

REMUNERATION OF MANAGEMENT BOARDS OF PRODUCTION COMPANIES LISTED ON THE WARSAW STOCK EXCHANGE

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Purpose: The research objective of this article was to analyze and evaluate the formation of the relationship between the salaries of those who make up the management body of manufacturing companies.

Design/methodology/approach: The study used selected statistical methods to achieve the purpose of the study and to verify the research hypothesis. Measures of descriptive statistics allowed comparison of CEO salary and average board member salary. Spearman's rho correlation coefficient was used to determine the strength of the relationship between these quantities. The quotient between CEO compensation and average board member compensation was used to determine the inequality that exists. The Kruskal-Wallis test, on the other hand, was used to diagnose differences between the populations of manufacturing companies in the levels of inequality in CEO-member compensation.

Findings: The analyses conducted achieved the intended purpose of the study and verified the research hypothesis. It was observed that the compensation of the CEO and board members is the least unequal in high-tech companies. It was diagnosed that the inequality of remuneration along the CEO-board member line is the smallest in the group of high-technology enterprises. Thus, there are no grounds to reject the research hypothesis.

Research limitations/implications: A difficulty and limitation of salary surveys is obtaining complete information about them. This is due to the nature of this type of data, which is subject to legal protection. The research carried out in this article is based on information about the salaries of people employed in the management bodies of public companies. In further work, attempts will be made to study inequalities in entities that are not listed on the Warsaw Stock Exchange.

Social implications: The study indicates which group of manufacturing enterprises should be supported by the state to reduce excessive vertical wage inequality.

Originality/value: The originality of the study stems from the fact of examining the relationship occurring between CEO and board member salaries and their inequality. Previous analyses have focused on the relationship occurring between - on the one hand - those employed in management bodies and - on the other hand - operational employees.

Keywords: inequality of wages, CEO, board member, manufacturing industry, single line spacing.

Category of the paper: Research paper.

1. Introduction

The remuneration of people employed on the boards of public companies is unique from that of operational employees. The differences between the two are in: the amount paid; the determinants affecting their formation; the systems used to calculate them; and the approach to their disclosure. This issue has been widely reported in the literature, mainly due to the fact that there are very large inequalities between the CEO's salary and the median or average value of operating employees' salaries. Nevertheless, it is difficult to find research results that have been devoted to the relationship occurring between CEO and board member compensation. Thus, the existence of a research gap has been diagnosed, which is at the same time a research problem framed in the form of a question: how are the salaries of board members in relation to the salary of the CEO? The research objective of this article was to analyze and evaluate the formation of the relationship between the salaries of those who make up the governing body of the company. Given the research made earlier and the desire to supplement it with further aspects, the analysis was carried out on the basis of data from manufacturing enterprises, divided by the level of technological advancement (Mazurkiewicz, Staszal, 2024, pp. 329-336). For the purpose of this article, the hypothesis was that the least inequality between the remuneration of the CEO and the average remuneration of board members occurs in the group of high-tech enterprises. The originality of the research is that it focuses on the analysis of remuneration inequalities between those employed on corporate boards. Previously published research has mainly focused on the CEO-employee pay ratio.

2. Literature review

According to Polish Commercial Companies Code, one of the organs of a joint-stock company is the Management Board. Its tasks include managing the company's affairs and representing it before other entities and institutions. Persons may be appointed to the Board of Directors from among the shareholders or from outside their ranks. The Code does not specify the maximum composition of its members, indicating only that it may consist of one or more members (KSH, 2000, art. 368). The board of directors most often consists of a chairman and board members. In the literature, they are referred to as top managers. The chairman is the person with the most authority and is responsible for all matters related to the operation of the company (Lafley, 2009, pp. 54-62). Board members, on the other hand, are most often responsible for a specific slice of the business. Although in most cases boards of directors are composed of several people, there are also situations where the management of a business entity is entrusted to only one person. Top managers are counted as stakeholders of the first order.

They exert a very strong influence on the activities of the enterprise, deciding on the most important aspects of its operation (Friedman, Miles, 2002, pp. 3-17). The nature of the work of the CEO and board members is very similar. This situation translates into the identity of the factors determining their remuneration, which are mainly included in the theory of agency and managerial authority (Aluchna, 2003, pp. 156-175).

An important issue affecting the salaries of top managers is the fact of separation of ownership and management. This issue is the subject of agency theory. The owners of the company view compensation as a way to enable them to shape the behavior and attitudes of top managers (Aluchna, 2007, pp. 27-66). Thus, they realize the motivational function of compensation. Owners, by paying managers sufficiently high amounts, aim to reduce the occurrence of: potential conflict between the principal-agent owner, information asymmetry, and the manager taking risky opportunistic actions. Managers, on the other hand - when they receive high, satisfactory salaries - should perform the function entrusted to them in accordance with the owners' expectations. Then they should not seek other ways, incompatible with the goals of the capitalists and often also with the law, to enrich themselves while performing management functions (Stępień, 2013, p. 389). The remuneration of top managers should discourage them from, among other things: dishonestly appropriating assets, making decisions that are not fully thought out, failing to fulfill the obligations contained in the contract, acting only in the short-term horizon; keeping the position despite incompetence and in order to pursue their own ambitions (Aluchna, 2007, pp. 27-66).

A very important determinant of top managers' compensation is their level of managerial power (Bebchuk, Fried, Walker, 2002, pp. 783-794). Top managers' power stems from: (1) their placement at the top of the company's decision-making and organizational hierarchy; (2) their stake in the ownership of the business entity they manage; (3) their possession of critical skills used in managing the entity; and (4) their perceived and established contacts in the professional community (Finkelstein, 1992, pp. 511-516). The more managerial power the CEO and board members have, the more influence they have over their compensation. Moreover, it should be noted that the power of top managers increases in the following situations: the presence of a submissive and ineffective board of directors, the absence of a dominant shareholder in the ownership structure, a small number of institutional shareholders and the provisions of the management contract (Grabke-Rundell, Gomez-Mejia, 2002, pp. 3-23; Stępień, 2013, p. 389).

The shape of top managers' pay is also influenced by behavioral aspects. People employed in a management body formulate their salary demands in relation to that of others employed in similar positions or in similar companies. They strive to achieve a sense that their compensation is fair. This issue is at the core of J.S. Adams' theory of pay equity (Sweeney, 1990, pp. 329-341; Juchnowicz, Kinowska, 2018, pp. 107-116; Michalkiewicz, 2009, pp. 3-16).

The above description synthetically characterizes the remuneration of those who make up the boards of public companies. The determinants and methods of calculating salaries are significantly equal to those used in determining the salaries of operational employees (Mazurkiewicz, 2014, pp. 44-51). This results in the uniqueness of the salaries of CEOs and board members compared to other employees.

3. Methods

The subject of the study was the remuneration of the members of the management boards of manufacturing companies listed on the regulated market of the Warsaw Stock Exchange. The formation of the remuneration of CEOs and board members was analyzed. In the case of CEOs, information on their individual salaries was used, while in the case of board members, the average of their salaries was calculated. The necessary data were obtained from reports published by companies, including financial statements and reports on the remuneration of board members and supervisory boards. The research sample of manufacturing companies was divided according to the level of technology used. For this purpose, information on the dominant activity of a given enterprise's PKD was used, which was obtained from the REGON Internet Database and the classification published by the Central Statistical Office in the statistical yearbook "Science and Technology" (Science and Technology in 2022, pp. 203-204). Four groups of enterprises with technological advancement were obtained: high (hereinafter: HT), medium-high (hereinafter: MHT); medium-low (hereinafter: MLT) and low (hereinafter: LT). The time scope of the study was 2016-2022. The study was conducted on a sample of 480 observations, including from the group: HT-40, MHT-149, MLT-187, LT-104. During the study, statistical tests and methods were used to verify the hypotheses. The Shapiro-Wilk test was used to test the normality of the distribution. The Kruskal-Wallis test was used to determine differences between groups of manufacturing companies. The inequality between the CEO's salary and the average board member's salary was determined using the quotient of these quantities. A similar method was used by S. Kiatpongsan and M.I. Norton (Kiatpongsan, Norton, 2014, pp. 588). In addition, descriptive statistics indicators were used in the analyses. Interpretation of the results obtained was carried out using the median.

4. Results

The study of the CEO's and board members' salaries began with an analysis of their amounts. Descriptive statistics were used for this purpose. In addition, to test the normality of the distribution, the Shapiro-Wilk test was performed. Analyses were carried out with the population divided by level of technological advancement. Table 1 presents the results of the study.

Table 1.

Distribution of the value of CEOs' and board members' salaries

Specification	HT		MHT		MLT		LT	
	CEO	BM	CEO	BM	CEO	BM	CEO	BM
N	40		149		187		104	
Mean in PLN '000	729,2	609,2	1327,6	992,7	933,7	623,2	1346,3	635,0
Median in PLN '000	708,4	626,7	<u>656,4</u>	<u>442,5</u>	736,4	492,0	833,7	456,4
Coefficient of variation	0,56	0,51	2,74	3,13	0,79	0,78	1,18	0,71
Skewness	1,4	0,2	10,6	10,6	1,7	1,7	2,5	1,1
Kurtosis	4,3	-1,1	121,0	122,3	3,6	3,5	5,8	0,3
Shapiro-Wilk								
Statistic	0,9	0,945	0,211	0,201	0,847	0,853	0,637	0,877
Sig.	0,002	0,051	<0,001	<0,001	<0,001	<0,001	<0,001	<0,001

CEO - CEO, BM - board member, bold - highest value, underline - lowest value.

Source: own compilation based on financial statements.

The highest CEO salary was diagnosed in LT companies, the lowest in MHT companies. The difference between the extremes was PLN 177.3 thousand. The most diverse group of enterprises by CEO salary was the MHT population, the calculated coefficient of variation was 2.74. In turn, the least diverse group was the one into which HT entities were classified, where the coefficient of variation was 0.56. The observed variation was respectively strong in MHT and moderate in HT. In the case of board members, their highest average salary was observed in HT, while the lowest in MHT. The difference between the values from HT and MHT was 184.2 thousand zlotys. The population with the highest differentiation in terms of the average salary of board members was the group of MHT entities, where the coefficient of variation was 3.13. With the least differentiation were HT companies, for which the coefficient of variation was 0.56. The diagnosed differentiation was strong in MHT and moderate in HT.

This was followed by an analysis of the development of CEO remuneration and the average remuneration of board members over the period 2016-2022. The results, including a breakdown of manufacturing companies by level of technological sophistication, are shown in Figure 1.

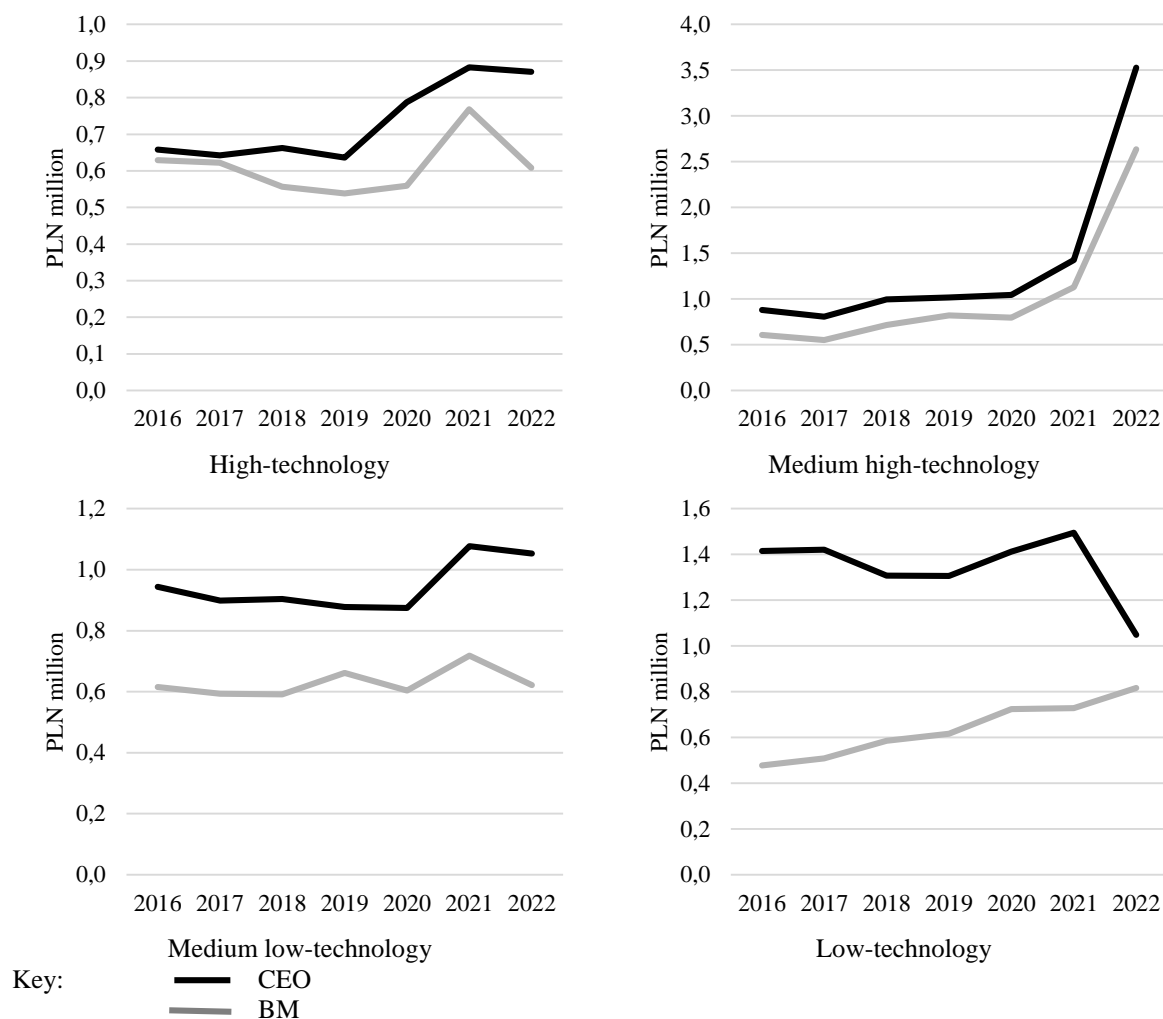


Figure 1. The evolution of CEO and board member remuneration from 2016 to 2022.

Based on the analysis of the curves, it can be concluded that the trend of CEO compensation and average compensation of board members in the 2016-2022 period was similar in HT, MHT and MLT companies. Only in the NT group such conformity was not observed. Deepening the above analysis was an examination of the correlation between these salaries. Due to the unequal nature of the groups and Shapiro-Wilk's $p < 0.05$ - according to which the distribution of variables is not normal - Spearman's non-parametric rho correlation was used. The results of the correlation analysis are presented in Table 2.

Table 2.

Correlation between CEO compensation and average board compensation

Spearman's rho	HT	MHT	MLT	LT
Correlation Coefficient	0,815	0,739	0,808	0,588
Statistical significance	<0,001	<0,001	<0,001	<0,001

Statistical significance $p < 0.01$.

Source: own elaboration.

The analysis carried out confirmed the diagnosis made on the basis of the formation of the curves. A strong positive correlation between the studied values was present in the HT, MHT and MLT enterprise groups, only in the case of LT was it moderate.

The next stage of the study focused on determining the level of inequality between the CEO's salary and the average board member's salary. For this purpose, the quotient between these values was used. The results are presented in Table 3.

Table 3.

Inequality of remuneration between CEO and board member

Specification	HT	MHT	MLT	LT
N	40	104	149	187
Mean	1,25	4,19	1,80	2,79
Median	1,17	1,40	1,42	1,36
Coefficient of variation	0,33	5,47	1,08	1,44
Skewness	1,82	11,60	7,53	3,21
Kurtosis	5,27	138,68	64,49	10,09
Shapiro-Wilk				
Statistic	0,825	0,505	0,107	0,364
Sig.	<0,001	<0,001	<0,001	<0,001

Source: own study.

The highest level of inequality between the CEO's salary and the average board member's salary was diagnosed in the MLT group of companies, while the lowest in the HT group. The population with the highest inequality in terms of the considered relationship was the one comprising MHT entities, while the least was HT.

The study of inequality along the CEO-member line was deepened with an analysis of the statistical significance of the differences. Due to the unequal nature of the groups and a Shapiro-Wilk p-value of less than 0.05, the null hypothesis (stating the normality of the distributions) was rejected and the alternative hypothesis, according to which the distribution is extremely asymmetric, was accepted. This allowed the selection of an alternative to parametric univariate analysis of variance, the non-parametric Kruskal-Wallis test. On the basis of this, it was found that there were grounds for rejecting the null hypothesis that there was no inequality in CEO- board member remuneration in a group of companies with different levels of technological sophistication: Kruskal-Wallis test value = 12.373; $p < 0.006$. This means that at least one group differs from another. To detect between which groups of companies there are significant differences, multiple comparison tests were used. The results are presented in Table 4.

Table 4.*Multiple (two-way) comparisons on pay inequality CEO - board member*

Specification	Test Statistic	Significant
HT-MHT	-75,224	0,002
HT-MLT	-77,580	0,001
HT-LT	-87,002	<0,001
MHT-MLT	-2,356	0,877
MHT-LT	11,778	0,506
MLT-LT	9,422	0,579

Source: own study.

Analysis of the results revealed significant differences between the HT group of companies and all other groups, i.e. MHT ($p = 0.002$), MLT ($p = 0.001$) and LT ($p = < 0.001$). In this case, the median inequality between CEO compensation and average board member compensation in the HT group was lower than in the other groups

On the basis of the research carried out, it was observed that CEO and board member remuneration is the least differentiated in high-tech companies. It was also diagnosed that the inequality of remuneration between CEO and board member is the smallest in the group of high-tech companies.

5. Conclusions

This article presents the results of original research - focusing on the study of the formation of the salaries of persons appointed to management positions in public companies, as well as being an extension of those already made - on the impact of technological advancement on salary inequality. In order to achieve the intended research goal and answer the research question, the research hypothesis was verified. It assumed that the smallest inequality between the CEO's salary and the average salary of board members occurs in the group of high-tech companies. The research conducted did not provide a basis for rejecting this hypothesis. The obtained result of hypothesis testing is the same as in the case of the study of salary inequality between CEO and employee and board member and employee. This allows us to conclude that the lowest inequality of wages in manufacturing companies - regardless of the parties that were compared - is found in high-technology entities.

Due to the level of originality of the research, it is difficult to make comparisons with the results of other authors. As a result, it was established how the remuneration of the management boards of manufacturing companies with different levels of technological advancement. It was also indicated how the level of this sophistication interacts with the existing inequality in remuneration between CEO and board members.

In addition to the above, in the group of highly technological advancement companies - based on the coefficient of variation - it was diagnosed that CEOs are paid at a similar level. A similar situation also applies to board members. Among the analyzed populations of enterprises, HT was also diagnosed with the strongest positive correlation between CEO remuneration and average board member remuneration. This means that, along with the fact that board members' salaries follow those of CEOs. The situation in the HT group, confirms the validity of J.S. Adams' theory of pay equity.

The research carried out makes it possible to confirm the recommendations made earlier (Mazurkiewicz, Staszal, 2024, pp. 329-336). Decision-makers should support the development of entrepreneurship focused on high-tech production. In this group of enterprises, the occurrence of the smallest wage inequalities was diagnosed. This support can take the form of fiscal policy instruments (tax breaks), monetary policy instruments (preferential loans) and educational policy instruments (ordered majors).

A limitation of the present research is the use of data from companies listed on the Warsaw Stock Exchange. However, conducting it on broader data is difficult due to issues concerning the protection of salary information. The results presented here are a contribution to the development of knowledge on the evolution of pay inequalities. They complement previous research on the relationship between CEOs and board members. At the same time, they demonstrate the existence of a positive effect of advanced technology on a different socio-economic aspect than usual. Nevertheless, this is an area where many problems have not been posed and solved.

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