disclosure of ESG by the company	Capital IQ
Firm size	Natural logarithm of total assets	Capital IQ
Leverage	Natural logarithm of leverage	Capital IQ
CEO age	CEO's age	Companies' annual reports
CEO tenure	Time in office	Companies' annual reports
Financial degree	Presence of CEO's financial education	Companies' annual reports
CEO score	The score assigned to CEO in the overall rating	Author's calculations
Rating	Presence of CEO in the overall rating	Author's calculations

Appendix 2. CEOs' Ratings

Rating of 2015

CEO's full name	*Ranging by no TSR (1 – the best, 19 – the worst)*	*Ranging by market capitalization (1 – the best, 19 – the worst)*	*Financial rating*	*Ranging by ESG (1 – the best, 19 – the worst)*	*Overall rating*	**Score**
Mikhelson Leonid Victorovich	7	6	3	1	1	100.00
Sechin Igor Ivanovich	10	5	5	2	2	94.74
Shekhterman Igor Vladimirovich	1	9	2	10	3	89.47
Tokarev Nikolay Petrovich	2	7	1	15	4	84.21
Guriev Andrey Andreevich	3	10	3	11	5	78.95
Potanin Vladimir Olegovich	18	1	7	3	6	73.68
Bagrin Oleg Vladimirovich	12	4	6	12	7	68.42
Maganov Nail Ulfatovich	11	8	7	13	8	63.16
Shulginov Nikolay Grigorievich	5	15	10	7	9	57.89
Alekperov Vagit Yusufovich	9	12	11	5	10	52.63
Galitsky Sergey Nikolaevich	17	2	7	17	11	47.37
Larin Vadim Alexandrovich	19	3	12	8	12	42.11
Korsik Alexander Leonidovich	4	19	14	4	13	36.84
Gordeev Sergey Eduardovich	6	16	12	19	14	31.58
Dubovskov Andrey Anatolievich	15	13	17	9	15	26.32
Kalugin Sergey Borisovich	8	17	15	14	16	21.05
Zharkov Andrey Vyacheslavovich	13	18	19	6	17	15.79
Bogdanov Vladimir Leonidovich	16	11	16	18	18	10.53
Shamolin Mikhail Valerievich	14	14	17	16	19	5.26

Rating 2016

CEO's full name	*Ranging by TSR (1 – the best, 20 – the worst)*	*Ranging by market capitalization (1 – the best, 20 – the worst)*	*Financial rating*	*Ranging by ESG (1 – the best, 20 – the worst)*	*Overall rating*	*Score*
Potanin Vladimir Olegovich	9	3	4	3	1	100
Ivanov Sergey Sergeevich	5	7	4	6	2	95
Bagrin Oleg Vladimirovich	3	1	1	15	3	90
Larin Vadim Alexandrovich	2	2	1	18	4	85
Kovalchuk Boris Yurievich	1	8	3	14	5	80
Mikhelson Leonid Victorovich	12	6	8	5	6	75
Sechin Igor Ivanovich	15	4	10	2	7	70
Alekperov Vagit Yusufovich	8	5	6	13	8	65

CEO's full name	*Ranging by TSR (1 – the best, 20 – the worst)*	*Ranging by market capitalization (1 – the best, 20 – the worst)*	*Financial rating*	*Ranging by ESG (1 – the best, 20 – the worst)*	*Overall rating*	*Score*
Shulginov Nikolay Grigorievich	6	12	8	9	9	60
Shamolin Mikhail Valerievich	7	14	12	4	10	55
Maganov Nail Ulfatovich	4	10	7	17	11	50
Shishkin Andrey Nikolaevich	11	9	11	8	12	45
Dubovskov Andrey Anatolievich	10	13	13	7	13	40
Galitsky Sergey Nikolaevich	16	20	18	1	14	35
Shekhterman Igor Vladimirovich	13	11	14	11	15	30
Tokarev Nikolay Petrovich	14	16	15	16	16	25
Kalugin Sergey Borisovich	18	17	17	12	17	20
Guriev Andrey Andreevich	19	18	19	10	18	15
Gordeev Sergey Eduardovich	17	15	16	20	19	10
Bogdanov Vladimir Leonidovich	20	19	20	19	20	5

Rating 2017

CEO's full name	*Ranging by TSR (1 – the best, 24 – the worst)*	*Ranging by market capitalization (1 – the best, 24 – the worst)*	*Financial rating*	*Ranging by ESG (1 – the best, 24 – the worst)*	*Overall rating*	*Score*
Bagrin Oleg Vladimirovich	2	1	1	8	1	100
Dubovskov Andrey Anatolievich	10	6	6	4	2	95.83
Shekhterman Igor Vladimirovich	7	4	3	15	3	91.67
Maganov Nail Ulfatovich	1	3	2	21	4	87.50
Saveliev Vitaly Gennadievich	17	8	10	6	5	83.33
Shilyaev Pavel Vladimirovich	9	2	3	23	6	79.17
Gordeev Sergey Eduardovich	6	5	3	24	7	75.00
Potanin Vladimir Olegovich	4	22	12	5	8	70.83
Alekperov Vagit Yusufovich	3	15	7	17	9	66.67
Galitsky Sergey Nikolaevich	5	24	13	3	9	62.50
Kovalchuk Boris Yurievich	15	10	10	10	9	58.33
Guriev Andrey Grigorievich	14	7	9	14	12	54.17
Bogdanov Vladimir Leonidovich	11	9	8	22	13	50.00
Shulginov Nikolay Grigorievich	21	11	18	1	14	45.83
Ivanov Sergey Sergeevich	13	17	14	13	15	41.67
Shevelev Alexander Anatolievich	8	23	15	12	16	37.50
Grachev Pavel Sergeevich	12	19	15	16	17	33.33

CEO's full name	*Ranging by TSR (1 – the best, 24 – the worst)*	*Ranging by market capitalization (1 – the best, 24 – the worst)*	*Financial rating*	*Ranging by ESG (1 – the best, 24 – the worst)*	*Overall rating*	*Score*
Sechin Igor Ivanovich	18	21	22	2	18	29.17
Mikhelson Leonid Victorovich	16	20	20	7	19	25.00
Oseevsky Mikhail Eduardovich	19	12	15	19	20	20.83
Tokarev Nikolay Petrovich	20	14	19	18	21	16.67
Shamolin Mikhail Valerievich	24	16	23	9	22	12.50
Shishkin Andrey Nikolaevich	22	18	23	11	23	8.33
Dyunning Yan Gezinyus	23	13	20	20	24	4.17

Rating 2018

CEO's full name	*Ranging by TSR (1 – the best, 24 – the worst)*	*Ranging by market capitalization (1 – the best, 24 – the worst)*	*Financial rating*	*Ranging by ESG (1 – the best, 24 – the worst)*	*Overall rating*	*Score*
Sechin Igor Ivanovich	2	5	2	3	1	100.00
Potanin Vladimir Olegovich	4	1	1	6	2	95.45
Mikhelson Leonid Victorovich	1	6	2	4	3	90.91
Shevelev Alexander Anatolievich	7	4	4	1	4	86.36
Grachev Pavel Sergeevich	3	10	5	12	5	81.82
Fedorishin Grigory Vitalievich	12	2	6	10	6	77.27
Ivanov Sergey Sergeevich	5	9	6	17	7	72.73
Kovalchuk Boris Yurievich	8	11	11	8	8	68.18
Guriev Andrey Grigorievich	6	12	9	14	9	63.64
Shilyaev Pavel Vladimirovich	13	3	8	18	10	59.09
Alekperov Vagit Yusufovich	16	7	13	7	11	54.55
Maganov Nail Ulfatovich	10	8	9	19	12	50.00
Tokarev Nikolay Petrovich	9	13	12	15	13	45.45
Shamolin Mikhail Valerievich	19	14	16	13	14	40.91
Shekhterman Igor Vladimirovich	15	19	17	11	15	36.36
Shulginov Nikolay Grigorievich	20	18	21	2	16	31.82
Naumova Olga Valerievna	11	21	15	16	17	27.27
Kornya Alexey Valerievich	18	19	20	5	18	22.73
Saveliev Vitaly Gennadievich	21	15	19	9	19	18.18
Shishkin Andrey Nikolaevich	14	16	14	21	20	13.64
Bogdanov Vladimir Leonidovich	17	17	17	20	21	9.09

Rating 2019

CEO's full name	*Ranging by TSR (1 – the best, 24 – the worst)*	*Ranging by market capitalization (1 – the best, 24 – the worst)*	*Financial rating*	*Ranging by ESG (1 – the best, 24 – the worst)*	*Overall rating*	*Score*
Grachev Pavel Sergeevich	4	5	3	1	1	100
Potanin Vladimir Olegovich	1	1	1	7	2	96.97
Alekperov Vagit Yusufovich	5	3	2	10	3	93.94
Kovalchuk Boris Yurievich	9	8	5	5	4	90.91
Sechin Igor Ivanovich	14	6	7	3	5	87.88
Dubovskov Andrey Anatolievich	2	13	4	15	6	84.85
Shulginov Nikolay Grigorievich	8	16	9	6	7	81.82
Shevelev Alexander Anatolievich	25	2	12	2	8	78.79
Kornya Alexey Valerievich	16	7	8	13	9	75.76
Shekhterman Igor Vladimirovich	15	10	10	11	10	72.73
Livinsky Pavel Anatolievich	10	9	6	25	11	69.70
Oseevsky Mikhail Eduardovich	12	19	16	4	12	66.67
Murov Andrey Evgenievich	11	14	10	19	13	63.64
Mikhelson Leonid Victorovich	27	4	16	9	14	60.61
Kunitsky Vladimir Yakovlevich	6	23	13	20	15	57.58
Bogdanov Vladimir Leonidovich	3	26	13	27	16	54.55
Uzhakhov Bilan Abdurakhimovich	18	11	13	30	17	51.52
Gordeev Sergey Eduardovich	19	18	19	21	18	48.48
Molchanov Andrey Yurievich	22	17	21	17	19	45.45
Shirokov Maxim Gennadievich	17	20	19	26	20	42.42
Tinga Herman Franciscus Johannes	7	28	18	29	21	39.39
Maganov Nail Ulfatovich	30	12	22	23	22	36.36
Tokarev Nikolay Petrovich	28	15	25	16	23	33.33
Saveliev Vitaly Gennadievich	26	24	27	12	24	30.30
Fedorishin Grigory Vitalievich	24	32	29	8	25	27.27
Guriev Andrey Grigorievich	23	29	28	14	26	24.24
Butko Alexander Alexandrovich	20	22	22	31	27	21.21
Tatriev Hasan Kureyshevich	21	21	22	33	28	18.18
Shilyaev Pavel Vladimirovich	13	33	26	24	29	15.15
Shpakov Valery Vasilievich	30	27	30	22	30	12.12
Ivanov Sergey Sergeevich	29	30	32	18	31	9.09
Dyunning Yan Gezinyus	33	25	31	28	32	6.06
Stepanov Sergey Stanislavovich	32	31	33	32	33	3.03

Appendix 3. Verification of Hypothesis 1

Breusch-Pagan Tests

```
Breusch and Pagan Lagrangian multiplier test for random effects

        ROA[comp_num,t] = Xb + u[comp_num] + e[comp_num,t]

        Estimated results:
                         |       Var     sd = sqrt(Var)
                ---------+------------------------------
                     ROA |    .9789072       .9893974
                       e |    .5971977       .7727857
                       u |     .403695         .63537

        Test:   Var(u) = 0
                                 chibar2(01) =     95.87
                              Prob > chibar2 =    0.0000

Breusch and Pagan Lagrangian multiplier test for random effects

        ROE[comp_num,t] = Xb + u[comp_num] + e[comp_num,t]

        Estimated results:
                         |       Var     sd = sqrt(Var)
                ---------+------------------------------
                     ROE |   1.295854       1.138356
                       e |   .7067986       .8407131
                       u |   .4740859        .688539

        Test:   Var(u) = 0
                                 chibar2(01) =    133.78
                              Prob > chibar2 =    0.0000

Breusch and Pagan Lagrangian multiplier test for random effects

        MarketCap[comp_num,t] = Xb + u[comp_num] + e[comp_num,t]

        Estimated results:
                         |       Var     sd = sqrt(Var)
                ---------+------------------------------
               MarketCap |   3.887848       1.971763
                       e |   .3610678       .6008892
                       u |   1.296717       1.138735

        Test:   Var(u) = 0
                                 chibar2(01) =    661.49
                              Prob > chibar2 =    0.0000
```

Final models, verification of hypothesis 1

```
. xtreg ln_roa ESGParticipation leverage Firmsize, re

Random-effects GLS regression                   Number of obs     =       409
Group variable: comp_num                        Number of groups  =        79

R-sq:                                           Obs per group:
     within  = 0.0504                                         min =         1
     between = 0.0268                                         avg =       5.2
     overall = 0.0468                                         max =         7

                                                Wald chi2(3)      =     18.65
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0003
```

ln_roa	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
ESGParticipation	.3110875	.1415742	2.20	0.028	.0336072	.5885678
leverage	-.147255	.0403851	-3.65	0.000	-.2264083	-.0681017
Firmsize	-.0701075	.0473647	-1.48	0.139	-.1629405	.0227256
_cons	-2.175238	.5739017	-3.79	0.000	-3.300065	-1.050412
sigma_u	.63536998					
sigma_e	.77278565					
rho	.40333497	(fraction of variance due to u_i)				

```
. vif,uncentered
```

Variable	VIF	1/VIF
Firmsize	1.79	0.558105
ESGPartici~n	1.61	0.619284
leverage	1.17	0.853408
Mean VIF	1.53	

```
. xtreg ln_roe ESGParticipation leverage Firmsize, re

Random-effects GLS regression                   Number of obs     =       416
Group variable: comp_num                        Number of groups  =        79

R-sq:                                           Obs per group:
     within  = 0.0293                                         min =         1
     between = 0.2066                                         avg =       5.3
     overall = 0.1248                                         max =         7

                                                Wald chi2(3)      =     27.40
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0000
```

ln_roe	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
ESGParticipation	.3205559	.1532227	2.09	0.036	.0202449	.620867
leverage	.206764	.043493	4.75	0.000	.1215193	.2920086
Firmsize	-.0623482	.0505245	-1.23	0.217	-.1613744	.0366779
_cons	-1.09942	.6104463	-1.80	0.072	-2.295873	.0970324
sigma_u	.68853895					
sigma_e	.84071315					
rho	.40146678	(fraction of variance due to u_i)				

```
. vif,uncentered
```

Variable	VIF	1/VIF
Firmsize	1.78	0.560687
ESGPartici~n	1.61	0.619914
leverage	1.16	0.859483
Mean VIF	1.52	

```
. xtreg ln_marketcap ESGParticipation leverage Firmsize, re

Random-effects GLS regression                   Number of obs     =       493
Group variable: comp_num                        Number of groups  =        81

R-sq:                                           Obs per group:
     within  = 0.0857                                         min =         1
     between = 0.5423                                         avg =       6.1
     overall = 0.5122                                         max =         7

                                                Wald chi2(3)      =    100.72
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0000
```

ln_marketcap	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
ESGParticipation	.7478316	.1203564	6.21	0.000	.5119373	.9837258
leverage	-.1125673	.035652	-3.16	0.002	-.182444	-.0426906
Firmsize	.2673199	.0470086	5.69	0.000	.1751848	.3594551
_cons	7.602183	.5850072	13.00	0.000	6.45559	8.748776
sigma_u	1.1387348					
sigma_e	.60088919					
rho	.78219862	(fraction of variance due to u_i)				

```
. vif,uncentered
```

Variable	VIF	1/VIF
Firmsize	1.58	0.633631
ESGPartici~n	1.53	0.652629
leverage	1.07	0.936278
Mean VIF	1.39	

Appendix 4. Verification of Hypotheses 2–5

Final Models

```
. xtreg ln_market_cap Rating_Score CEOAge CEOTenure Financial_degree Leverage, robust re

Random-effects GLS regression                   Number of obs     =       397
Group variable: ceo_num                         Number of groups  =       123

R-sq:                                           Obs per group:
     within  = 0.1143                                         min =         1
     between = 0.1640                                         avg =       3.2
     overall = 0.1933                                         max =         5

                                                Wald chi2(5)      =     31.46
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0000

                                (Std. Err. adjusted for 123 clusters in ceo_num)
```

ln_market_cap	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
Rating_Score	.0066379	.0019189	3.46	0.001	.002877	.0103987
CEOAge	.0267991	.0173808	1.54	0.123	-.0072666	.0608648
CEOTenure	.0438301	.0229905	1.91	0.057	-.0012304	.0888906
Financial_degree	.2956488	.1734034	1.70	0.088	-.0442156	.6355132
Leverage	-.0034457	.0026441	-1.30	0.193	-.008628	.0017367
_cons	9.531607	.8132472	11.72	0.000	7.937672	11.12554
sigma_u	1.347762					
sigma_e	.39406268					
rho	.9212448	(fraction of variance due to u_i)				

Model with ROA added as the dependent variable, verification of hypotheses 2–5

```
. xtreg ln_market_cap Rating_Score CEOAge CEOTenure Financial_degree Leverage ROA ,robust re

Random-effects GLS regression                   Number of obs     =       397
Group variable: ceo_num                         Number of groups  =       123

R-sq:                                           Obs per group:
     within  = 0.1427                                         min =         1
     between = 0.2008                                         avg =       3.2
     overall = 0.2271                                         max =         5

                                                Wald chi2(6)      =     59.23
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0000

                                (Std. Err. adjusted for 123 clusters in ceo_num)
```

ln_market_cap	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
Rating_Score	.006529	.001902	3.43	0.001	.0028011	.0102569
CEOAge	.0276793	.0172913	1.60	0.109	-.006211	.0615696
CEOTenure	.0403632	.022709	1.78	0.076	-.0041456	.0848719
Financial_degree	.3017572	.1734121	1.74	0.082	-.0381244	.6416387
Leverage	-.0024317	.002113	-1.15	0.250	-.0065731	.0017097
ROA	.9344388	.2379108	3.93	0.000	.4681422	1.400735
_cons	9.445502	.8108338	11.65	0.000	7.856297	11.03471
sigma_u	1.331282					
sigma_e	.38850301					
rho	.92152093	(fraction of variance due to u_i)				

```
. vif, uncentered
```

Variable	VIF	1/VIF
CEOAge	3.13	0.319290
CEOTenure	2.44	0.410007
Financial_~e	1.53	0.653720
Rating_Score	1.42	0.706428
ROA	1.41	0.711367
Leverage	1.12	0.889647
Mean VIF	1.84	

```
. xtreg ROA Rating_Score CEOAge CEOTenure Financial_degree Leverage, robust re

Random-effects GLS regression                   Number of obs     =       397
Group variable: ceo_num                         Number of groups  =       123

R-sq:                                           Obs per group:
     within  = 0.0039                                         min =         1
     between = 0.1294                                         avg =       3.2
     overall = 0.0616                                         max =         5

                                                Wald chi2(5)      =     26.62
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0001

                                (Std. Err. adjusted for 123 clusters in ceo_num)
```

ROA	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
Rating_Score	.0005679	.0001819	3.12	0.002	.0002115	.0009244
CEOAge	-.0010988	.0008812	-1.25	0.212	-.0028259	.0006283
CEOTenure	.0017667	.0011203	1.58	0.115	-.000429	.0039624
Financial_degree	-.0093719	.0147448	-0.64	0.525	-.0382712	.0195274
Leverage	-.0018644	.0005804	-3.21	0.001	-.0030019	-.0007269
_cons	.1090462	.0443907	2.46	0.014	.022042	.1960504
sigma_u	.06994794					
sigma_e	.09171727					
rho	.36774132	(fraction of variance due to u_i)				

Model with time lag for the CEO's score, verification of hypotheses 2–5

```
. xtreg ROA 1.Rating_Score CEOAge CEOTenure Financial_degree Leverage, robust re

Random-effects GLS regression                   Number of obs      =       272
Group variable: ceo_num                         Number of groups   =        94

R-sq:                                           Obs per group:
     within  = 0.0008                                         min =         1
     between = 0.1107                                         avg =       2.9
     overall = 0.0516                                         max =         4

                                                Wald chi2(5)       =     12.24
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0317

                                  (Std. Err. adjusted for 94 clusters in ceo_num)
------------------------------------------------------------------------------
             |               Robust
         ROA |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Rating_Score |
         L1. |   .0006031   .0002814     2.14   0.032     .0000517    .0011545
             |
      CEOAge |  -.0003008   .0010765    -0.28   0.780    -.0024107    .0018092
   CEOTenure |   -.000846   .0011425    -0.74   0.459    -.0030852    .0013932
Financial_~e |   .0099896   .0171552     0.58   0.560    -.0236341    .0436132
    Leverage |   -.000764   .0008127    -0.94   0.347    -.0023568    .0008289
       _cons |    .088302   .0557158     1.58   0.113    -.0208989    .1975029
-------------+----------------------------------------------------------------
     sigma_u |  .07823996
     sigma_e |  .07686043
         rho |  .50889367   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. vif, uncentered

    Variable |      VIF       1/VIF
-------------+----------------------
      CEOAge |     2.91    0.343744
   CEOTenure |     2.43    0.410902
Financial_~e |     1.53    0.653720
Rating_Score |     1.37    0.729571
    Leverage |     1.11    0.903225
-------------+----------------------
    Mean VIF |     1.87

. xtreg ROE Rating_Score CEOAge CEOTenure Financial_degree Leverage, re

Random-effects GLS regression                   Number of obs      =       397
Group variable: ceo_num                         Number of groups   =       123

R-sq:                                           Obs per group:
     within  = 0.0043                                         min =         1
     between = 0.1713                                         avg =       3.2
     overall = 0.0403                                         max =         5

                                                Wald chi2(5)       =     16.41
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0058

------------------------------------------------------------------------------
         ROE |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Rating_Score |   .0023427   .0025967     0.90   0.367    -.0027467    .0074321
      CEOAge |   .0120749   .0086133     1.40   0.161    -.0048069    .0289567
   CEOTenure |  -.0147617   .0126734    -1.16   0.244    -.0396011    .0100777
Financial_degree |  -.0155583   .1602168    -0.10   0.923    -.3295774    .2984608
    Leverage |  -.0347521   .0102415    -3.39   0.001    -.0548251   -.0146792
       _cons |  -.2640545   .4315222    -0.61   0.541    -1.109822    .5817135
-------------+----------------------------------------------------------------
     sigma_u |          0
     sigma_e |   1.399166
         rho |          0   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Model with time lag for CEO's score, verification of hypotheses 2–5

```
. xtreg ROE l.Rating_Score CEOAge CEOTenure Financial_degree Leverage, re

Random-effects GLS regression                   Number of obs     =       272
Group variable: ceo_num                         Number of groups  =        94

R-sq:                                           Obs per group:
     within  = 0.0319                                         min =         1
     between = 0.0555                                         avg =       2.9
     overall = 0.0245                                         max =         4

                                                Wald chi2(5)      =      3.79
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.5807
```

ROE	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Rating_Score						
L1.	.0016711	.0039822	0.42	0.675	-.0061338	.009476
CEOAge	.0177648	.013387	1.33	0.185	-.0084733	.0440029
CEOTenure	-.0243816	.019516	-1.25	0.212	-.0626321	.013869
Financial_degree	.0149237	.2452288	0.06	0.951	-.465716	.4955634
Leverage	-.0122254	.0149708	-0.82	0.414	-.0415676	.0171168
_cons	-.477964	.6764805	-0.71	0.480	-1.803841	.8479134
sigma_u	.52713353					
sigma_e	1.4351902					
rho	.11886761	(fraction of variance due to u_i)				

The article **was submitted** 28.09.2022; **approved after reviewing** 29.10.2022; **accepted for publication** 11.11.2022.