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Do CEO Characteristics Impact a Company's Earnings Quality?

VICTORIA CHERKASOVA¹ and VALERIA MARKINA²

¹ Associate Professor, National Research University Higher School of Economics, Faculty of Economic Sciences, School of Finance, Moscow, Russia, e-mail: vcherkasova@hse.ru

² Master's degree, National Research University Higher School of Economics (NRU HSE), Faculty of Economic Sciences, School of Finance, Russia, e-mail: lera1995_@mail.ru

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ABSTRACT

The problem of efficient companies' earnings quality is of great interest to researchers nowadays. There is a significant influence of both chief executive officer (further – CEO) and earnings quality on the company's financial activities, so in this paper we determine the impact of CEO characteristics (both CEO power and personality) on the earnings quality. A distinctive feature and novelty of this paper is the analysis of results for different markets (developed and emerging), using different approaches for measuring earnings quality, along with the inclusion of a series of CEO characteristics which have not previously been researched by scientists (CEO experience, number of Board positions held by a CEO or simultaneously acting as a CFO, CEO promoted from within, and the number of times that a CEO changes within a company). The influence of CEO characteristics on the earnings quality by country is noted for companies in America and Europe. However, the hypothesis regarding differences in developed and emerging markets (testing data from Asian markets) has not been confirmed. The results of this paper indicate that managerial characteristics have a very important impact on the company's earnings quality and future development. Significant characteristics of the CEO (gender, age, work of the executive director as the chairman of the board of directors, seniority, awards) are key for analysis, because they reflect his or her work experience, hardwork and professional abilities.

INTRODUCTION

Disclosing corporate information in the form of financial reporting and earnings quality are important for large companies, as it contributes to the constant growth and development of the business, and along with increasing the interest from outsiders, it increases consumer and government confidence in the activities of this company (McNichols and Stubben, 2008; Cutillas et al., 2014). In recent years, the subject of earnings quality of a company has become a hot topic, especially since the global economic crisis of 2008-2009, when the rise in demand for transparency of corporate information became paramount. Because of the relevance, practicality and relatability, the problem of

proper and efficient companies' earnings quality is of great and potential interest to researchers. However, only a small number of scientific papers on the relationship between the earnings quality and certain personal characteristics of management and chief executive officer's (further – CEO) have ever been presented (Francis et al., 2008; Schrand and Zechman 2009).

The personal attributes of any chief executive officer play an important role for the company and can lead to investment opportunities, innovation, dividends, and also influence key decisions within the management structure, such as M&A deals (Svensson, 1981; Malmendier et al., 2015). The characteristics in this article we divide into 2 groups: CEO personal indicators and CEO power, which depend on the specific company in which the CEO works or worked. There are many different approaches to measuring the quality of financial statements. The first model of measuring earnings quality (accrual model) was developed by Jones (1991). Papers of Dechow et al., (2010) consist of many different approaches to financial reporting estimation. The popular models are earnings persistence models, timely loss recognition models (Basu, 1997), models of earnings smoothness (Collins et al., 1994), and accrual models (Ohlson 2014). To test the effect of managerial abilities on earnings quality, researchers often use different CEO characteristics (Francis et al., Zang, 2008), executive overconfidence (Schrand and Zechman 2009), and financial expertise.

The main purpose of this paper is to determine the presence and degree of the impact of CEO characteristics on the quality of financial reporting. Our key task was to deepen the analysis in this particular area of scientific research, based on the empirical basis created in previous studies, and introduce methodological improvements in order to find new evidence on specific issues of the relationship between the quality characteristics. Namely, we are moving from studying the CEO's influence in an aggregated form, to considering various types of CEO characteristics for different markets separately. Recently, the problem of global competition has become an increasing source of debate within society, which leads to the unified conclusion that each country is individual and has personal distinguishing characteristics and its own pace of development. Therefore, a distinctive feature and novelty of this paper is the analysis of results for different markets (developed and emerging), testing data from several countries and, most importantly, using different approaches for measuring earnings quality and building aggregate indicators of them.

The practical significance of the research work is that the results of this paper will help to understand the significance of the direct correlation between earnings quality and CEO, and can be used by companies and executives in assessing a company's financial performance. Potentially, this research can help managers and CEOs from different markets understand which CEO characteristics have a greater impact on company management, especially on the quality of reporting. In addition, this paper expands the methods by which corporate reporting management can be assessed. Managers of large companies who attach great importance to corporate governance can also use the results of this study. It is assumed that this article may be of academic value to theorists, since it fills a gap in the literature regarding the impact of various CEO characteristics that were not previously analyzed, including their impact on the quality of reporting, and, ultimately, for general corporate activity. The structure of the article is as follows: the first part is a review of literature on the topics of earnings quality, CEO characteristics and their relationship, followed by the development of research hypotheses and description of the data sample. Then we describe the methodology and design of the study, give an interpretation of the variables used, how to find them, and the development of regression models. The last two parts contain the results of the research along with the conclusion.

1. LITERATURE REVIEW

1.1 CEO characteristics

Chief executive officers play an important role for a company and if successful can lead to management structure (for example, Malmendier et al., 2015; Svensson, 1981), including deals of international mergers and acquisitions. Besides et al. (2015) concluded that a CEO also has an influence over invest-

ment policy: CEO characteristics can lead to incorrect repay to their projects of investments. In our future research methodology, we will divide the indicators into *CEO personal characteristics* and *CEO power*. The main difference is that *CEO power* indicators depend on the company, in which CEO worked or works, and *personal characteristics* do not depend on the type of activity and work of CEO. There are many papers that describe relationship between measurable managerial characteristics and corporate financing decisions. So et al. (2011) suggest that overconfident CEO (based on personal characteristics) use less external finance and, conditional on accessing external capital, issue less equity than their rivals. In this article, we consider and analyze both the personal characteristics of the CEO (for example, gender, age, and so on), and those characteristics of the CEO that are associated with his activities in a particular company (for example, salary, duality, and so on).

Personality of CEO can influence on quantity of dividend back to shareholders CEOs (Deshmukh, Goel and Howe, 2013). This question can be explained by the fact that without paying dividends (or paying the less one), they use these funds to finance the company's activities, since external financing is very expensive for them. The next indicator is *gender* difference in society. There are many famous studies on this topic, the main conclusion of which is that men are riskier than women and can do more dangerous and risky projects. Hoang, Tuyen Thanh, et al (2019) conclude that there are fewer companies managed by the CEO women than companies which are managed by the men CEO. Firms run by women earn higher returns and profits on assets and capital than firms run by men. Womenrun firms are more likely to hire working women and provide more jobs through social insurance. In article of Martin et al. (2009) also confirm the above findings and find changes in risk after the appointment of CEOs are significantly lower for women directors, supporting the view that women are perceived by the market as relatively risk averse. It is also possible to assess effect of CEO characteristics by analyzing investments in more risky projects (for example, in innovations). Hirshleifer et al. (2012) thought that firms which are under control of powerful and confident CEO invest more in innovation (R&D expenditures), get more patent, have greater return volatility that can lead to increasing value of the firm.

In some cases, the CEO can be a *member of the board of directors*, that is, he or she can simultaneously hold the position of chairman of the board of directors and the CEO (CEO duality). Hsu et al. (2019) analyze the Taiwan market and conclude that the duality of the CEO has a statistically significant negative effect on management productivity. But this is closely related to the costs of information and the hypothesis would be confirmed if these costs are high enough. The next interesting, but very important indicator regarding the activities of CEO, which may affect the management of the company, is *CEO appointment* (namely: the CEO was appointed from among the existing employees of the company (insider), or came from outside the company, that is, was appointed exogenously). Pan et al. raise this question in 2015 and study the US market and come to the conclusion that if CEO was not appointed from the company's employees, but moved from another company, then the stock volatility increases, as the uncertainty and distrust of the new CEO greatly increase, compared with the situation if CEO was appointed from among the employees of the company, as he or she knows in more detail the financial situation and the specifics of the company.

Another one important characteristics of CEO is *relative compensation*: the cash compensation of the CEO to the highest paid non-CEO officer. Harakeh et al. (2019) argue that there is a positive relationship between earnings management and CEO compensation, as well as a negative relationship between female directors and income management. Moreover, the results indicate the negative impact of the presence of women on CEO compensation. Finally, the main study is that women directors play a deterrent role in the relationship between earnings quality and executive compensation. Similar idea was also described in other article: "significant levels of such CEO characteristics as personality and confidence are associated with higher incentive pay". Self-confident CEOs capable of making aggressive and unusual management decisions. Analysis of Han et al. (2016) is based on seven variables: CEO Pay Slice, Duality, Triality, Tenure, Ownership, Dependent Directors, and Founding. To determine the impact of CEO on financial, investments, M&A, dividend and other policies you can use the analysis of ownership structure. Nguyen (2015) investigate the quantity of options to estimate of CEO overconfidence that can affect earnings quality. We include a series of CEO characteristics that have not previously been researched by scientists, such as CEO experience, number board position of CEO, CFO, CEO promoted from within,

number changes of CEO. we will tell more about them in the following parts of the article. Table 1 presents an overview of main CEO characteristics that are described above or exist in the research world.

Table 1. Overview of main model ideas for estimation level of CEO characteristics

<i>Author(s)</i>	<i>Model regressors</i>
Hoang, Tuyen Thanh, et al (2019)	CEO Gender
Hsu, Lin, Chen, Huang (2019)	CEO Duality
Pan, Yihui, et al. (2015)	CEO Appointment (insider/ outsider) CEO Tenure CEO Age
Han, Seonghee, et al. (2016)	CEO power is based on CEO Pay Slice, Duality, Triality, Tenure, Ownership, Dependent Directors, and Founding.
Malmendier, Ulrike, et al. (2011)	Overconfidence of CEO, Frequency of share redemption by CEO
Deshmukh, Goel and Howe (2013)	Quantity of dividend back to shareholders by CEOs
Hirshleifer, Low and Teoh (2012)	Proxy for press releases of CEO, Executive language, CEO salary and compensation, comments of Media about general director
Harakeh, El-Gammal, Matar (2019); Schrand and Zechman (2012)	Compensation (salary and bonuses) as a proxy; position of CEO photo in annual report
Nguyen (2015)	CEO holdings (% from all shares and options)

Source: authors' investigation

1.2 Earnings quality

Evasion of correct financial statements and disclosure of false corporate information can lead to the adoption of non-optimal management, investment (McNichols and Stubben, 2008, Cutillas Gomariz and Sánchez Ballesta, 2014), dividend and other decisions for the company. Moreover, some researchers are sure that a bad earnings quality increase information asymmetry, that can be a reason of the emergence of agency conflicts. The idea of determination the quality of a company's financial statements by assessing the earnings quality has been described by Dechow et al. (2010). Their paper is very vast, because many approaches were analyzed by these authors (accruals, smoothness, persistence, loss avoidance, timeliness, investor responsiveness, and external indicators such as restatements and etc.). In practice, various approaches and methods are used to assess the earnings quality. It is rather difficult to choose the best one, since they all have their own advantages and disadvantages. The excellent quality of financial statements and corporate information involves reflecting the actual profit and revenue of the company, shows the stability of the company in the market and suggests the absence of manipulations and frauds to hide the real economic performance of the company. The most famous earnings persistence models were developed by Sloan in 1996. But there are many others models in the research world: timely loss recognition models (Basu, 1997), models of earnings smoothness (Collins et al., 1994), accrual models Ohlson (2014). Ohlson (2014) used non-cash constituent of earnings as accruals. Accrual approach can help firms to manage financial result, that can lead to the abuse of accrual accounting and to the disclosure of false information (or disclosure of difference between (deviation) real/actual and expected accruals. Regression models are used for that. High accruals mean errors in earnings management or estimation and can lead to low earnings quality.

The first accrual model researcher was Jones (1991). Calculation of total accruals include analysis of revenue (as a difference between sales in this year and previous one), PPE (gross property, plant and equipment), and firm’s assets. The model which emphasizes the importance of monitoring financial performance when examining profit management incentives that are related to financial performance was developed in 1995 by Dechow et al. Like Jones (1991), the authors used in their research such measures as total assets, PPE and delta revenues (without net receivables). Among the latest research papers the same idea also was tested by Chen and Hong (2019). Dechow and Dichev proposed a new model in 2002 based on the analysis of the company's operating cash flows for different periods. They conclude that “the quality of accruals and earnings is decreasing in the magnitude of estimation error in accruals”. The measure for accrual quality equals residuals from changes in cash flows in three different periods (future, current and past) and proved that this measure is positively correlated with earnings.

The paper García-Meca and García-Sánchez (2017) makes a great contribution to the study of the quality of the financial statements of the company, as the authors checked the indicator for measuring earnings quality by combining two ways: a) earnings persistence and b) earnings ability to predict future cash flow (EBTLLP). These methods are based on earnings persistent model. The authors believe that consideration of forecasting future cash flows can also act as a good indicator for evaluating the earnings quality for an investor, since they believe that cash flow is much more important than info disclosure. Earnings predictability is also researched in other papers: Campbell et al. (2015), Chang et al. (2016) etc. Despite the fact that there are many works on earnings quality, it is worth paying attention to the quality difference in different markets and for companies in different industries. So et al. (2020) on the example of the Taiwan market talk about the impact of market power and industry competition on the earnings quality. Firms with low market power and those faced with intense market competition are more likely to engage in earnings management. Market power demonstrates a more significant impact than industry competition on the manipulation of managerial revenues.

Table 2. Overview of main model ideas for estimation earnings quality

<i>Author(s)</i>	<i>Model</i>
Jones (1991); Dechow, Sloan, and Sweeney (1995); Chen, Hong (2019); Kothari, Leone, and Wasley (2005)	Δ Revenue, PPE, ROA
Collins, Kothari, Shanken, and Sloan, (1994)	Models of earnings smoothness
García-Meca, García-Sánchez, (2017)	Earnings persistence models
Basu (1997)	Timely loss recognition models
Dechow and Dichev (2002)	Operating cash flows (past, current and future)
Dechow, Ge, and Schrand (2010)	Accruals, timeliness, persistence, smoothness, external indicators such as restatements, loss avoidance, investorresponsiveness
Jiang, Chen (2019)	Total accruals
García-Meca, García-Sánchez (2017); Campbell, Downes, & Schwartz (2015); Chang, Donohoe, & Souigiannis (2016)	Earnings quality as prediction future cash flows
Hoglund, Dennis Sundvik (2016)	Testing differences in financial quality between small and large enterprises.

Source: authors’ investigation

1.3 Relationship between CEO characteristics and earnings quality

Some articles and papers represented researches that explain the interaction between the personality of CEO and the quality of the company's financial results. To test the effect of managerial abilities researchers often use different CEO characteristics (Francis et al., 2008), executive overconfidence (Schrand and Zechman 2009). Earnings forecasts are different for optimistic and pessimistic CEOs. CEO optimism often leads to more frequency of publication for earnings forecast, although

forecast issuance is voluntary. It is correlated with the fact that optimistic CEO often overestimate the future performance of the company (miscalibration) and believe in dispositional optimism (that their firm than average rival). Moreover, in practice it's researched that CEO can over and underestimate the variance of expected earnings. The gender also influences on earnings forecasts. As we have previously analyzed women are less overconfident than men CEO, female place wider boundaries for earnings forecast than male executives (Huang and Kisgen, 2013). The influence of managerial ability on the earnings quality was also investigated by García-Meca and García-Sánchez (2017). The main conclusion and result of their work is the proof that their management ability has a great influence on the quality of financial reporting. Less able and intelligent managers lead to lower bank quality of financial reporting. But smart and talented managers in the company can introduce new ideas in managing both the company itself and its reporting. First of all, this may be due to their level of education and work experience in other companies and industries. In paper García-Meca and García-Sánchez (2017) the distinctive feature was that managerial capabilities not only have to include the CEO characteristics, but also consider the features of other managers, since important decisions in a company are usually made by sample of individuals (rather than a single CEO).

CEO duality has a great influence on managerial decisions and earnings quality (Kamarudin, et al., 2012). Duality of the CEO and chairman will reduce the effectiveness of independent audit committees. Using the Malaysian market as an example, it was found that the earnings quality is positively related to the independence of the audit committee, but relations are weakened by the duality of CEOs. When the general director has excessive control over the decisions of the board of directors, holding the post of chairman, the quality of financial statements is significantly reduced and is ineffective. He (2015) and Kohlbeck and Luo (2019) evidenced that CEO compensation and recompense leads to higher financial reporting quality. The other authors confirm a negative correlation between CEO compensation and corporate fraud in China. They explain this fact that the CEO compensation is lower in firms that commit more serious fraud. In addition, CEOs of private companies and firms from developed regions/ markets are subject to larger penalties for financial fraud, unlike public and emerging market companies. Mei et al. (2011) made an interesting observation that the value of CEO does not particularly affect the earnings quality. The quality of financial results is influenced by the activities of the CFO (chief financial officers), which can be pressured by the CEO. Baker et al. (2019) study the influence of the powers of the CEO and CFO on the earnings quality and profit management. The quality of financial reporting is greater when the CEO is powerful relative to the CFO.

2. HYPOTHESES DEVELOPMENT

After completing a literature review on the theme of CEO characteristics and the earnings quality, we offer several hypotheses for this article. The main subject of this research is the relationship between CEO characteristics and earnings quality. A significant impact of CEO characteristics on earnings quality has been proved in previous researches (Schrand and Zechman (2012), Huang and Kisgen (2013), García-Meca and García-Sánchez (2017)). These indicators included gender, age, and so on. We include these and other regressors in the analysis and thereby improve our research. Therefore, the first block of hypotheses reflects this and tests the impact of various personal characteristics of the CEO on the quality of financial statements. The first block of hypotheses is divided into two parts (hypotheses H1.1 and H1.2 describe *CEO personal characteristics*, and hypotheses H1.3 – H1.7 relate to *CEO power*. According to opinion of Hoang, Tuyen Thanh, et al (2019) gender plays an important role in management decisions. Firms run by women earn higher returns and profits on assets and quality of financial reporting than firms run by men. So, our first hypothesis is following:

H1.1: Earnings quality is lower in a company in which CEO is a man than in those firms where CEO is a woman.

It is also important to consider CEO age when conducting this study. Many researchers conclude that with increasing age, a person becomes less confident and less risky, so the quality of financial statements will be higher since CEO will be more afraid of checks and controls.

H1.2: The older the CEO, the higher earnings quality.

The following hypotheses regarding the relationship between *CEO power* and *earnings quality*: The experience of CEO and the duration of his work in the company can also have a significant impact on managerial decisions (Wei et al, 2012; Pan, Yihui, et al., 2015). So, we collect the data about the number of years he has worked for the company (tenure) and build another hypothesis

H1.3: With the increase in tenure of CEO in a particular company, the quality of financial reporting decrease.

CEO duality is the situation when CEO plays a dual role as an executive director and as a chairman of the board of directors. If CEO plays a dual role, he feels influential and, therefore, has more freedom of choice for decision-making (Adams et al, 2005; Wei et al, 2012). Duality of the CEO has a statistically significant negative effect on management productivity (Hsu, Lin, Chen, Huang (2019)).

H1.4: If CEO has a duality in management, then earnings quality decreases.

The compensation of the CEO is an important indicator that may affect the quality of financial statements (Harakeh, El-Gammal, Matar (2019); He (2015) and Kohlbeck, Luo (2019)). Significant levels of such CEO characteristics as ability to properly manage the company, hard work and perseverance are associated with higher incentive pay. And if the CEO has high compensation, then, as a rule, he showed brilliant skills in managing the company, achieved high financial results or a specific strategy for the company, this CEO understands the specifics of the firm and values his place of work, so he will try to improve the earnings quality.

H1.5: As CEO compensation increases, quality of financial reporting in the company improves.

A very similar indicator of compensation is the salary indicator. However, the effect between wages and reporting quality will be higher than between compensation and quality. This factor can be explained by the fact that wages are regular payments, and compensation is not regular. Compensation is paid to the CEO either as a bonus or as a reward for achieving specific goals and strategies of the company. So, we can conduct the next hypothesis:

H1.6: The effect of salary on the earning quality is higher than the effect of compensation on this quality.

When reviewing the literature, we realized that it was important to analyze whether the CEO is the founder of the company or not. Surely, if the CEO is the founder of the company, then he or she knows the specifics and development strategy of the company, and is interested in the excellent image of his company, so he will try to increase the reputation of the firm, including focusing on high earnings quality. So, our next hypothesis is following:

H1.7: If the CEO is the founder of the company, then the quality of financial reporting decreases significantly.

Our second section of hypothesis includes an analysis of the characteristics of the country in which the company operates. Namely, we want to understand whether difference in the earnings quality for developed and developing countries presents. Moreover, in our study we will include various indicators of countries. Thus, our next hypothesis is as follows:

H2: Strength of relationship between earnings quality and CEO characteristics is more significant in developed countries than in emerging markets.

Further, in order to test the above hypotheses, we turn to the development of a methodology.

3. SAMPLE DESCRIPTION

The characteristics of the CEO are unique indicators. They are difficulties in finding a database that will help to collect as many personal indicators of the CEO as possible. In this paper, we use the

Bloomberg database. In this database you can find not only financial data on companies around the world, but also many CEO indicators. Since we want in this study to test the hypothesis of country and market differences, we divide the entire data sample into 3 large groups: USA, Asia and Europe. Since we want to evaluate the difference in the influence of CEO characteristic on earnings quality in different markets, it is empirically more correct to do this within the framework of one continent, therefore we plan to consider Asia in the context of developed and emerging markets. The analysis of Asia is the most attractive for analysis, because this market is less thoroughly analyzed than the USA and is a potential development engine for the global economy in the future. Country data distribution is as follows (table 3):

Table 3. Data distribution by country

<i>America</i>	<i>Asia developed markets</i>	<i>Asia emerging markets</i>	<i>Europe</i>	<i>Total</i>
1258	138	71	280	1747
72,0%	7,9%	4,1%	16,0%	100%

Source: authors' calculations

To make the results have high quality, we will combine samples (by countries and sectors) so that the panel data is balanced for research and model building. The total number of companies is 1747. This research investigates the impact of CEO characteristics on earnings quality for the period of 5 years: from 2015 to 2019. This is the optimal number of years, because many CEO characteristics are static and do not change over time (for example, gender, year of birth, year of joining the company, CEO was appointed from among the existing employees in the company or from outside, and so on). A longer time period could lead to incorrect results, fewer significant variables, and lower quality econometric analysis. There are no missing data in the final sample, but since some financial variables with a lag of 1 year are used for the study, so the overall amount of firm-year observations is equal to 6988. To build an indicator of the quality of financial statements, we needed a lot of financial indicators for companies, they were also taken from the Bloomberg database. Most CEO performance data was manually collected. Further we describe to the description of the research design and methodology.

4. DESIGN OF RESEARCH

In general, our models in this study are consistent with the ideas of predecessors and are based on their regressions. We extend this study by adding various additional variables and using different model specifications. Moreover, we limit the selection and specialize on only public companies whose shares are traded on large international exchanges. Finally, a variable responsible for the type of market (developed or developing) is also included in the study. Before constructing regressions and evaluating the results, we winsorize all variables (except dummy indicators), limiting the extreme values in the statistical data in order to reduce the influence of possible spurious emissions.

Step 1: Measuring earnings quality. Various approaches and methods are used to assess the financial quality. It is rather difficult to choose the best one, since they all have their own advantages and disadvantages. In order to achieve our goal and obtain qualitative results, we decided to combine several methods in this study: we create 3 proxies for the earnings quality (2 accrual-based models and an aggregate measure). Using the idea of Kothari et al. (2005), based on accruals approach, we create the first proxy:

$$TA_{i,t} = \alpha_0 + \alpha_1 \Delta Revenue_{i,t} + \alpha_2 PPE_{i,t} + \alpha_3 ROA_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where TA – total accruals, Δ Revenue is a difference between operating revenue in t and t-1 periods, PPE – means property, plant and equipment, ROA is the ratio of net income to total as- sets. According to previous research, all variables (except ROA) are scaled by lagged total assets (Chen et al., 2011) by 1 period relative to the variable’s period. Total accruals were calculated as a change of non-cash current assets minus the change of current non-interest-bearing liabilities (is includes accounts payable and other current liabilities) minus Depreciation, amortization expendi- ture:

$$TA = \Delta Non - cash\ current\ assets - \Delta Current\ non - interest - bearing\ liabilities - D\&A \quad (2)$$

According to the previous papers (Chen et al. (2011); Cutillas Gomariz and Sánchez Ballesta (2014)), we built the cross-sectional regression (separately for every industry, country, year). So, we got the residuals of the model – they are discretionary accruals for our future analysis. We denoted earnings quality variables from the first approach as EQ_1. The second proxy for earnings quality is based on ideas of Dechow and Dichev (2002). They developed accrual approach and analyzed cash flows as the main factors to estimate total accruals of the company. The model is:

$$TCA_{i,t} = \alpha_0 + \alpha_1 OCF_{prev,i,t} + \alpha_2 OCF_{i,t} + \alpha_3 OCF_{next,i,t} + \alpha_4 \Delta Revenue_{i,t} + \alpha_5 PPE_{i,t} + \varepsilon_{i,t} \quad (3)$$

Where TCA (total current accruals) was calculated as in previous model, $OCF_{prev,i,t}$, $OCF_{i,t}$, $OCF_{next,i,t}$ are operating cash flows in previous, current and next periods respectively. Operating cash flows equals the sum of net income, depreciation and amortization expenditure, change in current liabilities minus change in current assets:

$$OCF = NI + D\&A + \Delta Current\ liabilities - \Delta Current\ assets \quad (4)$$

$$EQ_AV_{i,t} = \frac{EQ_{1,i,t} + EQ_{2,i,t}}{2} \quad (5)$$

All variables are scaled by lagged total assets. Similar to the first approach, we tested the data and the regression, found the residuals, and they are discretionary current accruals for our further research. We labeled them as EQ_2. Our third measure of quality is based on the previous two models and is the arithmetic mean value:

Higher values of EQ_AV, EQ_1 and EQ_2 mean higher earnings quality.

Step 2: Measuring different CEO characteristics. In our work, we divide the characteristics into *CEOpower* and *CEO personal characteristics*. The measure of *CEO power* was defined based on corporate governance structure, his experience and compensation (Hwang et al., 2019). Thus, we constructed CEO power index by taking into account CEO duality, founder, board of directors, compensation, tenure and etc. CEO personal characteristics can include age, gender, education and so on. Wei et al. (2011) suggest to use education and experience as very important indicators of CEO if we look at them as an impact on management decisions including earnings quality. But other pa- pers expanded their research and added some other variables - age, gender, education, working experience, skills and talents (Heath, Tversky, 1991). We have collected as many CEO indicators as possible. For our research we used following variables that were included in *CEO personal charac- teristics*:

- **CEO age** as a number of years. Younger managers seem to be more confident. But there are contradictory opinions (for example, Korniotis and Kumar (2011)). They conclude that older in- vestors have poorer investment skills, so, they tend to make irrational investment and mana- gerial decisions.
- **CEO gender** as a dummy variable equals 1 if CEO is men, 0 – if CEO is woman. Many research are made about differences in gender and after testing data conclude that man are more over- confident than women.
- The *CEO power* includes such indexes as:
- **CEO tenure** as the number of years he has worked for this company. CEO who has more experience, has knowledge from his/her previous decisions and able to adjust potential biases in making decisions (Wei et al, 2012).
- **CEO duality** as a dummy variable equal to 1, if the CEO plays a dual role as an executive direc- tor and as a chairman of the board of directors, 0- otherwise. If he plays a dual role, he feels in-fluen-

tial and, therefore, has more freedom of choice for decision-making (Adams et al, 2005; Wei et al, 2012).

- **CEO founder** as a dummy variable equals to 1 if CEO is one of the firm’s founders, 0 otherwise. The fact that the CEO is a founder of the company makes him more overconfident and powerful (Adams, Almeida and Ferreira, 2005).
- **CEO industry experience** was calculated manually. The Bloomberg database for many CEOs reflects the previous place of work (company). Next, we determined the industry of the previous place of CEO work (company) and compared with the current industry of the company, if the industries of these two firms coincide, then the indicator is 1, otherwise – 0 (Wei et al., 2011).
- **Total salary and compensation** (separately each indicator) that are paid to CEO in a certain year (Schrand and Zechman (2012), Harakeh, El-Gammal, Matar, 2019).
- **CEO promoted from within** indicates whether the current CEO was appointed from within the company or outside. This is a binary variable taking values 1 (inside) and 0 (outside).
- **Number Board positions CEO Holds** is latest available number of board of director positions CEO holds at other public, actively traded companies.
- **CFO** equals 1, if CEO is a CFO at the same time, 0 – otherwise (Mei, Ge, Luo, & Shevlin (2011)).
- **Number of titles CEO** holds at the company where she/he paid from.
- **The number** of times the **CEO has changed** at the company over the year.
- **CEO holds in %** from the total equity of the company.
- **Independent Directors** in %. An independent director is a non-executive director of a company and helps the company in improving corporate credibility and governance standards.

Step 3: Exploring the influence of CEO characteristics on earnings quality. Further we want to understand the relationship between CEO characteristics, earnings quality and other variables that will help us confirm or deny the above hypotheses. Relying on paper by Schrand and Zechman (2012), in addition to a measure of management, we use a set of control variables: we include firmsize measured by assets to control the potential positive correlation between scale available to fraud (Ashbaugh-Skaife et al., 2007; Doyle et al., 2007). We also took into account the market capitalization to monitor misstatement incentives connected with higher external financing demands of growth firms. Before testing all models and applying various specifications, we will check the correlation and interdependence between independent variables. Our main tested model is following:

$$EQ_{i,t} = \alpha_0 + \text{CEO personal characteristics} + \text{CEO power} + \sum \alpha_n \text{ControlVar}_{ni,t-1} + \varepsilon_{i,t} \quad (6)$$

$$\text{CEO personal characteristics}_{i,t} = \alpha_1 \text{CEO_age}_{i,t-1} + \alpha_2 \text{CEO_gender}_{i,t-1} \quad (7)$$

$$\begin{aligned} \text{CEO power}_{i,t} = & \alpha_3 \text{CEO_tenure}_{i,t-1} + \alpha_4 \text{CEO_duality}_{i,t-1} + \alpha_5 \text{CEO_founder}_{i,t-1} \\ & + \alpha_6 \text{CEO_experience}_{i,t-1} + \alpha_7 \text{CEO_salary}_{i,t-1} + \alpha_8 \text{CEO_compensation}_{i,t-1} \\ & + \alpha_9 \text{CEO_promoted}_{i,t-1} + \alpha_{10} \text{numb_oth_position_CEO}_{i,t-1} \\ & + \alpha_{11} \text{CFO}_{i,t-1} + \alpha_{12} \text{CEO_titles}_{i,t-1} + \alpha_{13} \text{CEO_changes}_{i,t-1} + \alpha_{14} \text{CEO_hold}_{i,t-1} \\ & + \alpha_{15} \text{independ_director}_{i,t-1} \end{aligned} \quad (8)$$

As an earnings quality (EQ) indicator, we will test three previously described statistics separately (EQ_AV, EQ_1 and EQ_2).

Since we previously assumed that CEO characteristics have a significant impact on earnings quality, the coefficient α_1 reflects age and must be positive to confirm hypothesis *H1.2*. To confirm the hypothesis *H1.1*, we use gender variable and coefficients α_1 must be significant and positive. To confirm the hypothesis *H1.3* (tenure) and *H1.4* (CEO duality) coefficients α_3 and α_4 should be positive and negative respectively.

The next set of hypotheses is about compensation and salary (*H1.5* and *H1.6*). When conducting research and constructing econometric models, it is very important to assess the correlation between these two indicators. There is a fear that these two variables are interdependent, as a result of which only one of them can be included in the model. However, we assume that amount of salaries and compensation have a positive effect on quality. So, the coefficients α_8 and α_7 must be positive. At the same time, we assume that the effect of salary on earnings quality is significantly higher than the effect of

compensation. To confirm hypothesis *H1.7* we include in our research variable founder and assume that if the CEO is the founder of the company, then the quality of financial reporting increases significantly, so coefficient α_5 must be positive.

A distinctive feature of this research is market analysis. Our second hypothesis *H2* is based on differences in countries (different types of market). Therefore, we include in the model dummy variables (*Country*) that control the fact that companies are from different markets (developed and emerging markets). To confirm this hypothesis, we divide the main sample into subsamples by countries and markets. Moreover, in our study we will include a set of various indicators of countries *ControlVar* (other financial variables, that are not used in measuring earnings quality, but can be also important for our research, for example, R&D expenditure, market capitalization and so on).

5. RESULTS

5.1 Descriptive statistics

Now let us consider separately descriptive statistics of CEO characteristics, which will be used in modeling. It is descriptive statistics that will help us decide which format to use the variable in - logarithm or divide by another indicator (use of relative or absolute values), to reduce the dimension. Tables 4 contains descriptive statistics of the variable characteristics of the CEO.

From the table on the characteristics of the CEO it can be seen that many indicators are distributed evenly, with the exception of the following: gender, is the founder of the company or not, whether it plays two roles at the same time: CEO and CFO. All these reasons can be given the following explanation. It is logical that in the sample there are more observations when the CEO is a man. As the paper Hoang, Tuyen Thanh, et al (2019) confirms, saying that there are fewer companies managed by the CEO women than companies which are managed by the men CEO. The fact that the majority of CEOs are present in the selection, which are not founders, is also quite clear and explained by the fact that the sample includes large public companies that have a very long and rich history of brand development.

Table 4. Descriptive statistics of CEO characteristics

Variable	Mean	Median	Std. Dev.	Min	Max
CEO age	56,7	56	7,66	26	88
Gender	0,946	1	0,227	0	1
CEO tenure	7,93	5,5	7,6	0,0833	55,8
CEO duality	0,385	0	0,487	0	1
CEO founder	0,0899	0	0,286	0	1
CEO industry experience	0,659	1	0,474	0	1
CEO total salary	1 410 000	1 000 000	1 390 000	0	21 600 000
CEO compensation	5 960 000	3 180 000	32 600 000	0	2 280 000 000
CEO promoted (in/ out)	0,551	1	0,497	0	1
Number Board position of CEO	0,4	0	0,725	0	11
CFO	0,00801	0	0,0892	0	1
Number titles CEO holds	2,16	2	0,768	1	5
Number changes of CEO	0,141	0	0,366	0	3
Sharehold of CEO (%)	2,14	0,244	6,54	0	73,5
Independent Directors	74,1	80	17,6	0	100

Source: authors' calculations

Accordingly, at present, the CEO will be the founder of the company only if the company is quite young, and there are few such progressive public companies in the world. An analysis of descriptive statistics indicates that the variables *CEO Total Salary* and *CEO Compensation* need to be logarithm when included in the model to smooth out scatter and balance. In addition, it is important to analyze *CEO age* before including in the model. *CEO age* varies from 26 to 88 years. When adding this variable to the model, you must also add the square of the variable, because the relationship

between age and financial indicators usually has a parabolic dependence, for example, income grows to a certain age - the top of the parabola, and then begins to decline (Figure 1).

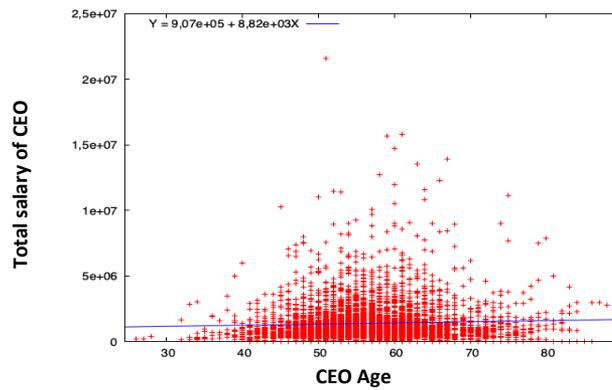


Figure 1. The relationship between CEO salary and CEO age

Source: authors' calculations

Also, a parabolic dependence can be observed between *CEO age and CEO compensation and earnings quality*, which confirms the previously put forward assumptions.

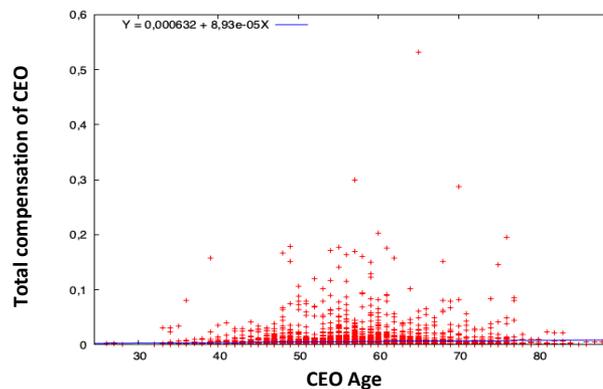


Figure 2. The relationship between CEO compensation and CEO age

Source: authors' calculations

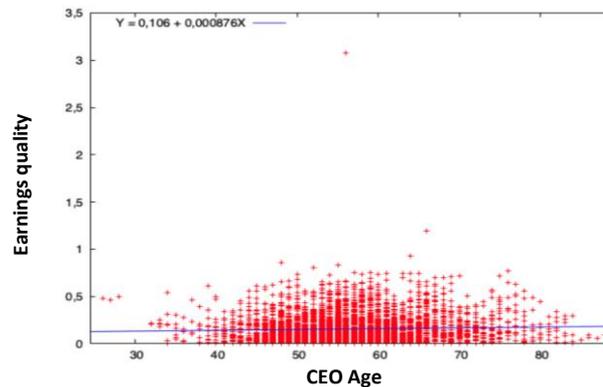


Figure 3. The relationship between earnings quality and CEO age

The *tenure* variable of experience in the company does not need to be squared, because graphical analysis did not show the presence of parabolic dependence.

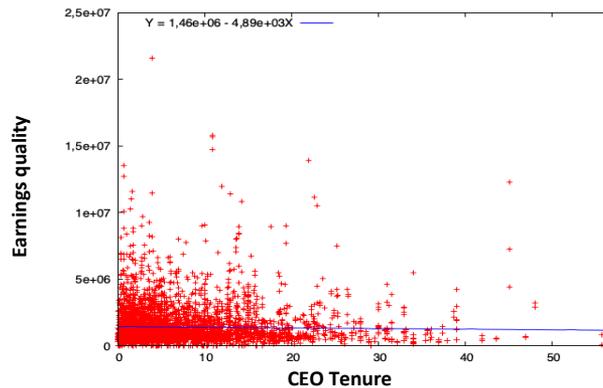


Figure 4. The relationship between earnings quality and CEO Tenure

Source: authors' calculations

Further econometric tests will allow us to evaluate the significance of influence and obtain correct and high-quality models, on the basis of which we will draw conclusions from this article. All the relationships described above between indicators will be considered when building regression models.

5.2 Results of regression models

For further econometric analysis we were able to identify that the model with fixed effects is the best way to evaluate (based on the tests performed). We will further build two blocks of models in order to choose which method is best suited and perform the subsequent analysis on the basis of the selected model. We will consider the first block of models, considering the relative values of financial indicators - for this we will divide all monetary indicators into *Total assets*, and the second one - using *logarithm* of monetary absolute values. Moreover, as we have already mentioned, in the model we alternately include a variable *Age* either in the familiar format or modulate it in a square (the explanation is described earlier in the article). All of these intermediate regression models and results are presented in the Appendix (table 1). We alternately excluded insignificant variables, included various specifications of CEO characteristics in the model to understand which model is the best in this study. After comparing the different blocks of initial models, we conclude that the use of relative indicators (division of absolute values into total assets) improves the model. To test our second hypothesis (*H2: Strength of relationship between earnings quality and CEO characteristics is more significant in developed countries than in emerging markets*) we build different samples for each of the regions. We leave the set of variables fixed for all models, and see how the coefficients change with variables of interest (table 5).

Based on the results presented in Table 6, we can find the hypothesis H3 to be partially confirmed: some variables are significant for some markets, but not for others. In addition, there is a different type of relationship (positive and negative) for variables in different markets (developed and developing). After comparing the models for each region, it was revealed that CEO characteristics influence financial results in America and Europe. In particular, the variables of *gender*, *age*, *CEO compensation*, *tenure* as well as the variables of *CEO founder* and *CEO Duality* turned out to be significant. If we look at developed and emerging markets within one country (Asia, for example), then our hypothesis cannot be confirmed, since there are no significant differences between Asian developed and emerging markets. In models there is only 1 significant variable - this is the age of the CEO. This fact can be explained by the fact that in Asian countries, respect and honor for older people is much

greater than in other countries. The problem of attitudes towards the elderly in Asian countries is very strictly discussed in the government, there are various laws that oblige the younger generation to take care of older people with respect and reverence, which undoubtedly increases confidence in older people.

Table 5. Regressions of CEO characteristics on earnings quality for different markets

<i>Fixed effects</i>				
<i>Dependent variable - EQ (earnings quality)</i>				
	<i>America</i>	<i>Asia (developed markets)</i>	<i>Asia (emerging markets)</i>	<i>Europe</i>
const	-0,34107**	0,00655	-0,13468	-0,05883
	0,13655	0,07241	0,09898	0,06228
CEO tenure	0,00015	-0,00020	-0,00007	-0,00039*
	0,00062	0,00028	0,00013	0,00021
CEO founder	-0,08189***	0,00734	0,00267	-0,00059
	0,01842	0,00754	0,00314	0,00370
CEO Duality	-0,00013	-0,00065	-0,00198	-0,00837***
	0,00803	0,00524	0,00203	0,00307
CEO Age	-0,00356	0,00369	0,00407	0,00121
	0,00478	0,00236	0,00318	0,00184
Market Capitalization	0,01867***	0,00419	0,00008	0,00721***
	0,00265	0,00353	0,00084	0,00184
Gender	0,0330*	-0,00262	-0,00941	-0,00635
	0,0177	0,00342	0,00537	0,00100
CEO Age ²	0,00002	-0,00004*	-0,00003*	-0,00001
	0,00004	0,00002	0,00003	0,00001
CEO Compensation	0,00229***	-0,01240	0,00115	-0,00673***
	0,00293	0,01158	0,00189	0,00160
R ²	0,077	0,035	0,017	0,033

Source: authors' calculations

However, our third hypothesis regarding the difference in the impact of CEO characteristics on earnings quality can be confirmed by the example of the USA and Asia (emerging markets). Since the United States is considered to be a developed market, we decided to compare models 1 and 3 from Table 9. For the USA market, the quality of a lot of CEO indicators (founder, gender and compensation) has an impact on earnings quality (despite of Asian emerging market). If the CEO is the founder of the company, then the quality of the financial statements is reduced, which can be explained by the fact that the founder of the company knows the entire history of the company and the stages of its development, clearly understands the strategy and mission, therefore he evaluates correctly what can be hidden or under- or overvalued in the statements, and on the contrary, to focus the attention of shareholders and investors, therefore, the quality of finance may decrease. Gender and compensation show the positive correlation with quality of financial reporting. Moreover, the quality of the econometric model as a whole for the developed market (USA) in our study is higher than for the emerging market (Asia), R² is lower for Asia. Working in American markets and trying to determine earnings quality, you should pay attention to such characteristics as gender, founder and compensation. Further we test the first block of hypotheses, based on the constructed model for the whole sample. We compose evaluate our regression again and sequentially exclude all insignificant variables (table 6).

Table 6. Regressions of CEO characteristics on earnings quality

<i>Fixed effects</i>	
<i>Dependent variable – EQ (earnings quality)</i>	
const	-0,1114
	0,1009
CEO Tenure	-0,0009**
	0,0004
CEO founder	-0,0709***
	0,0111
CEO Age	0,0068*
	0,0035
Market capitalization	-0,0132***
	0,0018
CEO Total Compensation	-2,0150***
	0,1963
R ²	0,0693

Source: authors' calculations

H1.1: Earnings quality is lower in a company in which CEO is a man than in those firms where CEO is a woman.

Hypothesis is partially rejected, that partially contradict conclusions of Hoang, Tuyen Thanh, et al (2019).

In many regression models, the *gender* is significant, but the type of impact (positive/ negative) on the earnings quality is not constant. Probably, the influence of gender on earnings quality is a very subjective concept, so in the study we have inconsistent and heterogeneous results. In the majority of the constructed models, the variable *gender* has a positive effect. These results can be obtained on the basis of the uneven distribution of the sample.

H1.2: The older the CEO, the higher earnings quality.

The hypothesis is partially confirmed that consistent with the findings of Malmendier, Ulrike, et al. (2011).

Age affects earnings quality. However, in some models there is a negative correlation between these variables, which is explained by the fact that there is a parabolic relationship between age and earnings quality, therefore, before some certain point there is a direct relationship between age and quality of financial reporting, and after this period the reverse. Many researchers conclude that with increasing age, a person becomes less confident and less risky, so the quality of financial statements will be higher since CEO will be more afraid of checks and controls, which partially correlates with the results obtained in the research.

Since in the study we used both the *CEO personal parameters* and *CEO power*. Two of the above hypotheses suggest that not all personality indicators affect earnings quality (or reflect an inverse relationship with respect to our assumptions and hypotheses of the study). Next, we will go on to describe the results of the *CEO power*:

H1.3: With the increase in tenure of CEO in a particular company, the quality of financial reporting decrease.

The hypothesis is confirmed. In our model, built for the whole sample, there is a negative relationship between the considered indicators. The inverse relationship can be explained by the fact that the longer the CEO is in the company, the more confident he/she becomes, he/she knows the entire history of the company, the current financial situation, understands how to manage it in favor of his companies, including deteriorating earnings quality.

H1.7: If the CEO is the founder of the company, then the quality of financial reporting increase.

The hypothesis is rejected. The studies obtained as a result of the study can be explained by the fact that if the CEO is the founder of the company, then he knows all the pitfalls and understands how best to present the financial statements to shareholders and investors, about which it is worth hiding financial information, so the earnings quality can decrease.

H1.4: If CEO has a duality in management, then earnings quality decreases.

The hypothesis is confirmed. The regression throughout the sample shows a positive relationship between dualism in management and financial results. If CEO plays a dual role, he feels influential and, therefore, has more freedom of choice for decision-making (Adams et al, 2005; Wei et al, 2012). Duality of the CEO has a statistically significant negative effect on management productivity (Hsu, Lin, Chen, Huang (2019)).

H1.5: There is a positive correlation between CEO compensation and quality of financial reporting in the company.

The hypothesis is rejected that contradict conclusions of He (2015) and Kohlbeck, Luo (2019) We used to assume that if the CEO has high compensation, then, as a rule, he showed brilliant regression models showed the inverse effect of compensation on qualities. Perhaps this can be explained by the fact that if the CEO receives high compensation, he becomes more confident in his managerial actions, believes that he has authority among other managers and shareholders, therefore he/she will try to show higher financial results of the company than it is deed, thereby reducing the quality of the information provided on financial reporting.

H1.6: The effect of salary on the earning quality is higher than the effect of compensation on this quality.

The hypothesis is partially confirmed. In some of our intermediate models *CEO total salary* and *compensation* affect the quality of financial results in different ways. However, if we analyze the absolute values of these indicators, we conclude that the effect of salary on the earning quality is higher than the effect of compensation on this quality. This factor can be explained by the fact that wages are regular payments, and compensation is not regular. Compensation is paid to the CEO either as a bonus or as a reward for achieving specific goals and strategies of the company. In conclusion, the results obtained during the construction of econometric models correspond to previous researches and our expectations and assumptions. However, some results associated with the hypotheses *H1.5* and *H1.7* are unexpected, but we tried to describe and explain this research result.

CONCLUSION

In this study, we analyze the relationship between the characteristics of CEOs and the quality of financial statements. The main goal of this article is to determine the relationship between earnings quality and both CEO personality and CEO power. The main results of this paper indicate that managerial characteristics and earnings quality have a very important impact on the company's activity and future development. In this paper, we combine several methods for finding earnings quality. In addition, in this study we include a series of CEO power characteristics that have not previously actively been researched by scientists (*CEO duality, Founder, CEO industry experience, CEO industry experience, CEO promoted from within, Number Board positions CEO Holds, CFO, Number of titles CEO, number of times the CEO has changed, CEO holds in %*).

The main indicators of the CEO characteristics that affect the quality of earnings in this research are both CEO personality and CEO power (gender, founder, age, tenure, compensation and salary). These indicators reflect CEO ability to hard working, enthusiasm, inspiration, amazing abilities and so on. The main results of this research is that some variables are significant for some markets, but not for others. In addition, there is a different type of relationship (positive and negative) for variables in different markets (developed and developing). After comparing the models for each region, it was revealed that CEO characteristics influence financial results in America and Europe. In particular, the variables of *gender, age, CEO compensation, tenure* as well as the variables of *CEO founder and*

CEO Duality turned out to be significant. There are no significant differences between Asian developed and emerging markets. Asian countries pay attention to the age of director. Moreover, for the USA market, the quality of a lot of CEO indicators (founder, gender and compensation) has an impact on earnings quality (despite of Asian emerging market). If the CEO is the founder of the company, then the quality of the financial statements is reduced, that we explained earlier. Gender and compensation show the positive correlation with quality of financial reporting. Moreover, the quality of the econometric model as a whole for the developed market (USA) in our study is higher than for the emerging market (Asia). Working in American markets and trying to determine earnings quality, you should pay attention to such characteristics as gender, founder and compensation. Finally, based on the constructed models for the USA and Asian markets (emerging), we can conclude that strength of relationship between earnings quality and CEO characteristics is more significant in developed countries than in emerging markets.

We understand that there are still many areas for methodological improvements and deep analysis. An ideal study would be to expand the sample, since the data on CEO characteristics are often closed or need to be collected manually to get a large sample. We contribute to solving this problem by analyzing different markets (USA, Asia and Europe) and concentrating on the differences in the impact of the CEO characteristics on earnings quality for different sectors of the economy. In addition to academic significance, this paper can also be useful in the professional and practical area.

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Appendix

Table 5. Intermediate regressions of CEO characteristics on earnings quality

	Fixed effects							
	Dependent variable – EQ (earnings quality)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
const	0,2437 0,1857	-0,1662 0,1023	-0,1683* 0,1015	0,048 0,047	0,002 0,024	-0,263* 0,149	0,5280*** 0,1863	-0,1229** 0,1013
CEO Age	-0,0086 0,0084			-0,001 0,001		-0,002*** 0,001		0,0086*** 0,0035
CEO Age ²		-0,0001*** 0,0000	-0,0001*** 0,0000		-0,002*** 0,000		-0,0001 0,0001	
Gender	-0,0396* 0,0213	0,0167 0,0130	0,0168 0,0130	-0,022 0,020			0,0081 0,0221	0,0182 0,0130
CEO Tenure	-0,0015** 0,0008	-0,0011** 0,0004	-0,0011** 0,0004	-0,001 0,001	-0,001 0,000	0,000 0,001	-0,0005 0,0007	-0,0009** 0,0004
CEO Duality	0,0154 0,0101	-0,0004 0,0064		0,019** 0,009	-0,005 0,008	-0,010 0,010	-0,0111 0,0102	0,0004 0,0084
CEO founder	-0,107*** 0,0208	-0,077*** 0,0114	-0,077*** 0,0111	-0,058*** 0,019	-0,045*** 0,011	-0,061*** 0,021	-0,073*** 0,0203	-0,0714 0,0112
CEO Total salary	-32,74*** 7,7299	-1,5224** 0,6291	-1,5256** 0,6287	-11,164 7,210	1,503** 0,638			
Total Compensation	-0,6003* 0,3084	-1,9374*** 0,2633	-1,9397*** 0,2629	-0,406 0,287	-1,005*** 0,288			-2,0093 0,1964
CEO promoted from within	-0,0042 0,0101							
Number Board positions CEO Holds	0,0059 0,0069							
Number of titles CEO	0,0033 0,0065			0,000 0,006				
Number of times the CEO has changed	0,0019 0,0132			0,001 0,012				
CEO holds in %	-0,0011 0,0014	-0,0001 0,0005		-0,001 0,001				
Independent Directors	0,0008* 0,0005	-0,0003** 0,0002	-0,0003** 0,0002					
Board size				0,010*** 0,002	0,016*** 0,001	0,011*** 0,002		
R&D				-0,440*** 0,084	-0,249*** 0,032			
Market Capitalization				-0,022** 0,003	-0,009*** 0,002			-0,013*** 0,0018
Log of CEO Total salary						0,006 0,007		
Log of CEO total compensation						-0,019* 0,010	-0,0157 0,0125	
Log of Market capitalization						0,022*** 0,005	0,0302*** 0,0047	
R²	0,0794	0,0611	0,0611	0,195	0,112	0,086	0,086	0,070