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# THE ADOPTION OF ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG)-LINKED EXECUTIVE REMUNERATION AND THE ROLE OF GENDER DIVERSITY: THE CROATIAN EXPERIENCE

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## ABSTRACT

This paper investigates how Environmental, Social, and Governance (ESG) principles are integrated into executive remuneration systems and examines whether the inclusion of ESG-related performance criteria is associated with the gender composition of management boards in large Croatian listed companies. The purpose of the study is to enhance understanding of how sustainability goals and gender diversity are reflected in executive compensation practices within a post-transition EU economy. The research applies a mixed-method design combining (1) descriptive trend analysis of board gender composition for the 2020–2024 period and (2) directed qualitative content analysis of remuneration policies to identify the presence and type of ESG indicators. The paper is structured into five sections: introduction, literature review, methodology, results with discussion, and conclusion with implications. The findings show a modest increase in female board representation, although men remain dominant throughout the period. ESG-related goals were included in only 54% of company-year observations, with social and governance indicators prevailing, while environmental metrics were almost absent. The analysis identifies a moderate negative correlation between female representation and the inclusion of ESG-related criteria in remuneration, suggesting that gender diversity does not serve as a driver of sustainability-linked pay in this context. The results indicate that Croatian companies have only partially aligned their remuneration practices with EU sustainability expectations and often apply ESG criteria in a broad, non-measurable form. The study's findings can support companies in improving the specificity and measurability of ESG indicators in variable remuneration, assist supervisory boards in strengthening oversight of sustainability-linked pay, and inform policymakers as they refine national ESG reporting and remuneration frameworks.

## 1. INTRODUCTION

Corporate governance and sustainability have become central to modern business models, driven by increasing regulatory, investor, and societal demands for transparency, accountability, and ethical management. Gender diversity on management boards has likewise gained prominence as a key dimension of sustainable corporate governance and decision-making quality. In recent years, the integration of Environmental, Social, and Governance (ESG) criteria into corporate governance, particularly through the inclusion of ESG metrics in executive remuneration, has become a central topic in both policy and academic debates, reflecting growing regulatory pressure and investor expectations (Dell'Erba & Ferrarini, 2024; Cohen et al., 2023).

The European Union has embedded sustainability considerations into corporate regulation through the Directive (EU) 2017/828 on the encouragement of long-term

shareholder engagement (European Parliament & Council, 2017) and the Directive (EU) 2022/2464 on corporate sustainability reporting (European Parliament & Council, 2022). These directives require greater transparency in remuneration policies, especially in how performance criteria align with long-term interests and sustainability. They also expand non-financial reporting obligations to better align executive incentives with long-term corporate responsibility. In Croatia, the transposition of these directives is still evolving. The core regulatory foundation in Croatia is the Companies Act (consolidated version, 2022). It defines the general responsibilities of management boards and supervisory boards, including the obligation to act in the company's best long-term interest does not explicitly mandate the inclusion of ESG objectives in remuneration frameworks. Instead, ESG considerations are indirectly addressed through corporate governance recommendations and reporting obligations. The 2025 Code of Corporate Governance encourage linking remuneration with non-financial and sustainability indicators, but implementation remains largely voluntary (HANFA & Zagreb Stock Exchange, 2025). As the Directive (EU) 2022/2464 on corporate sustainability reporting (European Parliament & Council, 2022) is incorporated into national law, the connection between ESG performance and executive pay is expected to strengthen. Furthermore, the upcoming Directive (EU) 2023/970 (European Parliament & Council, 2023) on pay transparency will require companies to disclose variable pay components (bonuses, benefits) by gender and to conduct joint pay assessments where unjustified pay gaps exist. This regulatory development strengthens the case for integrating gender-diversity targets and ESG/DOP criteria into variable remuneration systems. This alignment ensures that executive incentives reflect not only financial outcomes but also corporate responsibility and long-term sustainability.

However, despite the growing regulatory attention and a surge in empirical research across Western Europe, there is limited evidence on how ESG principles are integrated into remuneration systems in smaller EU markets (Freshfields Bruckhaus Deringer LLP, 2022; Lu, 2023), particularly in post-transition economies such as Croatia. Hence, the Kearney (2024) study reveals that although awareness of sustainability has increased, most Croatian companies remain at an early stage of ESG maturity. The initiatives are largely concentrated on environmental aspects while social and governance dimensions, particularly those linked to diversity, transparency, and responsible remuneration, are underdeveloped. This imbalance highlights structural challenges in embedding ESG principles into corporate strategies and incentive systems.

In this regard, the Croatian context provides a unique case for examining how European regulatory expectations on sustainability and responsible remuneration are interpreted and operationalized in a smaller, post-transition capital market

The purpose of this paper is to explore the integration of Environmental, Social, and Governance (ESG) principles into executive variable remuneration systems and to examine whether there is a relationship between the presence of ESG-related performance criteria and the gender composition of management boards in

selected Croatian companies. The study aims to contribute to the understanding of how sustainability and gender diversity are reflected in corporate governance and compensation practices within the national context.

This research contributes to filling a significant empirical and conceptual gap by providing systematic analysis of the relationship between board gender composition and the inclusion of ESG objectives in executive remuneration systems among Croatian listed companies.

To clarify the focus and direction of this study, the central research questions are presented:

RQ(1): How has the gender composition of management boards in Croatian companies evolved between 2020 and 2024?

RQ(2): To what extent are ESG-related goals incorporated into executive variable remuneration systems?

RQ(3): Which ESG components (E, S, or G) are most frequently represented in remuneration structures?

RQ(4): Is there an observable relationship between the gender composition of management boards and the inclusion of ESG objectives in remuneration policies?

RQ(5): To what degree do Croatian companies' remuneration practices reflect European ESG guidelines and trends in sustainable corporate governance?

This study adds to the growing literature on gender diversity and ESG integration by offering evidence from a smaller post-transition EU market, where such analyses remain less common. The findings highlight that, unlike in many mature markets, gender representation on management boards is not positively associated with the inclusion of ESG criteria in executive remuneration. The study also provides insight into how Croatian companies interpret EU sustainability expectations, showing that ESG integration in remuneration remains uneven and oriented primarily toward social and governance aspects.

The results suggest that Croatian companies still apply ESG criteria in executive remuneration selectively and often broadly, indicating a need for clearer and measurable indicators. Management boards and supervisory bodies could strengthen the structure and transparency of ESG-related performance criteria, especially in light of increasing EU requirements. The limited link between gender diversity and ESG-related pay further highlights the need to embed sustainability objectives more explicitly into governance and remuneration practices.

For boards of directors, the study points to the importance of establishing clear ESG performance measures and applying them consistently within executive compensation frameworks. Supervisory boards can play a key role in aligning remuneration practices with long-term sustainability goals and EU guidelines. For policymakers, the findings point to the need for clearer implementation support and standardised ESG reporting and remuneration frameworks to facilitate stronger alignment with European sustainability standards.

## 2. LITERATURE REVIEW

Recent research has increasingly explored the relationship between gender diversity in corporate leadership and the integration of sustainability and ESG principles into governance and remuneration systems.

Based on a sample of S&P Global 1200 firms covering the period 2011–2022, Tahat and Hassanein (2024) find that higher female representation in corporate leadership improves ESG disclosure through greater transparency and accountability, particularly when supported by dedicated sustainability committees. Xin et al. (2025) provide international evidence that board gender diversity reforms enhance corporate social responsibility (CSR) performance, particularly in countries with greater gender equality and higher ESG risk exposure. However, the reforms weaken the link between CSR outcomes and future financial performance, indicating that gender diversity primarily strengthens social responsibility rather than immediate value creation. Pathiranaige et al. (2025) analyse global hospitality and tourism firms listed on the Thomson Reuters Eikon Refinitiv database and find that greater gender diversity in leadership significantly enhances environmental performance. Achieving a critical mass of about one-third female representation is associated with stronger environmental outcomes and broader adoption of sustainable practices. Daga and Singh (2025) show that the impact of board gender diversity on corporate greenhouse gas emissions varies across institutional contexts. In the United Kingdom, greater female representation on management boards—particularly when aligned with strong ESG performance—significantly reduces emissions, while in India the effect is weaker due to less mature governance systems and sociocultural constraints. The findings underline the role of institutional strength and ESG integration in enabling gender-diverse management boards to drive meaningful environmental outcomes.

According to Dell’Erba and Ferrarini (2024) the link between gender diversity in management boards and the inclusion of ESG objectives in executive remuneration has received minimal attention in the European literature. Nonetheless, several recent studies focused on Europe shed light on the broader relationship between board gender diversity and sustainability practices. Using a sample of 1,935 firm-year observations from European nonfinancial listed companies between 2014 and 2022, Gavana et al. (2025) find that the impact of board gender diversity on ESG disclosure depends on governance structures and national contexts. Female directors strengthen ESG transparency, particularly in firms with strong institutional frameworks and culturally diverse management boards. Lepore et al. (2024) show that among European listed companies, female board representation significantly improves circular economy (CE) disclosure. The effect is strongest in firms facing greater ESG controversies, indicating that gender-diverse management boards are more proactive in sustainability communication under stakeholder pressure. Wu et al. (2024) find that greater female representation on German corporate boards enhances environmental, social, and overall ESG performance, particularly following the “Act on Equal

Participation.” However, female directors have no significant impact on governance-related outcomes. Safiullah et al. (2022) show that in Spanish firms, greater board gender diversity improves accounting-based but lowers market-based performance. Gender-diverse management boards also exhibit higher risk-taking, suggesting that female directors enhance decision-making dynamism and firm adaptability in evolving regulatory contexts. In general, prior empirical research largely supports the view that greater gender diversity on corporate boards is associated with stronger ESG and CSR outcomes, particularly in institutional environments characterised by robust governance frameworks and regulatory enforcement. However, the evidence is not uniform. Several studies indicate that the strength and direction of this relationship depend on contextual factors such as governance quality, regulatory pressure, and the overall maturity of sustainability practices. This suggests that the influence of board gender diversity on sustainability-related outcomes is not universal but contingent on the institutional and organisational setting in which firms operate.

Cicchiello et al. (2021) concluded that greater gender diversity on corporate boards, particularly the presence of women, enhances the quality and transparency of non-financial and sustainability reporting, strengthening overall CSR and ESG performance. The study was conducted on the sample of 369 companies from Africa and Asia. The study by Nguyen and Thai (2022) found that appointing the first female director in Japanese firms significantly increases women’s representation at lower managerial levels and improves CSR performance, especially in the human-resource dimension, thus illustrating how board gender diversity can catalyse broader organisational and social responsibility changes. Using firm-level data from Japan, Fan et al. (2023) find that companies with female outside directors have significantly lower carbon emissions, indicating that external female board members play a stronger role in promoting environmental responsibility. This effect is not observed for inside directors, suggesting that board independence amplifies the sustainability impact of gender diversity. Qian and Deng (2025) find that in China, women leaders’ engagement in corporate social responsibility (CSR) is shaped by cultural values such as Confucian harmony, empathy, and collectivism, which both encourage and constrain gender-driven sustainability leadership. Chu (2024) shows that in Chinese firms, board gender diversity significantly enhances green technology innovation, particularly when at least three women serve on the board, supporting the critical mass theory. Female executive directors have a stronger influence and contribute to reducing carbon emissions, underscoring their role in promoting sustainability innovation. Abdelkader et al. (2024) find a negative link between board gender diversity and ESG performance in South African firms, largely mediated by short-term orientation. This effect weakens with longer board tenure and in family firms focused on long-term goals, highlighting how cultural and institutional factors shape the BGD–ESG relationship in developing economies.

Recent evidence also links gender diversity to executive pay structures. Mishra (2025) finds that female directorship increases CEO pay-performance sensitivity and

the use of equity-based incentives while reducing total compensation, indicating that female directors promote stronger alignment between CEO pay and firm performance. These findings show how gender-diverse management boards strengthen governance and accountability, an area still underexplored in smaller EU markets such as Croatia.

Vrdoljak Raguž et al. (2019) note that although Croatia has adopted national and EU frameworks to promote gender equality in corporate governance, implementation remains weak, and real progress depends on broader cultural and organizational transformation. Empirical evidence from Croatian listed companies shows that women still occupy only around 17% of board positions, with little progress over the past decade. Although gender diversity is widely linked to better performance and corporate responsibility, Croatian firms continue to face structural and cultural barriers, as well as limited policy support for improving gender balance (Tipurić et al., 2015). Expanding on this perspective, Vrdoljak Raguž (2024) argues that sustainable advancement toward balanced governance requires inclusion and diversity to be deeply embedded in corporate culture and leadership development pathways. The study conducted by Tadić et al. (2025) has shown a significant association between the gender composition of corporate boards and the quality of financial reporting in Croatian listed companies. Specifically, management boards with a balanced or “tilted” gender structure, where women comprise up to 40% of members, are more likely to produce higher-quality financial reports, reflected in unqualified audit opinions. Conversely, male-dominated (uniform) boards are correlated with lower reporting quality. Furthermore, the research on Croatia’s ICT sector shows that women on corporate boards enhance governance effectiveness through improved communication, ethical decision-making, and coordination. Their presence is positively correlated with business transparency, innovation capacity, and sustainable growth. Moreover, female board members are more likely to initiate and promote corporate social responsibility (CSR) and environmental sustainability policies, integrating social and ecological considerations into strategic management (Đundek Kokotec et al., 2022).

To clarify why board gender diversity may influence the inclusion of ESG-related criteria in executive remuneration, this study draws on stakeholder theory, agency theory, and institutional theory, with complementary insights from upper echelons theory.

From a stakeholder theory perspective, corporate boards are expected to balance the interests of multiple stakeholder groups rather than focus solely on shareholder value (Freeman & McVea, 2001; Donaldson & Preston, 1995). ESG objectives are inherently stakeholder-oriented, as they reflect social, environmental, and ethical concerns. Prior research suggests that gender-diverse boards tend to be more attentive to such concerns, which may increase support for linking executive incentives to ESG-related performance criteria as a means of promoting long-term sustainability (Freeman et al., 2010). Agency theory views executive remuneration as a key governance mechanism for aligning managerial behaviour with long-term organisational objectives (Jensen & Meckling, 1976; Eisenhardt, 1989). The inclusion

of ESG metrics in variable pay can therefore be interpreted as an attempt to mitigate short-termism and strengthen accountability beyond purely financial outcomes. Gender-diverse boards, often associated with stronger monitoring and more cautious decision-making, may be more inclined to support such incentive structures.

From an institutional theory perspective, the adoption of ESG-related remuneration is shaped by regulatory, normative, and mimetic pressures (DiMaggio & Powell, 1983; Scott, 2014). In the European context, increasing regulatory emphasis on sustainability creates incentives for firms to incorporate ESG criteria into executive pay. However, institutional theory also highlights that the strength of this relationship depends on the maturity of national governance systems and the degree to which ESG practices are embedded in corporate routines. Finally, upper echelons theory suggests that board characteristics influence strategic choices through directors' values and cognitive frames (Hambrick & Mason, 1984). While gender diversity may shape how sustainability priorities are interpreted and translated into governance mechanisms such as remuneration design, these effects are likely to be context-dependent, particularly in settings where ESG-related practices are still evolving.

While the literature on board gender diversity and ESG outcomes has expanded, executive remuneration remains underexplored as a mechanism linking diversity and sustainability objectives. Evidence from smaller and post-transition EU economies is particularly scarce, making it unclear whether findings from mature markets apply to the integration of ESG criteria into executive pay systems.

### **3. METHODOLOGY**

#### *3.1. Research Design*

This research applies a mixed-method design that integrates quantitative and qualitative approaches to examine the relationship between gender diversity and the inclusion of Environmental, Social, and Governance (ESG) objectives in executive remuneration systems. Quantitative analysis captures measurable trends in gender representation on management boards across a five-year period (2020–2024). Qualitative content analysis provides a deeper understanding of how ESG principles are incorporated into remuneration criteria. It interprets the qualitative nature of ESG criteria in remuneration systems. Each company's remuneration policy and remuneration statement for the 2020–2024 period was systematically reviewed to identify references to ESG-related performance criteria. Text segments referring to performance assessment, sustainability objectives, or non-financial targets were extracted and coded manually according to predefined categories derived from the ESG framework:

E (Environmental): references to environmental protection, energy efficiency, emissions reduction, or resource management.

S (Social): references to employee engagement, satisfaction, diversity, safety, or social responsibility.

G (Governance): references to ethics, compliance, transparency, or corporate conduct.

The coding framework is presented in the Table 1.

**Table 1.** The Coding Framework for ESG Components in Remuneration Descriptions

<b>ESG Dimension</b>	<b>Definition / Coding Criteria</b>	<b>Typical Indicators and Keywords</b>	<b>Example from Data</b>
Environmental (E)	Includes references to environmental protection, resource efficiency, carbon reduction, sustainable operations or products.	Energy efficiency, emissions, waste reduction, renewable energy, sustainability strategy, environmental goals.	“Targets related to reducing energy consumption and promoting green initiatives.”
Social (S)	Covers aspects related to employees, workplace culture, diversity, training, customer satisfaction, and community engagement.	Employee satisfaction, corporate culture, diversity, training, occupational safety, community, customer experience.	“Focus on employee engagement and strengthening corporate culture.”
Governance (G)	Refers to compliance, ethics, risk management, transparency, corporate reputation, and governance efficiency.	Business ethics, compliance, transparency, risk control, corporate reputation, board oversight.	“Objectives related to strengthening compliance and ethical standards.”

Each remuneration statement was coded 1 if at least one ESG element was explicitly included as part of the performance criteria for executive variable pay, and 0 if none were identified. The frequency of each ESG dimension was calculated to determine which component (E, S, or G) was most prevalent. Given the qualitative and non-standardised nature of remuneration disclosures, ESG integration was operationalised using binary coding, which enables a transparent and comparable identification of the presence of ESG-related remuneration practices, rather than their intensity or quality.

The analysis followed a three-step process:

Extraction of all text segments describing performance evaluation or variable pay criteria;

Manual coding of identified segments according to the ESG coding frame (E, S, or G);

Review and harmonization of coded data to eliminate overlaps and ensure category consistency.

This approach follows the framework of Hsieh and Shannon (2005), allowing for a structured and replicable identification of ESG dimensions within executive remuneration systems. Reliability was ensured through intra-coder validation. The same researcher repeated the coding procedure after a two-week interval and compared the results to assess stability and minimize interpretive bias. Minor discrepancies were re-evaluated and harmonized. Validity was further reinforced through data triangulation across multiple public disclosure sources.

Descriptive statistics provide an overview of gender distribution and ESG inclusion frequencies. This mixed-method approach is particularly suitable for exploring emerging governance phenomena such as ESG integration, which require both statistical trends and interpretative insights. Such integration reflects a growing understanding in corporate governance research that complex social and institutional dynamics cannot be fully captured by numbers alone and require complementary contextual interpretation (Chen et al., 2023).

### *3.2. Sample and Data Sources*

The final sample included ten large and transparent companies listed on the Zagreb Stock Exchange (ZSE), selected from a range of industries such as hospitality, banking, telecommunications, trade, manufacturing, and professional services. As these firms represent 45% of all large listed companies that continuously operated and disclosed complete financial and remuneration reports during the 2020–2024 period, the sample can be considered representative of Croatia's most significant and transparent corporate segment.

The unit of analysis is a company-year observation, resulting in a total of 50 observations (10 companies × 5 years). Primary data were manually collected from publicly available annual, remuneration statements and remuneration policies posted on the official ZSE portal and company websites. These documents served as the foundation for both quantitative data (gender structure of management boards) and qualitative data (narrative descriptions of performance criteria and ESG references in remuneration policies).

### *3.3. Analytical Framework*

The analytical framework was designed to ensure a systematic alignment between research questions and methodological techniques, enabling both descriptive and interpretive insights into ESG-related remuneration practices.

**Table 2.** Analytical Alignment with Research Questions

Research Question	Analytical Technique	Unit of Analysis	Expected Output
RQ1: How has the gender composition of management boards evolved between 2020 and 2024?	Descriptive trend analysis (frequencies and percentages)	Company-year	Gender diversity trend
RQ2: To what extent are ESG-related goals incorporated into executive remuneration systems?	Quantitative content analysis (binary coding: 1 = ESG included, 0 = not included)	Company-year	Proportion of ESG inclusion
RQ3: Which ESG components (E, S, or G) are most frequently represented in remuneration structures?	Directed content analysis (qualitative categorization of textual data)	Company	Frequency distribution of ESG dimensions
RQ4: Is there a relationship between gender representation and ESG inclusion?	Descriptive comparison (cross-sectional analysis) The Pearson correlation coefficient was calculated to test the association between the percentage of women on management boards and the presence of ESG-related objectives in executive remuneration systems.	Company	Comparative overview of gender representation by ESG inclusion status
RQ5: To what degree do Croatian remuneration practices align with EU ESG standards?	Comparative interpretative analysis	Aggregate	Thematic synthesis and discussion

Note: The Pearson correlation analysis is used as a descriptive and exploratory tool and does not imply causal relationships.

Given the relatively small sample size and the use of descriptive and correlation-based analyses, the findings should be interpreted with caution. The applied methodology allows for the identification of associations and patterns, but it does not support strong causal inferences regarding the relationship between board gender composition and the inclusion of ESG criteria in executive remuneration.

#### 4. RESEARCH RESULTS

The first step of the empirical analysis focuses on gender representation within management boards. By examining annual changes between 2020 and 2024, authors seek to identify whether Croatian listed companies demonstrate any upward trend in female participation in executive decision-making roles.

Table 3 presents the distribution of male and female members of management boards in the analysed companies over the 2020–2024 period. The table represent the total number of management board members across all sampled companies in a given year.

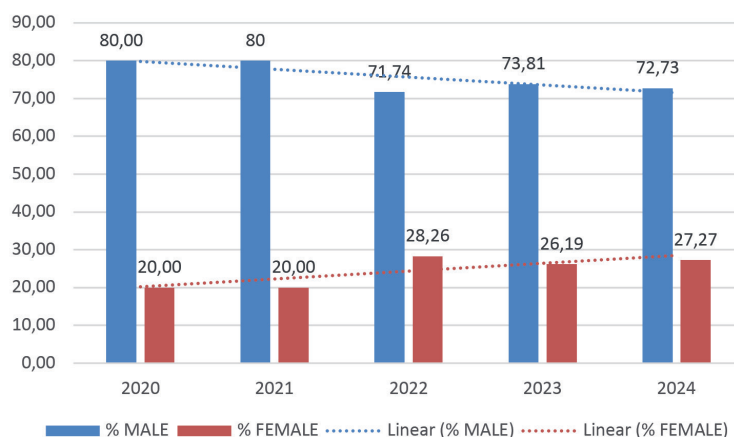
**Table 3.** Trend in gender representation among management board members, 2020–2024

Year	Male	Female	Total	% Male	% Female
2020	32	8	40	80.00	20.00
2021	32	8	40	80.00	20.00
2022	33	13	46	71.74	28.26
2023	31	11	42	73.81	26.19
2024	32	12	44	72.73	27.27
TOTAL	160	52	212	75.47	24.53

Source: Author's calculation based on company data (2020–2024)

The same is presented graphically.

**Figure 1.** Trend in gender representation among management board members, 2020–2024



Source: Author's calculation based on company data (2020–2024)

The analysis of the gender structure of management boards in the ten analysed companies reveals a persistent dominance of male members throughout the 2020–2024 period. As shown in Table 3, the proportion of men consistently exceeded 70% in all observed years, with the overall share amounting to 75.47% male and 24.53% female board members.

Despite the clear gender imbalance, a modest upward trend in female representation can be observed. The share of women increased from 20% in 2020 and 2021 to 27.27% in 2024, suggesting a gradual, but limited improvement in gender diversity at the executive level.

To address the second research question, the analysis examines the extent to which ESG-related objectives are included in the variable remuneration systems of the analysed companies.

Table 4 shows the presence of ESG-related goals in executive remuneration systems in the 2020–2024 period. ESG = 1 indicates that at least one ESG-related performance criterion was explicitly included in executive variable remuneration in a given company-year, while ESG = 0 indicates the absence of any ESG-related criteria.

**Table 4.** Presence of ESG-related goals in executive remuneration systems (2020–2024)

Year	Total companies	ESG = 1	ESG = 0	% ESG present
2020	10	5	5	50.0
2021	10	5	5	50.0
2022	10	5	5	50.0
2023	10	5	5	50.0
2024	10	7	3	70.0
TOTAL	50	27	23	54.0

Source: Author's calculation based on company data (2020–2024).

The analysis indicates that ESG-related objectives have been only partially integrated into executive remuneration structures among Croatian listed companies. As shown in Table 4, between 2020 and 2024 an average of 54% of the analysed firms included at least one ESG-related criterion in their variable remuneration systems.

The proportion of companies linking executive pay to ESG performance remained stable at 50% from 2020 to 2023 but increased notably to 70% in 2024, reflecting a clear upward shift in the adoption of sustainability and non-financial goals within incentive schemes.

The third research question explores which ESG components—environmental (E), social (S), or governance (G)—are most frequently represented in executive pay structures. This analysis provides qualitative insight into the types of sustainability goals that Croatian companies prioritise when linking executive performance to non-financial objectives. A single company-year observation could include more than one ESG dimension (E, S, and/or G). In cases where remuneration disclosures referred to ESG objectives in general terms without specifying a particular dimension, the indicator was classified as 'ESG (unspecified)' and analysed separately. The results are presented in Table 5.

**Table 5.** Frequency of ESG components in executive remuneration systems (2020–2024)

ESG component	Number of occurrences	% of total ESG mentions
Environmental (E)	1	1.9 %
Social (S)	25	46.3 %
Governance (G)	15	27.8 %
ESG (unspecified)	13	24.1 %
Total	54*	100.0 %

\*The total number of ESG mentions exceeds the number of ESG-linked company-year observations because a single remuneration policy could include multiple ESG components (e.g. both social and governance criteria). Percentages therefore refer to the share of total ESG mentions, not company-year observations.

Source: Author's calculation based on company data (2020–2024).

The results show that social (S) factors were the most frequently mentioned, accounting for 46.3% of all ESG-related references. These were primarily associated with employee-related objectives, such as satisfaction, engagement, and diversity. Governance (G) elements appeared in 27.8% of the cases, typically referring to ethical conduct, compliance, and corporate culture. Environmental (E) criteria were only rarely mentioned (1.9%), indicating a limited integration of environmental performance into executive pay. Additionally, a substantial share (24.1%) of references were classified as ESG (unspecified), meaning that the remuneration policies referred to “ESG objectives” in general terms without identifying a specific dimension.

To examine the relationship between gender representation on management boards and the inclusion of ESG-related performance objectives in variable remuneration systems, a descriptive comparison was conducted (Table 6).

**Table 6.** Descriptive comparison of gender representation on management boards and the inclusion of ESG-related performance objectives (2020–2024)

ESG inclusion	N (company-year)	Average % of women on boards	% of total sample
ESG = 1	27	40.38 %	9.91 % (of all board members)
ESG = 0	23	59.62 %	14.62 % (of all board members)
Total	50	—	100 %

Source: Author's calculation based on company data (2020–2024).

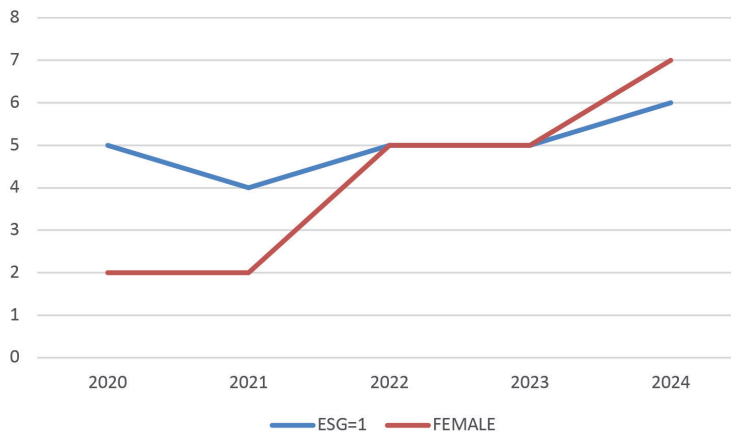
As shown in Table 6, the proportion of women on the management boards of companies that included ESG-related performance objectives in executive remuneration systems (ESG = 1) averaged 40.4%, compared to 59.6% in companies without such objectives (ESG = 0). Furthermore, women serving on boards of ESG-

RELATED firms represented only 9.91% of all board members in the total sample. These results indicate that gender-diverse boards were not necessarily more likely to integrate ESG-related criteria into executive pay structures.

In addition to the descriptive comparison, a Pearson correlation analysis was performed to examine the relationship between the proportion of women on management boards and the inclusion of ESG-related performance objectives in remuneration systems. The results indicate a moderate negative and statistically significant correlation ( $r = -0.458$ ,  $p < 0.01$  ( $p = 0.0008307$ )), suggesting that firms with higher female representation on their boards were less likely to include ESG-related performance criteria in executive pay structures.

To further illustrate the observed dynamics between ESG-related remuneration and gender representation, Figure 2 presents the yearly trends in the number of companies integrating ESG criteria and the number of women in those companies.

**Figure 2.** Trends in ESG-related remuneration and women representation (2020–2024)



Source: Author's calculation based on company data (2020–2024).

Figure 2 illustrates that both the adoption of ESG-related remuneration systems and the representation of women in companies implementing them have increased over time. This parallel movement suggests that the growing integration of sustainability goals within executive pay structures may coincide with gradual improvements in gender balance, although the relationship is not necessarily causal.

The fifth research question examines the extent to which remuneration practices of Croatian listed companies align with European standards and contemporary trends in integrating ESG principles into executive compensation systems.

The analysis of remuneration disclosures indicates that Croatian companies have only partially aligned their executive pay practices with European ESG frameworks. Although references to sustainability and social responsibility are increasingly present,

ESG objectives are rarely defined through measurable, performance-linked indicators as required by the Directive (EU) 2022/2464 and Directive (EU) 2017/828.

The findings suggest that the integration of ESG principles into remuneration policies in Croatia remains largely formal and focused on the social dimension, with limited incorporation of environmental or governance criteria. Consequently, while a convergence with European trends can be observed at the declarative level, the substantive alignment of remuneration practices with EU ESG standards is still in its early stages.

## 5. DISCUSSION

The results of this study provide important insights into the relationship between gender diversity, ESG integration, and executive remuneration within the Croatian context, and they position these findings in relation to prior international research.

The finding that women constitute roughly one quarter of management board members, with only modest improvement between 2020 and 2024, aligns closely with prior evidence for post-transition economies. Studies covering Central and Eastern Europe consistently document persistent structural and cultural barriers that slow down gender inclusion in top leadership roles (Tipurić et al., 2015; Vrdoljak Raguž et al., 2019). Even in more recent analyses, such as Vrdoljak Raguž (2024), progress in Croatia is portrayed as incremental and heavily shaped by organisational culture rather than regulatory pressure alone. While there is evidence of incremental progress, the overall pace of change remains slow, and female participation in corporate leadership continues to lag behind the European average. The Croatian trend fits the broader pattern of slow-moving convergence typical for post-transition contexts.

While ESG considerations have become increasingly widespread, only about half of the companies consistently applied such criteria across the observed period, suggesting that the institutionalisation of sustainability-based remuneration in Croatia is still at a relatively early stage of development. These findings are consistent with international studies observing variability in early-stage ESG adoption. Freshfields Bruckhaus Deringer (2022) and Lu (2023) note that ESG-RELATED pay is unevenly implemented across Europe and remains especially weak in smaller, less mature markets. Similarly, Dell'Erba & Ferrarini (2024) emphasise that even in Western Europe the integration of sustainability into remuneration practices differs widely between companies, with “symbolic” or declarative ESG references being common.

Companies tend to focus primarily on social and governance aspects of sustainability, while environmental factors remain marginal in executive compensation structures. The strong emphasis on social and governance indicators in remuneration structures aligns partially with previous findings suggesting that female directors often advocate for improved workplace culture, transparency, and CSR-related outcomes (Pathirana et al., 2025; Đundek Kokotec et al., 2022). However, in

the present sample, these tendencies did not translate into more frequent inclusion of ESG goals in variable pay. One explanation may be that ESG considerations in Croatia are still primarily embedded in strategic documents and reporting practices. Remuneration policies, by contrast, tend to remain formalistic and only loosely connected to broader sustainability commitments, which aligns with Kearney's (2024) observations on the uneven development of ESG practices in Croatian firms.

While many studies highlight the positive role of gender-diverse boards in enhancing ESG performance and transparency (Tahat & Hassanein, 2024; Xin et al., 2025; Gavana et al., 2025), the present analysis does not confirm such an association in Croatian listed companies. Instead, a moderate negative and statistically significant correlation was identified, indicating that, within this context, firms with higher female representation were less likely to include ESG-related criteria in executive pay. This divergence may suggest that the mechanisms linking gender diversity and sustainability outcomes observed in mature markets may not operate similarly in post-transition economies.

Several institutional and contextual factors may explain this discrepancy. Research conducted in developing or transitioning markets (Abdelkader et al., 2024; Qian & Deng, 2025) shows that cultural norms, weaker governance systems, and limited sustainability maturity can constrain the influence of female directors on ESG decision-making. These dynamics align with Croatia's early-stage ESG adoption, where companies tend to incorporate ESG objectives mainly in response to regulatory requirements rather than through proactive, board-driven initiatives.

The near absence of environmental criteria in remuneration systems also deviates from findings in markets where environmental performance is increasingly tied to executive incentives (e.g., Pathirana et al., 2025). This may indicate that Croatian firms may still lack the operational capabilities, metrics, or regulatory expectations needed to meaningfully integrate environmental objectives into executive pay frameworks. Instead, ESG references often remain generic and largely concentrated on internal social factors, which are easier to measure and integrate.

Finally, while EU directives are pushing companies toward stronger alignment between remuneration and sustainability goals, the findings suggest that Croatian companies have so far adopted only a partial and declarative approach. This reflects broader patterns identified in regional literature (Vrdoljak Raguž, 2019; Tipurić et al., 2015), where policy frameworks exist but cultural and organizational transformation progresses slowly.

The study's findings indicate that the positive governance effects attributed to gender diversity in international literature may not automatically materialize in settings where ESG systems are still emerging. Instead, the Croatian landscape demonstrates the importance of institutional maturity, regulatory pressure, and internal governance capacity as key determinants of ESG integration into executive remuneration.

## 6. CONCLUSION

This study examined the integration of ESG principles into executive remuneration systems and explored whether the presence of ESG-related performance criteria is associated with the gender composition of management boards in Croatian listed companies. The findings should be interpreted with caution, as the analysis is based on a relatively small sample and relies on descriptive and correlation-based methods, which do not allow for strong causal interpretation.

The results show a modest increase in female participation on management boards between 2020 and 2024, although women remain significantly underrepresented. ESG-related objectives were incorporated into remuneration structures in only about half of the observed company-year cases, with a notable rise in 2024, reflecting growing regulatory expectations. However, ESG criteria were used selectively and often in broad terms, with social and governance indicators far more common than environmental ones.

Contrary to much of the international literature, which suggests that gender-diverse management boards tend to promote stronger sustainability practices, the results do not indicate a positive association between gender representation and ESG-related remuneration within the observed sample. Instead, a moderate negative correlation was identified, suggesting that contextual factors, such as institutional maturity, cultural norms, and early-stage ESG adoption, may shape the extent to which gender diversity is reflected in remuneration design in transitional economies.

While Croatian companies have begun aligning with EU governance and sustainability frameworks, the findings suggest that the adoption of ESG-related pay practices remains uneven and largely formalistic, indicating that substantive integration is still in its developmental phase.

The shift toward EU-wide sustainability frameworks presents Croatian firms with an opportunity to strengthen internal governance, improve transparency, and build more credible sustainability capabilities. However, the findings also reveal challenges, including limited ESG maturity, the dominance of qualitative rather than quantitative indicators, and a weak link between board diversity and remuneration design. Addressing these challenges will require stronger institutional support, improved data systems, and clearer integration of sustainability targets into executive accountability mechanisms.

The findings of this study offer indicative insights with potential relevance for corporate decision-makers, supervisory boards, and policymakers involved in the design and oversight of executive remuneration systems. Given the exploratory nature of the analysis and the limited sample size, the following recommendations should be interpreted as suggestive rather than prescriptive.

First, the results suggest that companies may benefit from developing clearer, quantifiable, and performance-linked ESG indicators to support a more systematic integration of sustainability goals into executive remuneration. In particular,

strengthening environmental metrics, which are currently underrepresented, could improve alignment with CSRD requirements and broader EU sustainability priorities.

Second, supervisory boards may consider reinforcing their oversight role by ensuring that ESG objectives included in variable pay are meaningful and aligned with long-term corporate strategy, including enhanced transparency and clearer links between disclosed ESG goals and measurable outcomes.

Third, the findings indicate that policymakers and regulatory bodies could support companies by providing more detailed guidance and standardized frameworks for ESG-related remuneration, which may facilitate more consistent and substantive convergence with EU governance standards.

Finally, as gender diversity alone does not appear to drive ESG integration in pay structures, companies may benefit from embedding sustainability responsibilities directly into leadership roles and governance processes. By strengthening internal capacities and aligning remuneration with strategic sustainability priorities, Croatian firms can advance toward more responsible and future-oriented corporate governance practices.

These findings contribute to the broader corporate governance and ESG literature by illustrating that relationships between gender diversity and sustainability-linked remuneration observed in mature markets do not automatically transfer to post-transition contexts. The results reinforce the importance of institutional maturity and regulatory development as contingent factors shaping how board characteristics influence sustainability outcomes. In this sense, the Croatian evidence supports a contextual and institutional perspective, suggesting that governance effects attributed to gender diversity depend heavily on the surrounding policy environment, organisational capabilities, and market expectations.

For corporate boards and supervisory bodies, the results suggest a potential need to move beyond formalistic references to ESG and to progressively translate sustainability priorities into more concrete and measurable performance indicators. In particular, greater attention to environmental criteria and improved specificity of social and governance metrics may contribute to closer alignment with emerging EU expectations. From a policy perspective, the findings indicate that clearer guidance, capacity-building initiatives, and further standardisation of ESG-related remuneration frameworks could support the gradual development of more substantive adoption. Investors may also draw on these insights as an initial reference when assessing whether disclosed ESG incentives reflect underlying sustainability strategies or remain largely symbolic.

This study is subject to several limitations. The sample includes only large listed Croatian companies, which restricts generalisability to smaller firms or privately held entities. The reliance on publicly disclosed remuneration statements may not fully capture internal evaluation criteria or informal sustainability practices. While the results provide valuable insights into emerging patterns and relationships, they do not allow for causal interpretation. Future research based on larger samples, longitudinal

designs, or multivariate modelling could provide stronger evidence on causal mechanisms. The qualitative coding of ESG elements, although validated, inevitably carries a degree of interpretive subjectivity. Finally, the study covers a period in which Croatia's ESG framework was still evolving, meaning that relationships observed here may shift as regulatory implementation matures.

Future research could expand the sample and include cross-country comparisons with other post-transition economies to identify broader institutional patterns. Studies conducted after full implementation of the CSR Directive and the Pay Transparency Directive could assess whether regulatory pressure strengthens the link between gender diversity and ESG-related remuneration. Qualitative methods, such as interviews with board members may also help clarify internal decision-making processes, while the use of quantitative ESG performance metrics would enable more precise testing of the mechanisms connecting governance, remuneration, and sustainability outcomes.

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