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Executive compensation and the financial performance of Polish listed companies from the corporate governance perspective

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Keywords: executive compensation; corporate governance; financial performance; comprehensive income; Polish listed companies

Abstract

Research background: The level of compensation earned by CEOs and the relationship between executive pay and companies' performance is one of the most widely studied issues in the corporate governance literature. Studies conducted in the last several decades have provided evidence that CEO pay should be aligned with accounting financial measures.

Purpose of the article: The main purpose of this paper is to determine the relationship between executive compensation and organizational financial performance. In particular, the effect of net income and comprehensive income as the accounting measures of financial performance on executive compensation is compared.

Methods: The research comprised listed companies on the Warsaw Stock Exchange (WSE). The role and effect of accounting financial measures on executive compensation are analyzed based on three regression models. The period of analysis spanned ten years, from 2009 to 2018.

Findings & value added: There are three conclusions that can be drawn from the study. Firstly, executive compensation in the analyzed companies largely depends on the accounting measures of financial performance, based on net income and comprehensive income (excluding ROE). Secondly, its level is significantly and positively influenced by the company's size, Tobin's Q ratio, debt ratio, and dividend rate. Thirdly, comprehensive income has a stronger effect on execu-

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tive compensation than net income. Our findings add some potentially noteworthy dimensions to the economic literature on corporate governance, which is especially important to apply in the CEE region and other emerging economies. The Anglo-American assumption of corporate governance and executive compensation policy might not be suitable for the realities in much of the world.

Introduction

Success or failure in business is largely determined by the effectiveness of the systems used by organisations to motivate and compensate their employees. This is owed to the quality of human capital which, both at the microeconomic and macroeconomic level, is currently considered as the main growth factor in developed economies (Balcerzak, 2016, p. 11; Pylpenko *et al.*, 2020, pp. 153–159). Admittedly, intellectual capital is investigated and measured by various specialists from different areas (Mačerin-skienė & Survilaitė, 2019, p. 310), but the success of an organisation should be measured against the achievement of its long- and short-term goals, likewise the performance of its managers who are responsible for it. It can be broadly assumed that a compensation plan will effectively motivate top managers when their earnings — the plan’s key instrument — are tied to the economic results of their organisations.

The level of compensation offered to chief executive officers (CEOs) and the relationship between executive pay and companies’ financial performance are among the issues that the corporate governance literature deals with the most often. This topic was discussed in the last several decades (Jensen & Murphy, 1990; Mäkinen, 2005; Kato & Kubo, 2006; Brick *et al.*, 2006; Iwu-Egwuonwu, 2010; Ozkan, 2011; Raithatha & Komera, 2016; Amarou & Bensaid, 2017; Yamina & Mohamed, 2017) as well as in recent years (Le *et al.*, 2020; Lin & Shi, 2020; Dias *et al.*, 2020; Amewu & Alagidede, 2021; Cui *et al.*, 2021; Ding & Chea, 2021; Wang *et al.*, 2021; Chen & Hassan, 2022; Kayani & Gan, 2022). Nonetheless, some authors have demonstrated empirically that the relationship between executive compensation and financial performance is significant and positive, while others have not found such a relationship at all.

The main purpose of this paper is to determine the relationship between executive compensation and organizational financial performance based on a sample of companies listed on the Warsaw Stock Exchange (WSE) from 2009 to 2018. In particular, the effect of net income and comprehensive income on executive compensation is analyzed and compared.

This paper contributes to the economic literature in at least three ways.

Firstly, it concentrates on emerging markets and concerns the relationship between executive pay and firm performance from the perspective of corporate governance principles adopted in Poland, where The Continental model is more suitable (Jerzemowska *et al.*, 2013). The current literature on these relationships has been largely focused on The Anglo-American model (Ascherl *et al.*, 2019; Le *et al.*, 2020; Lin & Shi, 2020; Wang *et al.*, 2021) or the Asia-Pacific countries (Farooque *et al.*, 2019; Cui *et al.*, 2021; Ding & Chea, 2021; Chen & Hassan, 2022; Kayani & Gan, 2022). Our decision is motivated by the lack of global consensus in the literature about these relationships and the non-existing current research across the Central Eastern European (CEE) region.

Secondly, the relationships between executive compensation and firm performance, with a special focus on two financial measures: net income and comprehensive income, are examined and compared. To the best of our knowledge, this is the novel approach to research and answer the question of whether executive compensation plans tied to these two accounting measures help companies to attain their goals from the corporate governance perspective.

Thirdly, comprehensive income is a hardly recognised and researched category in executive compensation policy. Most of the studies mainly concerned issues from the field of accounting (Bratten *et al.*, 2016; Lee *et al.*, 2020). Executive compensation and comprehensive income is not often a subject of study. Our research aims to fill that gap. Nonetheless, three previous studies are worth mentioning. Qi (2021) researched the relationship between changes in fair value and executive compensation contracts, but he particularly concentrated on the impact of changes in fair value profit and loss and changes in fair value included in other comprehensive income on executives' monetary compensation. On the other hand, Park and Lee (2018) analysed the influence of net income/loss and other comprehensive income on the compensation and difference of the components of comprehensive income items, e.g. unrealised gains or losses, as a fair value measurement. Additionally, their paper limited the compensation of executives to cash compensation. Finally, Sajnóg (2019) studied the relationship between executive compensation and profitability ratios, but this research covered only 86 firms from the industry sector.

The paper is organized as follows. Part 1 considers a review and evaluates corporate governance recommendations on executive compensation in Poland. In Part 2, the theoretical context of the problem under consideration is discussed, with a special focus on the relationship between companies' financial performance and executive compensation. In Part 3, the research

methodology, the sample, variables, and models are explained. Parts 4 and 5 present the key results of the empirical analysis, discussion and concluding remarks, respectively.

Literature review

Corporate governance and executive compensation policy — the Polish perspective

The executive compensation is a critical area within corporate governance understood as a system of principles that explain how companies should be managed to grow, increase shareholder value, and meet the expectations of stakeholders (Iwu-Egwuonwu, 2010). According to the principles, managers' compensation should be strongly tied to their performance and reduce the potential for conflicts of interest between managers and shareholders, or at least align their interests to some extent. Achieving this may not be easy because, under agency theory and information asymmetry, managers and shareholders have different access to corporate information and can pursue different goals. An escalating conflict of interests can erode the company's value and shareholder value, as well as managers' engagement in their work.

Mechanisms for controlling and supervising executive compensation continue to be one of the most controversial aspects of corporate governance, mainly because of the perceived discrepancies between organizations' financial results and their managers' earnings. According to a sound theoretical rule, an executive compensation system should combine the financial expectations of employees, managers, and shareholders so that they all feel that they "own" their company and act to maximize its value in the long-term value. Unfortunately, the increasing popularity of the value-based management concept in the 1990s led to the emergence of compensation plans that rewarded managers for the mediocre financial performance of their companies. In consequence, the level of executive earnings increased almost tenfold compared with the 1980s.

In Poland, the first regulations on executive compensation policies were laid out in the Accounting Act of 1994 and the Council of Ministers' Ordinances. Their scope was limited, as they only required companies to disclose information about managers' total earnings, with more specific information having to be released only in the case of IPOs. A milestone document in the area was the "Code of Best Practice for WSE-listed Companies 2002", published by the Corporate Governance Forum's Best Practices

Committee in 2002 (Warsaw Stock Exchange, 2002), which has been amended several times since then. The Code recommended that executive compensation be set using transparent procedures and rules, with emphasis on its motivational role and the assurance of seamless and efficient management. It also stated that the level should be determined in proportion to the size of the company and should reasonably reflect its economic performance.

At the international level, pertinent recommendations on executive compensation policies in public companies were formulated by the OECD and the EC. It was not until the global financial crisis, however, which exposed corporate governance flaws and conflicts between executive compensation policies and effective risk management rules, that the OECD and EC issued their key regulations. It was realized then that many companies, mainly banks, had gone bankrupt because they had taken excessive risks to maximize short-term gains, while neglecting the long-term objectives, and had lavishly remunerated their managers (OECD, 2009). In order to prevent the situation from occurring again, the EC recommended that executive compensation should also take account of current and future risks, the cost of capital, and financial liquidity ratios as the criteria for rewarding managers. An equally important recommendation stated that the construction of executive compensation should support the long-term sustainability of the company and be tied to its financial performance.

Executive pay policy recommendations issued by the EC and OECD, etc. were actively developed in Poland into best practices (Jerzemska *et al.*, 2013) and incorporated into the national legislation. A 2012 survey of investors by Deloitte found that most of them (88%) deemed the translation of best practices (soft law) into hard law a positive trend that helped improve corporate governance standards in listed companies.

Polish companies' approach to changing the long-term compensation plans, board presidents, and board members is more conservative than in other European countries (PwC, 2017). Although several years ago most compensation specialists predicted that the popularity of long-term compensation plans would continue to grow, the trend has slightly reversed. This conservative approach of Polish listed companies to setting and changing executive compensation is not likely to change in the next few years, especially since it appears to closely match the expectations of managers themselves.

Polish companies' efforts to observe the corporate governance rules are probably related to the corporate governance model Poland has adopted. Faced with a choice between the Anglo-American and the Continental models of corporate governance, Poland decided in favor of the latter

(Jerzemowska *et al.*, 2013), finding it more suitable for Polish public companies.

Executive compensation and financial performance

Many studies conducted in the last several decades presented conflicting evidence about whether a company's financial performance has a positive effect on CEO pay. Despite the well-known recommendation that executive compensation should be tied to company performance (Jensen & Murphy, 1990), the empirical studies have demonstrated that it is not always so. For instance, in one of their earliest papers, Jensen and Murphy (1990) reported a positive relationship between financial performance and executive compensation, having analyzed a 1974–1986 sample of US companies. Boschen and Smith (1995), who examined the relationship between performance (especially the stock market returns) and executive compensation in 16 US firms in the years 1948–1990, found a significant correlation between them, although varying in time. After analyzing a fifteen-year panel data set of CEOs in the largest, publicly-traded US companies between 1980 and 1994, Kato and Kubo (2006) confirmed a significant and positive correlation between organizations' financial performance and CEO pay.

In the study by Ozkan (2011), the effect of a company's financial performance on executive compensation was also positive but non-significant. A few empirical studies failed to find any relationship between CEO pay and the company's profits. Brick *et al.* (2006) established a negative association between a company's financial performance and stock returns and executive compensation.

The latest empirical results are not only multi-directional, but also inconsistent. Ascher *et al.* (2019) evidence that the different types of executive compensation were related to the long-term and value-driven growth performance ratios. Similarly, Kayani and Gan (2022) pointed out that a firm performance has a positive relationship with the total compensation, salaries and bonuses paid to the CEO. Contrary, Cui *et al.* 2021 denied the relationship between CEO pay and a firm's performance. Some authors examine also the impact of executive compensation on a firm's performance and emphasize that there exists a reciprocal relationship between compensation, performance and governance (Farooque *et al.*, 2019).

According to results presented by Wang *et al.* (2021), executive compensation has also a significant positive impact on corporate performance. Ding and Chea (2021) showed that ESOPs (employee stock option plans) have a significant and positive effect on firm performance relative to their non-ESOP counterparts. Whereas Dias *et al.* (2020) show that the relation-

ship between CEO pay and firm performance is heterogeneous and the Brazilian market executives seem to be more sensitive to performance-based compensation than might be found in developed markets. Their results suggest that the effect of corporate governance practices on a firms' financial performance depends on strict governance standards, which might be often observed in emerging economies.

Because Polish companies' approach to executive compensation policy appears to be more conservative than in other European countries, and Polish companies have a positive attitude to the application of best practices (as demonstrated in the previous point), we assume there is a positive relationship between executive compensation and financial performance. So, the first hypothesis was formulated as follows:

H1: There is a positive relationship between the financial performance of listed companies in Poland and the total compensation of their executives.

The aforementioned common-sense approach suggesting that directors' and top executives' earnings should be tied to the financial results of their organization naturally leads to the question about how organizational financial performance should be measured. This naturally leads us to another question of which corporate income (operating, net, comprehensive, etc.) is likely to have the optimal motivating effect on managers. Abdalkrim (2019) find that CEO compensation are significantly positive, not only across account-based measures but also market-based ratios. As a way to measure both variables, some researchers obtained mixed results or no evidence of any effect.

According to some authors, executive salaries and bonuses are more sensitive to the financial results of their companies than to stock market indicators (Kato & Kubo, 2006). Sigler (2011) openly stated that executive compensation is clearly and positively correlated with a company's ROE. Mäkinen (2005), however, did not find associations between CEO compensation and accounting indicators such as ROA. Kayani and Gan (2022) find also that both accounting and market measures (ROA, Tobin's Q) have a positive relationship with total compensation. The same character of this relationship is presented by Abdalkrim (2019) using three measures (ROA, ROE and Tobin's Q). Whereas Ding and Chea (2021) employ ROA and ROE as alternative proxies for firm performance and reveal a weaker positive significance of these accounting measures.

On the one hand, Park and Lee (2018) state that other comprehensive income items, which are unrealized gains or losses by fair value measure-

ment, are relevant information for determining manager compensation. These conclusions are consistent with the previous finding that CEO compensation is associated with accruals management (Park, 2019) and management earnings forecasts (Otomasa *et al.*, 2020). On the other hand, Qi (2021) documented that total compensation is significantly positively correlated with the change of fair value included in the current profit and loss, but not in other comprehensive income.

According to agency theory, the key problem that corporate governance needs to solve involves the selection of incentives capable of sustaining harmony between shareholders' interests and executives' rewards. The best solution, it seems, is one that results in proportional increases (or decreases) in executive compensation and shareholders' wealth (Jensen & Murphy, 1990). If so, comprehensive income seems a better instrument for determining CEOs' rewards than net income because it shows shareholders' wealth and explains companies' financial performance better than net profit. Accordingly, the second hypothesis was formulated as follows:

H2: Comprehensive income has a stronger effect on executive compensation than net income.

Comprehensive income consists of net income and the results of other transactions with non-owners that directly affect stockholders' equity. It is generally understood to represent shareholder wealth. As for net income, it shows the outcomes of transactions directly associated with revenues and costs. Because it omits changes in the capital that the financial statement users would have a problem understanding, it may tempt managers to use "dirty surplus accounting" to inflate profits. In this case, the comprehensive income (in contrast to net income) is generally beyond the control of managers and hinders active earnings management (Chambers *et al.*, 2007, p. 561). In the earnings management, which is understood as a deliberate intervention in the process of preparing the financial statement intending to achieve the individual or private goals, can use a variety of methods and techniques to legal profit manipulation. This global phenomenon is focused on a lot of accounting measures, e.g.: EBIT, EBITDA, EBT, or EAT etc. (Kliestik *et al.*, 2020; Svabova & Durica, 2019). On the other hand, based on comprehensive income components, shareholders can assess some of the managerial activities more accurately and can recognize the managers' engagement in both earnings management and the manipulation of executive compensations.

To sum up, the previous empirical evidence on the impact of firm performance on executive compensation has not been conclusive. Using vari-

ous financial performance and controlling measures for the firms as well as disregarding key corporate governance factors and geographical or institutional backgrounds may not be the only cause of the variations in these results. Unfortunately, most of the studies were dominated by advanced economies. Applying the same methodological approach to emerging markets could produce misleading results, so we employ various firm-specific variables to reflect the specificity of the economy in Poland.

Research method

We used the institutional setting of Poland, one of the largest and most dynamic economies in the CEE region. Considering two models of corporate governance (The Anglo-American model and the Continental model), the second is more suitable for Poland, as well as other post-Communist countries (Jerzemowska *et al.*, 2013). Some authors state that the cross-national validity of the Anglo-American model has been questioned increasingly (Sahakiantz & Festing, 2019). A combination of the Polish institutional setting and specific of the Continental model might be useful in conducting research on executive compensation policy in other emerging markets.

In our study, a sample of 205 Polish companies selected from the 421 organizations listed on the Warsaw Stock Exchange on 1 October 2019 was assembled. The WSE-listed companies were used for two reasons. Firstly, the International Accounting Standards (IASs) require listed companies to publish detailed comprehensive income statements. Secondly, the Polish Code of Best Practice has made it obligatory for listed companies to disclose the details of executive compensation in their annual reports. Out of the total number of 421 entities, we analysed in detail 205 public companies that presented information on components of OCI. In the remaining companies (216), there were no observable differences between comprehensive income and net income (the value of OCI was 0).

The period of analysis spanned ten years, from 2009 to 2018. This specific period was selected for three reasons. Firstly, nine years is long enough to be able to capture the long-term relationships between executive compensation and companies' financial results. Secondly, including the earlier years of the financial crisis (2008–2009) carried the risk of obtaining distorted results. Thirdly, on 1 January 2009, it became mandatory for all listed companies in Poland to release their statements of comprehensive income.

The study used data on the compensation of corporate CEOs. The compensation can be studied empirically with respect to total compensation (consisting of the aggregate sum of salary, annual bonus, stock options, phantom stock, and restricted stocks), cash compensation, or salary. The fact that the board activity reports of the sampled companies used as the source of information on CEOs' pay only presented aggregate amounts without detailing the values of particular pay components somewhat hindered the interpretation of the research results. However, they could be tested by comparing them with the findings of other authors (e.g., Amarou & Bensaid, 2017) who used the same approach.

The values of all variables, including the total compensation, are stated as at the end of the accounting year. Financial data taken into the analysis were consolidated. The regression models were built using the natural logarithms of the absolute values of executive compensation (EC) following Ke *et al.* (1999). Because the study aimed to determine the relationship between EC and companies' financial performance, both accounting and market explanatory variables were considered.

After a careful review of other studies (Jensen & Murphy, 1990; Mäkinen, 2005; Raithatha & Komera, 2016; Yamina & Mohamed, 2017), the return on assets (ROA), return on equity (ROE), SIZE (natural logarithm of total assets) and DR (debt ratio — total liabilities in relation to total assets), were selected as the accounting measures of companies' performance, and the book value-to-market value (BVMV) based on Tobin's Q ratio and DIV (the dividend rate — annual dividends per share in relation to earnings per share) as the market-based measures. Initially, we also used the CAP (natural logarithm of market capitalization), but this variable was highly correlated with the SIZE and was excluded from the calculation of the regression coefficients. Three other market ratios, i.e., the annual stock return and the risk ratio that the authors of earlier theoretical and empirical works used (Raithatha & Komera, 2016), were also estimated, but were rejected as statistically non-significant.

Considering that the financial effectiveness of a company depends on the productivity of inputs (such as assets) and is determined by their profitability, the net income and comprehensive income values used in the models were adjusted for companies' total assets to separate them from the influence of business volumes (Bratten *et al.*, 2016). As a result, two rates of return on total assets (ROA) were obtained, calculated as net income and comprehensive income in relation to average total assets (NI and CI).

Additionally, three binary variables were used in the econometric models:

- SECTOR – indicating a company’s specific sector and taking a value of 1 for financial companies and a value of 0 for other sectors (Yamina & Mohamed, 2017),
- GENDER – identifying gender diversity among CEOs, which influences EC (Borrenbergs *et al.*, 2017); it takes a value of 0 for a male-only group of CEOs and 1 for companies in which at least one CEO is a woman,
- NEG – to distinguish between periods when a company made profits and when it incurred losses as recommended by conditional conservatism (Basu, 1997); it takes a value of 1 for a loss and 0 for a profit.

The comparison of CI and NI in terms of their associations with executive compensation was performed using a three-step procedure. In the first step, the key variables were analyzed by means of descriptive statistics (the measures of location and variation). The next part of the analysis focused on correlations between both accounting and market variables and EC. In total, 1950 observations were identified, of which 1911 were subjected to analysis. The reason for the difference was the quantitative approach to data collection: all missing observations were not replaced by, e.g., arithmetic averages but were removed in pairs. Outliers were few, so they were retained for analysis¹.

Lastly, using the regression analysis and two one-equation models (M1–M2) built for NI (M1) and CI (M2), the effect of both types of income on EC was determined to test hypotheses H1 and H2:

$$M1: EC_t = \alpha_0 + \alpha_1 NI_t + \alpha_2 SIZE_t + \alpha_3 ROE_t + \alpha_4 BVMV_t + \alpha_5 DR_t + \alpha_6 DIV_t + \alpha_7 SECTOR_t + \alpha_8 GENDER_t + \alpha_9 NEG_t + \varepsilon_t, \quad (1)$$

$$M2: EC_t = \alpha_0 + \alpha_1 CI_t + \alpha_2 SIZE_t + \alpha_3 ROE_t + \alpha_4 BVMV_t + \alpha_5 DR_t + \alpha_6 DIV_t + \alpha_7 SECTOR_t + \alpha_8 GENDER_t + \alpha_9 NEG_t + \varepsilon_t.$$

The effect of the organization’s financial performance on EC was estimated by the ordinary least square method (OLS). We analysed an unbalanced panel. Using panel data to test our hypotheses has not only a number of advantages, but also disadvantages and limitations. Clearly, benefits are a much larger data set with more variability and less collinearity among the variables than is typical of cross-section or time-series data (Hsiao, 2003). Nonetheless, this author points out several problems of panel regression

¹ We removed only the outliers of DIV (the ratio greater than 1).

analysis, i.e. design and data collection problems, distortion of measurement errors, selectivity problems, short time series dimension, and cross-section dependence, which might be important in our analysis. According to Baltagi (2005), we believe that cross-sectional dependence is a more common problem in macro panels (especially with long time series) than in our micro panel (with a few years and a large number of cases).

In our panel data, we assumed the random effects. The decision was made based on the F test statistics, the Breusch-Pagan test and the Hausman test (compare Hsiao, 2003, p. 174). A fixed effect was tested by F-test, while a random effect is examined by the Breusch-Pagan test. The F test is to see that all dummy parameters are equal to 0, if they are then no fixed effects are needed. The Breusch-Pagan test examines if the individual (or time) specific variance components are zero. If the null hypothesis is rejected, we can state that there is a significant random effect in the panel data. The Hausman test compares fixed and random effect models under the null hypothesis that individual effects are uncorrelated with any regressor. As shown in Table 3, in both models, p-values of the F test and the Breusch-Pagan test were below 0.05, while p-values of the Hausman test were higher than 0.05 (see Table 3). Therefore, the random effects are better than the fixed effect models.

Results

Executive compensation varied widely in the sampled companies, which values ranged from as low as 0.001 to as high as 3.136 million PLN. Significant differences in the levels of executive compensation are also confirmed by a standard deviation of 0.314 million PLN (see Table 1).

Despite theoretical expectations, the ROA values obtained for comprehensive income spanned a narrower range than those calculated for net income (-1.536 and 6.364 compared with -1.976 and 12.771; standard deviations of 0.222 and 0.406, respectively). The minimum and maximum values of SIZE (1.564 and 5737.036 million PLN; the standard deviation of 725.774 million) indicate that the sampled companies varied strongly in size. The range of ROE values was much wider (from -61.232 to 77.269; standard deviation of 5.309), but what differentiated them most was BVMV, whose values ranged from 0.005 to 602.973 (standard deviation of 66.796). As for the debt ratio (DR), its mean value of 0.271 and standard deviation of 0.590 indicate that the companies were relatively similar in their use of external funding. What differentiated the EC least was DIV, whose values ranged from 0.000 to 0.411 (standard deviation of 0.032).

Net income and comprehensive income turned out to be weakly, but positively, correlated with executive compensation (see Table 2). Slightly stronger correlations were determined between CI and EC than between NI and EC. Interestingly, the correlation coefficient between EC and SIZE was as much as 0.528. Weak, but positive and statistically significant, relationships were also found between EC and ROE, as well as EC and DR. The value of the correlations between EC and BVMV was statistically significant but it was a negative relationship. An interesting finding, given the purpose of the paper, was that the correlation coefficient between NI and CI was very high (0.908) and statistically significant. This result is consistent with the character of CI, which consists of NI and OCI. Compared with the results of studies on major capital markets in Europe (Ramond *et al.*, 2007), the correlation between CI and NI was also very high (over 0.8) and was probably related to the character of the companies' sector.

The variables used in models M1 and M2 were employed to perform a regression analysis of EC to determine the effect of companies' financial results (NI and CI) on top managers' earnings. The effect of all measures, both accounting and market, was positive in these models (see Table 3). It is important to note that the parameters on CI, SIZE, BVMV, DR, and DIV were statistically significant at the 5% or 1% level of significance. By contrast, the effects of NI and ROE were not statistically significant. The dummy variables varied in their effect on EC. The statistically significant parameter estimates indicated a negative effect of the variables SECTOR and GENDER. The effect of NI and CI on EC was evidently positive, but stronger for CI (M2) than NI (M1). Additionally, it is important to note that the parameter on NI was not statistically significant at $p=0.01$ or $p=0.05$.

As given in Table 3, the goodness of fit for our regression models measured within Adj-R² is 0.296 (M1) and 0.301 (M2), which indicates that approx. 30% of explanatory variables account for changes in executive compensation. These results are quite similar to other authors, such as those of: (1) Wang *et al.* (2021), (2) Cui *et al.* (2021), (3) Park and Lee (2018), (4) Qi (2021). The Adj-R2 ranged from 0.12 to 0.22 (1), 0.02–0.08 (2), 0.17–0.19 (3), and 0.30–0.37 (4), respectively. Still, it is worth mentioning that they might be a consequence of not taking into account other corporate governance factors, i.e. the ownership concentration, board size, board independence, managerial ownership, executive tenure, and executive age.

Discussion

Our findings are generally consistent with previous studies in the countries, for which the Anglo-American is more suitable, e.g. in the US, Japan, Australia, and New Zealand, such as those of: (1) Lin and Shi (2020), who show that there is a positive relationship between firm market performance and CEO pay; Kato and Kubo (2006), who find that Japanese CEO's cash compensation is sensitive to firm performance; Le *et al.* (2020), who document evidence of the pervasiveness of financial measures used in the assessment of variable remuneration among financial institutions; Ding and Chea (2021), who report that the employee stock option is positively related to firm performance. In emerging economies, the relationships between CEO pay and firm performance are heterogeneous. Admittedly, Chen and Hassan (2022) point out that in China the executives' equity-based compensation has a significant positive correlation with firm performance. The result is consistent with the findings of Kayani and Gan (2022), who explored Asia Pacific firms. Contrary, in Africa, Amewu and Alagidede (2021) find a statistically significant negative relation between all compensation types (total, cash and equity) and financial performance. Dias *et al.* (2020) show also that these relationships are heterogeneous and the Brazilian market executives seem to be more sensitive to performance-based compensation than might be found in developed markets. Probably, although submitted to the idiosyncrasies of emerging markets, Poland, one of the largest and most dynamic economies in the CEE region, also seems to respond more to the developed economy.

Our evidence shows that comprehensive income is higher related to the executive compensation than net income. Although, to the best of our knowledge, no prior studies have compared these accounting measures, we state that comprehensive income is much more in accordance with the market reality, represents the most appropriate approach to profitability and might affect the executive compensation policy. This approach is consistent with other authors, who find that some comprehensive income items are relevant information for determining corporate governance culture and manager's compensation (Park & Lee, 2018; Qi, 2021). López-Quesada *et al.* (2018) strongly indicate that having high levels of corporate governance culture has a positive impact on the measure of a firms' financial performance, namely comprehensive income.

With regards to control variables, we noted a statistically significant and positive effect of variable SIZE (company's total assets) on executive compensation. These findings also concur with the conclusions from analyses conducted for other markets (Ascherl *et al.*, 2019; Abdalkrim, 2019; Wang

et al., 2021). Despite the arguments that smaller firms can tend to outperform larger ones (Ding & Chea, 2021), the large firms, whose size reflects their ability to achieve economies of scale as well as market power, have also a great ability to invest a lot of talent and money in CEOs development, as well as pay high compensations.

We explained that the relationship between CEO pay and financial performance depends on the level of firm leverage. The debt ratio (DR), which measures the capital structure of a company, has a significant positive influence on the EC of companies listed on the WSE. These findings are not completely consistent with previous studies. Liu *et al.* (2020) report that executive compensation provides a strong incentive for CEOs to choose high firm leverage. Adu-Ameyaw *et al.* (2021) also find that managerial cash bonus compensation is negatively and significantly related to financial leverage. In comparison, some researchers show that high levels of debt have a negative influence on the amount of CEO compensation paid (Abdalkrim, 2019), as well as has no significant effect on firm value (Ding & Chea, 2021). Probably, Polish firms with high leverage tend to offer CEO compensation with lower incentive power.

The negative impact of SECTOR on executive compensation is consistent with the results reported by the authors of previous empirical studies (Raithatha & Komera, 2016; Yamina & Mohamed, 2017). It can therefore be assumed that in the financial companies the relationship between CEO pay and financial performance is usually higher and lower in other industries, e.g. in the utilities and consumer goods or services. The negative effect of GENDER is in line with psychological theory regarding gender differences in risk- and inequality-aversion (Croson & Gneezy, 2009). Chen and Hassan (2022) also show that the participation of female executives is negatively associated with firm performance.

Conclusions

The study examined the relationship between the level of total executive compensation in organizations and selected accounting and market-based performance measures using regression models. The findings of empirical studies that analyzed the relationships between executive pay and widely-used financial indicators have so far been inconclusive. Our analysis found major differences among Polish listed companies in the compensation of their executives. Interestingly, however, the correlation coefficients pointed to weak, but positive, and, more importantly, significant associations between executive compensation and the companies' return on assets, or on

equity, debt ratio, as well as the size of the enterprise. The correlation between CEO pay and the Tobin's Q ratio was negative, but significant. The estimation of the econometric models, too, showed that both accounting measures and market ratios positively influenced CEO pay, but the values of the parameters on NI and ROE variables were statistically non-significant. Therefore, hypothesis 1 was partially confirmed. Hypothesis 2 was also confirmed because the influence of comprehensive income on CEO pay proved stronger compared with net income.

The results of our study are based on a sample of Polish listed companies, so they should not be used as a basis for general reflections and conclusions about all markets, but they might be useful for corporate governance systems in emerging economies. Particularly with respect to executive compensation plans in CEE states, the above-presented approach and results might be used, especially as a tool to explore key practices of companies in the executive compensation context. Unquestionably, they can be useful as a 'starting point' for further theoretical and empirical research on the influence of comprehensive income on executive compensation in the CEE region. The wider use of quantitative research or replication of our methods on the sample of other countries could contribute to the generalizability of the results to the CEE region in general.

Overall, our findings suggest that Polish companies appreciate corporate governance standards and follow best practice codes and international recommendations, emphasizing the need to tie executive compensation to organizational performance and reduce the potential for conflicts of interest between managers and shareholders. Our study is an effort to determine how CEO pay is influenced by comprehensive income, which better shows shareholders' wealth and accounts for more value sources than net income, in addition to being more resistant to managers' manipulations. However, because its findings are based on a sample of Polish companies, the relationship between comprehensive income and executive compensation should also be studied for other countries as a comparison.

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Annex

Table 1. Selected statistics on the analyzed companies

Variable	Mean	Median	Maximum	Minimum	Std. Dev.
EC (PLN million)	0.462	0.397	3.136	0.001	0.314
NI	0.051	0.036	12.771	-1.976	0.406
CI	0.039	0.037	6.364	-1.536	0.222
SIZE (PLN million)	410.985	192.454	5737.036	1.564	725.774
ROE	1.136	0.030	77.269	-61.232	5.309
BVMV	17.312	0.725	602.973	0.005	66.796
DR	0.271	0.116	7.928	0.000	0.590
DIV	0.020	0.000	0.411	0.000	0.032

Table 2. Correlation matrix

Variable	EC	NI	CI	SIZE	ROE	BVMV	DR	DIV
EC	1.000	0.021*	0.052**	0.528**	0.147**	-0.091**	0.057**	0.169**
NI		1.000	0.908**	-0.010	-0.018	0.016	-0.009	-0.016
CI			1.000	-0.011	0.018	-0.001	-0.012	0.027
SIZE				1.000	0.210**	-0.227**	0.036	0.112**
ROE					1.000	-0.032	-0.026	0.056
BVMV						1.000	0.074**	-0.077**
DR							1.000	-0.055*
DIV								1.000

Note: * Significant at the 5% level of significance; ** significant at the 1% level of significance.

Table 3. Results of the Panel Least Squares regression

Variable	M1	M2
NI	0.070	
CI		0.281*
SIZE	0.278**	0.282**
ROE	0.005	0.004
BVMV	0.001*	0.001*
DR	0.081*	0.076*
DIV	3.658**	3.511**
SECTOR	-0.164*	-0.168**
GENDER	-0.121**	-0.098*
NEG	0.005	-0.081
CONSTANT	2.491**	2.491**

Table 3. Continued

Adj-R ²	0.296		0.301
F-test	90.395		92.564
p-value	0.000		0.000
Breusch-Pagan	59.868		58.587
p-value	0.000		0.000
Hausman	5.447		4.502
p-value	0.794		0.875
N		1911	

Note: * Significant at the 5% level of significance; ** significant at the 1% level of significance.