University of Economics in Katowice

Studies in Risk and Sustainable Development
Ryzyko i Zrównoważony Rozwój.
Studia Uniwersytetu Ekonomicznego w Katowicach

ISSN 2720-6300 | No. **399**(2025)

Article

DOI:10.22367/srsd.2025.399.2

PROPORTION OF WOMEN ON CORPORATE BOARDS AND GENDER PAY GAP. EARLY EVIDENCE FROM THE WARSAW STOCK EXCHANGE

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Received: 25.11.2024 | Revised: 18.02.2025 | Accepted: 22.03.2025 | Available on-line: 15.04.2025

ABSTRACT

PURPOSE: This research examines how the representation of women on corporate boards and in executive positions influences the gender pay gap in Poland, using newly available ESG data from companies listed on the Warsaw Stock Exchange in 2023.

DESIGN/METHOD: A linear regression model is applied, with the gender pay gap as the dependent variable and the proportion of women in leadership roles as key independent variables. Additional controls include company size, profitability, industry sector, and geographical location.

RESULTS/FINDINGS: The results indicate that regional and sectoral factors play a significant role in wage disparities, while the presence of women in leadership positions does not necessarily lead to a reduction in the gender pay gap. The estimated coefficients for female representation on boards and among executives are negative but lack statistical significance across all model variations. Similarly, company size and profitability do not exhibit a significant effect on the gender pay gap.

ORIGINALITY/VALUE: This study provides novel insights into the relationship between female representation in corporate governance and the gender pay gap in Poland, leveraging newly available ESG data. The results highlight the need for a nuanced understanding of the complex dynamics shaping wage disparities beyond a singular focus on increasing female representation in corporate decision-making roles, which occurred to be statistically insignificant.

KEYWORDS: gender pay gap, corporate governance, women on boards, ESG reporting, Warsaw Stock Exchange.

JEL: J16, J31, M14.

Cite as: Kuryłek, W., Kowalewski, O. (2025). Proportion of women on corporate boards and gender pay gap. Early evidence from the Warsaw Stock Exchange. *Studies in Risk and Sustainable Development. Ryzyko i Zrównoważony Rozwój. Studia Uniwersytetu Ekonomicznego w Katowicach, 399*(2025), 1-12. DOI:10.22367/srsd.2025.399.2

1. INTRODUCTION

Workplace gender equality has been a longstanding issue, with the gender pay gap serving as a key indicator of persistent disparities between men and women. Understanding the relationship between female representation in corporate leadership and wage inequality is essential, as it challenges the assumption that increasing the number of women in executive positions will inherently lead to fairer pay practices – a principle underlying many corporate diversity initiatives and policy measures aimed at reducing workplace inequalities. Although the gender pay gap in Poland has been widely studied, the specific impact of female leadership representation on wage disparities remains underexplored, particularly with the introduction of new ESG reporting data that offers unprecedented transparency into corporate practices. The primary objective of this research is to determine whether a higher proportion of women on corporate boards and in executive roles is associated with a narrower gender pay gap among companies listed on the Warsaw Stock Exchange.

This study extends the existing research on gender wage disparities in Poland by assessing the link between female leadership representation and pay inequality. Utilizing the latest data available under the new CSRD reporting requirements for Warsaw Stock Exchange-listed firms in 2023, the analysis provides an up-to-date perspective within the context of increasing transparency and sustainability reporting. A linear regression framework is applied, incorporating control variables such as company size, profitability, industry sector, and geographical location, to provide a comprehensive evaluation of how leadership composition influences wage disparities. The research contributes to the broader literature on gender pay gaps and corporate governance by examining the effectiveness of increasing female leadership representation as a strategy to address wage inequality. Additionally, the findings emphasize the significance of structural and sectoral factors, which may have a greater impact on pay disparities than leadership composition alone, underscoring the need for further investigation into these determinants.

The structure of the paper is as follows: Section 2 reviews relevant literature, Section 3 builds a theoretical framework, Section 4 describes the dataset and variables and outlines the methodology, Section 5 presents and discusses the results, and Section 6 concludes with a summary of key findings and implications for future research and policy.

2. LITERATURE REVIEW

The gender pay gap cannot be entirely explained by differences in worker or employer characteristics, as a significant portion remains unaccounted for and is often attributed to wage discrimination. Numerous studies have examined this issue by analyzing wage disparities between men and women within the same occupations while controlling for various individual attributes (e.g., age, education) and firm-level factors, including company size, industry, location, and ownership structure.

Early research by Adamchik and Bedi (2003) identified industrial and occupational segregation as major contributors to the explainable portion of Poland's wage gap, though their analysis was limited to formal employment sectors, potentially underestimating broader gender-based pay disparities. Grajek (2003) found that improvements in women's skill levels accounted for nearly half of the observed reduction in the gender wage gap, positioning Poland's wage disparity close to the European average. Rokicka and Ruzik (2010) demonstrated that income inequality is more pronounced at the lower end of the earnings distribution for individuals outside formal employment, while among employees, disparities are larger at the upper end, reinforcing the 'glass ceiling' effect. Their study, however, relied on household survey data rather than administrative records. Mysíková (2012) analyzed wage gaps in the Czech and Slovak

Republics, attributing a small but positive portion of disparities to firm size and location, while identifying job characteristics as significant contributors. Notably, gender wage gaps in the Czech Republic and Slovakia were found to be wider than those in Poland and Hungary.

Several studies have explored the structural factors influencing Poland's gender wage gap within a European context. Witkowska (2013) highlighted the role of industry, ownership type, and urbanization, showing that while Poland's wage gap was relatively small compared to other EU nations and historical transitions from a planned to a market economy introduced unique dynamics. The article effectively situates Poland's experience within the broader European context by showing that Poland's gender pay gap was relatively small compared to other EU countries such as Estonia and Austria. However, the study offered limited insight into the underlying mechanisms or potential policy solutions. Goraus and Tyrowicz (2014) estimated that Poland's raw gender pay gap from 1995 to 2012 averaged 9% per hour, but when adjusted for endowments, it increased to 20%, with variations tied to economic cycles. This research demonstrated that the wage gap expands during economic growth and contracts during downturns, though further international comparisons could have enhanced the analysis. Łaszkiewicz (2016) examined both individual and regional factors affecting wage disparities, applying multilevel modeling across 35 European metropolitan areas. The study found a persistent gender wage gap of 10-11% and emphasized the significance of cross-country differences and agglomeration effects, though it lacked a broader global contextualization. Goraus et al. (2015) systematically compared different methodologies for estimating Poland's gender wage gap, revealing that a more comprehensive set of conditioning variables typically led to higher adjusted wage gap estimates (ranging from 15% to 23%). However, the study provided limited discussion on how Poland's wage gap compares internationally or how labor market institutions influence pay disparities.

Further research has investigated sectoral and firm-level variations. Gomółka (2018) found no strong correlation between regional specialization and wage disparities within Poland's ICT sector, while Kompa and Witkowska (2018) demonstrated that factors such as firm size, industry classification, and ownership significantly affected pay gaps. Their study confirmed that women earned less than men across education levels and industries, with the disparity widening over time despite higher female educational attainment. However, it primarily focused on the supply-side factors, neglecting the demand-side influences such as discrimination and cultural norms. Urbanczyk and Landmesser (2018) expanded the Oaxaca-Blinder decomposition approach using a semiparametric reweighting method, revealing that discrimination effects were more pronounced at higher income levels, consistent with the international 'glass ceiling; patterns. Despite its methodological contributions, the study could have benefited from explicit cross-country comparisons. Raszkowski and Bartniczak (2019) tracked Poland's progress on the UN's Sustainable Development Goals, finding an 8.1% increase in the gender wage gap between 2010 and 2016. Although the research provided valuable quantitative insights, a comparative analysis with other EU nations would have better contextualized these findings.

The recent studies have further examined the underlying causes of gender wage disparities. Gomółka and Zachorowska-Mazurkiewicz (2023) demonstrated that occupational segregation plays a greater role in shaping Poland's wage gap than industry segregation, diverging from findings in other EU countries where industry effects are more influential. The study highlighted that Poland's unadjusted gender pay gap (7.2% in 2016) was below the EU average (16.2%), but after adjusting for occupational and industry effects, wage disparities increased to 21% and 26%, respectively. Soszyńska-Budny et al. (2023) confirmed persistent gender inequality in Polish firms, reporting that 57% of surveyed women perceived differential treatment and stricter performance expectations, though the study relied on subjective perceptions without objective wage or promotion data. Derra et al. (2024) analyzed wage disparities in Poland's higher education sector, finding that academic institutions exhibited larger pay gaps than both the general economy and the broader education sector. Although the study effectively tracked longitudinal trends, international comparisons were limited.

The role of foreign investment in shaping wage disparities has also been explored. Magda and Sałach (2021) found that foreign-owned firms in Poland exhibited larger gender pay gaps than domestically owned firms at all income levels, particularly at the highest and lowest deciles. However, the study did not fully explain why foreign firms, despite competitive pressures, had wider wage gaps. Taylor et al. (2024) provided contrasting findings, demonstrating that foreign ownership had an equalizing effect, with EU--based firms implementing stronger gender equity policies. While the study employed advanced econometric techniques, data limitations restricted firm-level fixed effects analysis.

Despite extensive research on wage disparities, the interaction between corporate governance and wage-setting practices remains underexplored. Studies on board diversity suggest that increased female representation often correlates with stronger financial performance and improved corporate governance. Raina et al. (2024) identified an inverted U-shaped relationship between board gender diversity and the gender pay gap among top management, where pay disparities initially widened at lower female representation levels but declined beyond a 15% threshold. Nawaz (2022) analyzed FTSE350 firms, showing that gender-diverse boards tended to approve higher CEO compensation, underscoring the complexity of board composition effects on executive pay structures. However, these studies did not specifically examine corporate pay policies in Poland.

Magda and Cukrowska-Torzewska (2019) found that gender representation had varying effects across sectors, with higher female managerial representation reducing wage gaps in public institutions, while in private firms, only a higher proportion of female employees – not managers – correlated with lower disparities. These findings align with the global trends showing smaller gender pay gaps in public sectors, though Poland's private-sector dynamics differ from Western economies due to its transition history.

In response to persistent gender pay disparities, the EU Directive 2023/970 (2023) mandates pay transparency measures aimed at strengthening equal pay enforcement. By enabling employees – particularly women – to take collective action against wage discrimination, the directive is expected to improve compliance with anti-discrimination standards and enhance workplace equity.

2.1. THEORETICAL FRAMEWORK

The examination of gender pay disparities and women's presence in corporate leadership can be analyzed through multiple theoretical perspectives. The labor market segmentation theory (Doeringer & Piore, 1971) serves as a foundational framework for understanding how occupational segregation and hierarchical structures within organizations contribute to persistent wage inequalities. This theory posits that labor markets are divided into primary and secondary segments, each governed by distinct wage-setting mechanisms and career advancement prospects. Women frequently occupy positions in the secondary segment, which is characterized by lower wages and restricted mobility, even when their qualifications match those of their male counterparts (Acker, 1990).

The institutional theory (DiMaggio & Powell, 1983) offers further insight by explaining how organizational practices and structures become entrenched and resistant to reform. From this perspective, gender pay gaps persist in part because compensation practices are embedded within institutional routines and cultural norms. The presence of women in leadership roles does not necessarily lead to changes in these ingrained systems, as leaders often encounter pressures to adhere to preexisting organizational models rather than enact significant transformations.

The resource dependence theory (Pfeffer & Salancik, 2003) provides an additional lens by addressing why board diversity may not immediately influence outcomes such as pay equity. While diverse boards introduce a broader range of perspectives and resources, their capacity to drive meaningful change

depends on existing power dynamics and institutional constraints. Female board members, particularly when underrepresented, may lack the informal influence or decision-making authority required to alter compensation structures.

The social role theory (Eagly & Wood, 2012) further explains why an increase in female representation in corporate leadership does not automatically lead to reductions in wage disparities. This perspective highlights the influence of gender-based expectations regarding leadership styles and competencies, which may limit the ability of women in leadership positions to drive organizational change. Female leaders often face heightened scrutiny and must continuously affirm their legitimacy, which may discourage advocacy for controversial initiatives such as pay equity reforms.

Collectively, these theoretical approaches suggest that the link between women's leadership representation and gender pay disparities is shaped by complex institutional, cultural, and structural factors. Integrating these perspectives strengthens the conceptual framework for analyzing the persistence of gender wage inequalities within corporate settings.

3. RESEARCH DESIGN AND METHOD

The European Union established its regulatory framework for Environmental, Social, and Governance (ESG) reporting with the implementation of the Non-Financial Reporting Directive (NFRD) in October 2014 (Directive 2014/95/EU). This framework underwent significant expansion and revision through the adoption of the Corporate Sustainability Reporting Directive (CSRD) in November 2022 (Directive (EU) 2022/2464). The CSRD introduced stricter requirements and expanded the scope of entities obligated to report on sustainability, with large public-interest entities being the first required to comply starting in 2024. These entities must adhere to the European Sustainability Reporting Standards (ESRS), which establish detailed guidelines for standardized and comprehensive sustainability disclosures, addressing topics such as climate change, corporate governance, human rights, and social matters. The European Financial Reporting Advisory Group (EFRAG) was responsible for developing the ESRS. The European Commission formally adopted the initial set of these standards in July 2023. The phased implementation of the CSRD begins in 2024, varying by company size and type. Within the EU, the ESG reporting has become a core component of corporate disclosure, enhancing transparency and aligning corporate activities with the EU sustainability objectives. In Poland, the timeline for the ESRS implementation on the Warsaw Stock Exchange has been extended to January 1, 2025, as determined by the Polish Financial Supervision Authority (KNF) in alignment with the EU regulations. This extension provides additional preparation time for companies to meet the directive's intricate requirements. Consequently, as of January 1, 2024, a limited voluntary reporting was conducted for the financial year 2023, and only a portion of the ESRS standards were applied. The ESG data are provided by Notoria Serwis S.A.

The gender pay gap is quantified according to the ESRS S.1.16.97.a standard, defined as the percentage difference in average gross hourly earnings between men and women, relative to men's earnings. This standardized metric aligns with the EU reporting guidelines, ensuring comparability across firms. In 2023, data on the gender pay gap was disclosed for the first time by only 65 public companies, with no possibility of expanding this sample. Board gender diversity is assessed through two distinct indicators: 'Proportion_women_boards' and 'Proportion_women_executives', representing the percentage of women in governance and executive roles, respectively. These measures differentiate between board-level oversight and operational leadership representation. Control variables were selected based on the established determinants of wage structures, including company size, regional and industry effects, and profitability measures. Company size is captured through three alternative metrics – employment, net

sales, and total assets in 2023 – to reflect variations in the organizational scale and business models. The financial data, including assets and net sales, are expressed in thousands of PLN, with net sales reflecting total revenues for production firms, the banking operating result for banks, and the insurance operating result for insurers. Geographic wage differences are accounted for using a binary variable indicating the company's voivodeship headquarters location, while industry effects are controlled through three-digit sector codes from the Warsaw Stock Exchange classification, detailed in the Appendix. Profitability is measured through the Return on Equity (ROE) and the Return on Assets (ROA) to capture financial performance factors that may influence compensation policies. Given that all the firms in the dataset are publicly listed, company type (public vs. private) is not a relevant distinction, and city size is excluded as a variable due to most firms being headquartered in Poland's metropolitan areas. This set of controls ensures a robust analysis of the relationship between gender representation and wage disparities, while accounting for the key structural and financial characteristics that may affect compensation practices.

Table 1. Descriptive statistics

	Obs.	Mean	Std. Dev.	Min.	Max.
Gender pay gap	65	0.14	0.11	-0.08	0.38
Proportion women boards	64	0.20	0.14	0.00	0.60
Proportion women executives	65	0.19	0.14	0.00	0.57
Employment	61	7,951	12,748	284	66,554
Net_sales [thous, PLN]	64	19,432,820	62,726,690	125,749	372,767,000
Assets [thous, PLN]	64	52,430,970	134,280,300	183,075	825,765,000
ROE	64	0.13	0.13	-0.16	0.52
ROA	64	0.05	0.05	-0.07	0.20

Source: Notoria Serwis S.A., own calculations.

The average gender pay gap is 14.19%. The highest recorded gender pay gap, 37.82%, pertains to Apator S.A., a company specializing in the manufacturing and sale of measuring devices and systems in both domestic and international markets. Conversely, the smallest gender pay gap, recorded at -8.40% (indicating that women earn 8.4% more than men), is associated with PKP Cargo S.A., a provider of rail freight logistics and transportation services in Poland and internationally, currently undergoing court-supervised restructuring.

To address the potential loss of degrees of freedom when treating categorical variables as dummies, these variables are grouped into binary categories based on the gender pay gap values. The constructed binary variables are defined as follows:

$$Region = \begin{cases} 1 \; if \; Vojevodship \; is \; Kuyavian - Pomeranian, Lower \; Silesian, Lubusz \; or \; Swietokrzyskie \\ 0 \;\; in \; other \; case \end{cases} \quad (1)$$

and

$$\text{Sector} = \begin{cases} 1 \; if \; WSE\_code \in \{0, 1, 5\} \\ 0 \; in \; other \; case \end{cases} \quad (2)$$

A value of 1 is assigned to the WSE_codes corresponding to the Financial Sector, Food and Consumer Goods Production, and the Unclassified Sector. The average gender pay gap associated with each state of these variables is detailed in Table 2. A binary value of 1 indicates categories – whether regions or sectors – where the gender pay gap is comparatively higher. The category binning is determined through an algorithm designed to minimize variance in the gender pay gap within each bin while maximizing the disparity between bins.

Table 2. Binned categorical variables

Value	Region		Industry	
	count	mean	count	mean
0	54	0.13	42	0.12
1	11	0.21	23	0.18

Source: Notoria Serwis S.A., own calculations.

To ensure coefficient comparability, all the independent variables are normalized to the [0,1] interval using the MinMax scaling transformation, defined as:

$$X_{transformed} = (X - X_{min})/(X_{max} - X_{min}) \tag{3}$$

3.1. METHOD

A linear regression framework is employed with the Gender_pay_gap variable as the dependent measure, utilizing the transformed independent variables that include Region, Sector, and either the Proportion_women_boards (in models indexed as "a") or the Proportion_women_executives (in models indexed as "b"). The variables controlling company size and profitability in 2023 are also incorporated. Size is represented alternatively by Employment (in Models 2a and 2b), Net Sales (in Models 3a and 3b), or Assets (in Models 4a and 4b), with sales expressed in millions of PLN. Profitability is evaluated using either the Return on Equity (ROE) or the Return on Assets (ROA).

To confirm the appropriateness of the Ordinary Least Squares (OLS) estimation method, the assumptions of homoscedasticity and residual normality are assessed, as outlined by Kmenta (1986). The Breusch-Pagan test is applied to check for homoscedasticity, while the Shapiro-Wilk test, suited for small sample sizes, is used to verify the normality of residuals. The statistical inference relies on the t-test for the evaluation of individual coefficient significance and the F-test to assess the joint significance of all coefficients. Additionally, the Wald test is conducted to examine the joint significance of variables related to the gender composition of decision-making bodies alongside size and profitability controls.

4. RESULTS AND DISCUSSION

The Breusch-Pagan test does not provide evidence to reject the null hypothesis of homoscedastic residuals across all the models. Similarly, the Shapiro-Wilk test confirms the normality of residuals in each case, supporting the validity of OLS assumptions. The regression results for the respective models are summarized in Tables 3 and 4.

Table 3. Models of the gender pay gap with the proportion of women in boards as an explanatory variable

	Model 1a		Model 2a		Model 3a		Model 4a		Model 5a		Model 6a	
	stat		stat		stat		stat		stat		stat	
Const	0,13	***	0,12	***	0,13	***	0,13	***	0,14	***	0,17	***
Region	0,09	*	0,09	***	0,09	**	0,09	***	0,08	**	0,09	***
Sector	0,06	**	0,07	**	0,06	**	0,06	**	0,06	**	0,06	***
Proportion_women_boards	-0,08		-0,08		-0,07		-0,08		-0,06		-0,07	
Employment			0,00									
Net Sales					-0,03							
Assets							0,07					
ROE									-0,03			
ROA											-0,10	*
n	64		60		63		63		63		63	
Adj. R2	0,16		0,17		0,13		0,14		0,14		0,17	
F test	5,12	***	3,96	***	3,39	***	3,61	***	3,42	***	4,26	***
Breuche-Pagan test	2,65		3,38		2,24		1,95		2,92		3,22	
Shapiro-Wilk test	0,99		0,98		0,99		0,99		0,99		0,99	
Wald test	0,87		1,12		0,77		1,14		0,82		2,23	

Notes: *, **, *** statistical significance 10%, 5% and 1%, respectively.

Source: Notoria Serwis S.A., own calculations.

Table 4. Models of the gender pay gap with the proportion of women among executives as an explanatory variable

	Model 1b		Model 2b		Model 3b		Model 4b		Model 5b		Model 6b	
	stat		stat		stat		stat		stat		stat	
Const	0,12	***	0,11	***	0,12	***	0,11	***	0,13	***	0,15	***
Region	0,08	**	0,08		0,08	**	0,08	**	0,07	**	0,07	**
Sector	0,06	*	0,07	***	0,06	**	0,06	**	0,06	**	0,06	**
Proportion_women_executives	-0,03		-0,03		-0,01		-0,02		-0,01		-0,01	
Employment			-0,03									
Net Sales					-0,03							
Assets							0,06					
ROE									-0,04			
ROA											-0,09	
n	65		61		64		64		64		64	
Adj. R2	0,13		0,13		0,10		0,11		0,1		0,13	
F test	4,26	***	3,23	**	2,80	**	2,87	**	2,82	**	3,29	**
Breuche-Pagan test	0,66		1,25		0,81		0,55		0,97		2,28	
Shapiro-Wilk test	0,98		0,98		0,98		0,98		0,98		0,99	
Wald test	0,25		0,29		0,16		0,28		0,19		0,99	

Notes: *, **, *** statistical significance 10%, 5% and 1%, respectively.

Source: Notoria Serwis S.A., own calculations.

Both the Region and Sector variables exhibit statistical significance (p-values below 0.05) and are associated with substantial regression coefficients. In contrast, for the models including the proportion of women on corporate boards or the proportion of women among executives as explanatory variables, the coefficients for these gender representation metrics are negative and relatively large in magnitude in the first class of models. However, these coefficients fail to achieve the statistical significance in all instances. The control variables for company size, measured by Employment, Net Sales, and Assets, as well as profitability indicators such as ROE and ROA, display statistically insignificant coefficients, with varying directions of effect. Furthermore, the Wald test is employed to assess the joint significance of the variables related to gender composition in decision-making bodies and the controls for company size and profitability. The test results indicate that these two sets of variables are not jointly statistically significant.

The expectation that a higher proportion of women in corporate decision-making bodies might reduce the gender pay gap is not supported by the findings. Despite being the central variables of interest, the lack of statistical significance suggests that merely increasing female representation on boards or among executives does not directly translate into narrowing the pay gap. This could be attributed to the limited influence women may hold in these roles, given that the proportion of women on boards and among executives ranges from 0% to approximately 60%, with an average of only 20% (as shown in Table 1). These results may also point to the greater impact of structural factors or corporate policies over representation alone. The significance of the Region variable highlights geographical disparities in workplace equality, potentially driven by differences in cultural norms, legislation, or economic conditions. The consistent significance of the Sector variable underscores the varying degrees of gender inequality across industries. For example, in Poland's financial sector, women may be disproportionately represented in lower-paying roles such as customer service, administration, or entry-level positions. Similarly, in the food and consumer goods production sector, women may predominantly occupy positions in quality control, packaging, or clerical work, which are typically less remunerative than the technical, engineering, or managerial roles often held by men. These observations suggest the need for further research to better understand these sectoral and structural dynamics.

Based on the institutional theory (DiMaggio & Powell, 1983) and the resource dependence theory (Pfeffer & Salancik, 2003), the analysis indicates that a higher proportion of women on corporate boards does not independently lead to a significant reduction in the gender pay gap within Polish firms. This suggests that the entrenched institutional practices and existing power structures may limit the extent to which female leaders can influence wage equity. The findings are consistent with the labor market segmentation theory, which highlights structural constraints, as regional and sectoral characteristics were found to have a greater effect on wage disparities than board composition.

The findings also align with some aspects of the prior research, such as the significance of regional and sectoral factors in explaining wage disparities (Gomółka, 2018 Kompa & Witkowska, 2018; Witkowska, 2013). However, the current study's key variables of interest – the proportion of women on boards and among executives – do not show a statistically significant impact on reducing the gender pay gap. This contrasts with the expectations based on literature suggesting that greater gender diversity in corporate governance can lead to improved outcomes related to sustainability and equality (Ben-Amar et al., 2015; Isidro & Sobral, 2015).

The lack of a significant relationship between female representation in decision-making roles and the gender pay gap provides a nuanced perspective, highlighting that merely increasing the number of women in these positions may not automatically translate into reduced wage disparities. This finding aligns with some recent studies, such as Cucari et al. (2018), which suggest that the mere presence of women on boards does not guarantee enhanced ESG outcomes.

5. CONCLUSIONS

This study offers new perspectives on the relationship between female representation in corporate leadership and the gender pay gap in Poland, drawing on newly available ESG data from companies listed on the Warsaw Stock Exchange in 2023. The findings highlight the complexity of the link between board gender diversity and ESG performance, demonstrating that an increase in female board representation does not necessarily result in a reduction in pay disparities. This aligns with the prior research, such as Cucari et al. (2018), which found that board diversity alone does not guarantee improved ESG outcomes. The results suggest that addressing wage disparities requires a more comprehensive approach, incorporating corporate policies, industry practices, and regional factors rather than relying solely on increased female representation in leadership roles.

The influence of regional and sectoral factors on wage disparities is consistent with previous studies, emphasizing the ongoing impact of geographical and industry-specific conditions on gender inequality in the workplace. However, the absence of a statistically significant relationship between female representation on boards or in executive roles and the gender pay gap raises questions about the effectiveness of focusing exclusively on leadership diversity as a strategy for achieving pay equity. These findings underscore the importance of structural factors, including occupational segregation and corporate policies, in sustaining wage disparities. While female participation in corporate governance remains a crucial aspect of gender equality, other organizational and institutional mechanisms may exert a stronger influence on compensation practices.

Several limitations of this research should be considered. The reliance on data from a single year (2023) may reflect short-term economic conditions, regulatory shifts, or social trends specific to that period, limiting broader applicability. Additionally, the exclusive focus on Poland provides valuable insights into the national context but restricts generalizability to other countries with different corporate cultures, legal frameworks, and societal norms regarding gender equality. Furthermore, the small sample size of 65 companies raises concerns regarding statistical power and representativeness, as more nuanced relationships between female leadership and wage disparities may remain undetected.

Future research could extend this analysis by examining how variations in caring responsibilities and social policies across European regions influence both female representation in corporate leadership and gender pay gaps. The key factors for consideration include differences in childcare infrastructure, parental leave policies, cultural norms regarding work-life balance, and societal expectations related to family care duties. A comparative approach would provide a broader understanding of how structural and cultural contexts shape gender equality in leadership and compensation across different national and regional settings.

Further research is needed to delve deeper into the sectoral and structural dynamics at play. Investigating the specific roles and positions held by women within different industries, as well as the impact of corporate policies and practices on gender equality, could provide valuable insights into the persistent gender pay gap. Additionally, exploring the influence of cultural norms, legislation, and economic conditions at the regional level may shed light on the geographical disparities in workplace equality. Moreover, future studies could examine the qualitative aspects of female representation in corporate decision-making, such as the actual influence and authority wielded by women in these positions, rather than focusing solely on numerical representation. Longitudinal research tracking the evolution of the gender pay gap and female representation over time could also provide a more comprehensive understanding of the dynamics at play.

APPENDIX

Sector classification codes used by the Warsaw Stock Exchange (1-st digit of three digits):
0: 'Unclassified Sector',
1: 'Financial Sector',
2: 'Energy Sector',
3: 'Chemicals, Mining, Metallurgy',
4: 'Construction, Industrial Manufacturing',
5: 'Food and Consumer Goods Production',
6: 'Trade, Media, and Recreation',
7: 'Healthcare and Pharmaceuticals',
8: 'Telecommunications, IT, and Software'.

ACKNOWLEDGEMENTS

We thank the Editor and two anonymous reviewers who provided valuable comments which improved our manuscript.

FUNDING I Not applicable.

CONFLICTS OF INTERESTS I The Author declares no conflict of interest.

DATA AVAILABILITY STATEMENT I Not applicable.

AUTHOR CONTRIBUTIONS I Not applicable.

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