

THE RELATIONSHIP BETWEEN THE STRATEGIC ROLE OF THE SUPERVISORY BOARD AND THE INTEGRATION OF SUSTAINABILITY GOALS

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ABSTRACT

Sustainability has emerged as a key aspect of corporate governance, with boards playing a key role in the formulation, evaluation, and even the implementation of corporate sustainability strategies. This paper investigates the relationship between the level of supervisory board involvement in the company's strategy and the integration of sustainability goals. To investigate this relationship, a mixed-method triangulation empirical study was conducted on a sample of 44 supervisory boards and 7 supervisory board members of non-financial public interest entities in Croatia. Both quantitative and qualitative research phases confirm the existence of significant positive relationship between the level of supervisory board involvement in the company's strategy and the integration of sustainability goals. This relationship is positively moderated by the diversity in knowledge and experience of board members, while both quantitative and qualitative data failed to establish such an effect for both board independence and gender diversity, and qualitative data failed to confirm initial quantitative research finding for board size.

Key words: board involvement, corporate sustainability, strategy, moderation analysis.

1. INTRODUCTION

While primarily focused on governments, the United Nations 2030 Agenda for Sustainable Development recognizes the importance of meaningful positive contribution from the corporate sector. However, numerous economic activi-

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ties, not only the oil and gas industry, negatively contribute to the realization of the Agenda's 17 Sustainable Development Goals¹. While a reason for such disappointing results might be a lack of awareness of the influence of corporates throughout their sometimes very complex value chains, much of it can be attributed to the shareholder maximization paradigm and its cynical view of human society combined with a myopic view of the planet's resources. In either case, corporate governance mechanisms need to offer potential solutions to this problem. Some agreement among researchers has been reached on the idea that a systemic integration of sustainability goals in corporate strategies is required to reverse the negative impact of corporates.

Considering their power to influence strategic decisions, supervisory boards, staples of the Continental and Japanese corporate governance system, are best positioned to promote effective integration of sustainability in corporate agendas. There are two main reasons for this. First, the executives are usually selected for their capacity to deliver on financial and technological aspects of the business, which indicates absence or, at least, deficit of corporate sustainability talent among them. Second, sustainability initiatives are often detrimental to short-term financial results, which are the main concern for investors, and therefore, the top management of the company. On the other hand, supervisory board members are less preoccupied by investors' expectations and are much more concerned with the overall resilience and the long-term prospects of the company, which should be enhanced by corporate sustainability initiatives.

There is still some scientific debate over whether supervisory boards should be, and whether they are, active participants in corporate strategic decision-making processes: the formulation, evaluation, and even the implementation stage². The normative part of the debate is lately dominated by proponents of active boards, but case study evidence offers a much more complex reality, i.e. varying levels of board strategic involvement. This may also explain varying levels of sustainability goals integration into business models of corporates worldwide, especially considering isomorphic pressures shaping modern boards of directors. Therefore, this study primarily aims to determine whether the level of board involvement in strategy is related to the level of integration of sustainability goals in corporates. The strength of this relationship is possibly influenced by the breadth of knowledge and experience manifested through board size as well as by certain board demographics. Therefore, the study also investigates whether supervisory board size and certain elements of board

¹ Mazutis, D., Hanly, K., Eckardt, A.: Sustainability (Is not) in the Boardroom: Evidence and implications of attentional voids, *Sustainability*, 14(14) 2022, pp. 8391.

² Talaulicar, W. Q., Judge, T.: Board Involvement in the Strategic Decision-Making Process: A Comprehensive review, *Annals of Corporate Governance*, 2(2) 2017, p. 62.

composition, such as proportion of independent supervisory board members, proportion of female supervisory board members and diversity in knowledge and experience of supervisory board members, moderate the relationship between board involvement and sustainability integration.

2. THEORETICAL BACKGROUND AND HYPOTHESES

Corporate sustainability initiatives create meaningful and lasting outcomes for organizations and their stakeholders only when embedded in corporate strategies³⁴⁵⁶, which is still a challenge for many organizations⁷⁸. Consistent with the theoretical assumptions of the stakeholder theory, inclusion of stakeholders in organizational strategies is recognized as one of the key mechanisms for sustainability integration⁹¹⁰. With their ability to understand complex and diverse stakeholders' interests, supervisory boards, compared to executive managers, are much better suited for this task¹¹. Also, as opposed to the managers, usually prioritizing short-term financial results in their decision-making processes¹²,

³ Nguyen, H. L., Kanbach, D. K.: Toward a view of integrating corporate sustainability into strategy: A systematic literature review, *Corporate Social Responsibility and Environmental Management*, 31(2) 2023, p. 971.

⁴ Bonn, I., Fisher, J.: Sustainability: the missing ingredient in strategy, *Journal of Business Strategy*, 32(1) 2011, p. 12.

⁵ Fonseca, A., Abreu, I., Silvestre, W. J.: Investigating context factors in the strategic management of corporate sustainability integration, *Journal of Cleaner Production*, 314 2021, pp. 128002.

⁶ Orazalin, N., Baydauletov, M.: Corporate social responsibility strategy and corporate environmental and social performance: The moderating role of board gender diversity, *Corporate Social Responsibility and Environmental Management*, 27(4) 2020.

⁷ Baumgartner, R. J., Rauter, R.: Strategic perspectives of corporate sustainability management to develop a sustainable organization, *Journal of Cleaner Production*, 140(1) 2016, p. 87.

⁸ Silvestre, W. J., Fonseca, A., Morioka, S. N.: Strategic sustainability integration: Merging management tools to support business model decisions, *Business Strategy and the Environment*, 31(5) 2022, p. 2052.

⁹ Schneider, L., Wallenburg, C. M., Fabel, S.: Implementing sustainability on a corporate and a functional level, *International Journal of Physical Distribution & Logistics Management*, 44(6) 2014, p. 487.

¹⁰ Oertwig, N. et al.: Integration of Sustainability into the Corporate Strategy, in: Stark, R., Seliger, G., Bonvoisin, J. (eds.): *Sustainable production, life cycle engineering and management*, Cham: Springer International Publishing AG, 2017, p. 179.

¹¹ Squires, B. P., Elnahla, N.: The roles played by boards of directors: an integration of the agency and stakeholder theories, *Transnational Corporations Review*, 12(2) 2020, p. 135.

¹² Smulowitz, S., Cossin, D., Lu, H.: Managerial Short-Termism and Corporate Social performance: the moderating role of external monitoring, *Journal of Business Ethics*, 188(4) 2023, p. 759.

supervisory boards can take a long-term view of the business. Therefore, they are expected to influence and even pressure the managers into including sustainability initiatives into corporate strategies¹³, which usually creates positive financial outcomes only in the long run. This ability of the board to influence the behavior of the management is especially important for achieving a meaningful integration of sustainability into business operations¹⁴. The main hypothesis of this study assumes that there is empirically provable evidence of a positive relationship between the level of supervisory board involvement in corporate strategies and the level of strategic integration of sustainability initiatives:

H1: Supervisory board involvement in strategy is positively related to the integration of sustainability goals.

Board size has been well recognized as an internal governance factor deeply influencing board involvement¹⁵. Resource dependence theory points to a positive link between board size and its social capital¹⁶. Enlarged board social capital enhances access to information and therefore improves stakeholder understanding. This in turn is expected to strengthen the link between the supervisory board involvement in strategy and incorporation of sustainability initiatives in corporate agendas. Finally, there is strong empirical evidence of a positive relationship between board size and corporate sustainability^{17,18}, between board size and ESG¹⁹, and between board size and the extent of CSR practices²⁰. Therefore, the second hypothesis posits the following moderating effect:

¹³ Velte, P.: Meta-analyses on Corporate Social Responsibility (CSR): a literature review, *Management Review Quarterly*, 72(3) 2021, p. 636.

¹⁴ Yuriev, A., Boiral, O.: Sustainability in the boardroom: A systematic review, *Journal of Cleaner Production*, 442 2024, pp. 141187.

¹⁵ Hendry, K. P., Kiel, G. C., Nicholson, G.: How Boards Strategise: A Strategy as Practice View, *Long Range Planning*, 43(1) 2009, p. 35.

¹⁶ Pfeffer, J., Salancik, G.: *The External Control of Organizations: A Resource Dependence Perspective*, New York: Harper & Row, 1978, p. 168.

¹⁷ Ludwig, P. W., Sassen, R.: Which internal corporate governance mechanisms drive corporate sustainability?, *Journal of Environmental Management*, 301 2022, pp. 113780.

¹⁸ Chams, N., García-Blandón, J.: Sustainable or not sustainable? The role of the board of directors, *Journal of Cleaner Production*, 226 2019, p. 1078

¹⁹ Birindelli, G. et al.: Composition and activity of the Board of Directors: Impact on ESG performance in the banking system, *Sustainability*, 10(12) 2018, pp. 4699.

²⁰ Ntim, C. G., Soobaroyen, T.: Corporate Governance and Performance in Socially Responsible Corporations: New Empirical Insights from a Neo-Institutional Framework, *Corporate Governance an International Review*, 21(5) 2013, p. 484.

H2: Supervisory board size positively moderates the relationship between the supervisory board involvement in strategy and the integration of sustainability goals.

Advocating the hiring of independent directors as a mechanism to strengthen the board's control role has long been the main concern of agency theorists²¹. This idea is largely based on the notion of independent board directors' careers and not dependent on the CEO²². But independent directors are beneficial for the board's strategic role as well. Operating with a high degree of autonomy from both the shareholders and the executive management, independent supervisory board members are more likely to take stakeholder interests into consideration²³. There is also strong empirical evidence of a positive relationship between board independence and corporate sustainability^{24,25}. Therefore, the third hypothesis, based on the assumptions of the stakeholder theory, assumes the following moderating effect:

H3: Greater independence of the supervisory board positively moderates the relationship between the supervisory board involvement in strategy and the integration of sustainability goals.

In terms of board tasks, most significant differences between men and women are in areas of communication styles, personal values, diligence, and the development of sustainability initiatives²⁶. Women have historically been the under-represented gender in boardrooms. Therefore, increasing the proportion of women in supervisory boards translates into increased board diversity, which improves board decision-making processes²⁷, and especially the

²¹ Fama, E. F., Jensen, M. C.: Separation of ownership and control, *The Journal of Law and Economics*, 26(2) 1983, p. 320.

²² De Villiers, C., Naiker, V., Van Staden, C. J.: The effect of board characteristics on firm environmental performance, *Journal of Management*, 37(6) 2011, p. 1642.

²³ Ortas, E., Álvarez, I., Zubeltzu, E.: Firms' Board Independence and Corporate Social Performance: A Meta-Analysis, *Sustainability*, 9(6) 2017, pp. 1006.

²⁴ Minciullo, M., Zaccone, M. C., Pedrini, M.: The Antecedents of Corporate Sustainability Performance: A study on Generic and Sustainability-Related Corporate Governance Mechanisms, *Sustainability*, 14(15) 2022, pp. 9761.

²⁵ Ludwig, P. W., Sassen, R.: Which internal corporate governance mechanisms drive corporate sustainability?, *Journal of Environmental Management*, 301 2022, pp. 113780.

²⁶ Gallego-Álvarez, I., Rodríguez-Domínguez, L.: Board of directors and environmental practices: the effect of board experience, culture, and tenure, *Environment Development and Sustainability*, 27 2023, p. 1647.

²⁷ Lu, J., Herremans, I. M.: Board gender diversity and environmental performance: An industries perspective, *Business Strategy and the Environment*, 28(7) 2019, pp. 1449.

implementation of environmentally friendly strategies²⁸. Resource dependence theory links the increasing board diversity to higher social capital which in turn produces better stakeholder relationships²⁹. There is also strong empirical evidence of a positive link between a higher proportion of women on corporate boards and sustainability performance^{30,31,32}. Consequently, the fourth hypothesis postulates the following:

H4: A higher proportion of women in the supervisory board positively moderates the relationship between the supervisory board involvement in strategy and the integration of sustainability goals.

The second most investigated type of diversity in board studies, after gender diversity, is board members knowledge and experience diversity. Creating sustainability-competent boards means recruiting directors who as a team can tackle diverse sustainability-related problems while assessing them from economic, environmental, and social perspectives³³, especially during their involvement in sustainability strategy authorization. Therefore, it is only logical that director interlocks enhance the level of sustainability-related knowledge of board members required for sustainability strategic integration which positively influences organizational environmental performance³⁴. Scientific literature confirms that board members' level of knowledge and experience is positively related to the level of board involvement in strategy³⁵, and to corporate social

²⁸ Glass, C., Cook, A., Ingersoll, A. R.: Do women leaders promote sustainability? Analyzing the effect of corporate governance composition on environmental performance, *Business Strategy and the Environment*, 25(7) 2015, p. 495.

²⁹ Hillman, A. J., Dalziel, T.: Boards of Directors and Firm performance: Integrating agency and resource dependence perspectives, *Academy of Management Review*, 28(3) 2003, p. 388.

³⁰ Provasi, R., Harasheh, M.: Gender diversity and corporate performance: Emphasis on sustainability performance, *Corporate Social Responsibility and Environmental Management*, 28(1) 2020, p. 134.

³¹ Byron, K., Post, C.: Women on Boards of Directors and Corporate Social Performance: A Meta-Analysis, *Corporate Governance an International Review*, 24(4) 2016, p. 436.

³² Wu, Q., Furuoka, F., Lau, S. C.: Corporate social responsibility and board gender diversity: a meta-analysis, *Management Research Review*, 45(7) 2021, p. 956

³³ Ceres: SYSTEMS RULE: *How Board Governance Can Drive Sustainability Performance*, Boston: Ceres Inc, 2018, p. 8.

³⁴ Ortiz-de-Mandojana, N., Aragon-Correa, J. A.: Boards and Sustainability: The Contingent Influence of Director Interlocks on Corporate Environmental Performance, *Business Strategy and the Environment*, 24(6) 2013, p. 513

³⁵ Barroso-Castro, C., Villegas-Periñan, M. M., Domínguez, M. J. G.: Board members' contribution to strategy: The mediating role of board internal processes, *European Research on Management and Business Economics*, 23(2) 2017, p. 82.

responsibility³⁶, a parallel, but divergent concept from corporate sustainability. Therefore, the fifth hypothesis presumes the following:

H5: Greater diversity in supervisory board knowledge and experience positively moderates the relationship between supervisory board involvement in strategy and the integration of sustainability goals.

3. RESEARCH METHOD AND SAMPLE

Empirical research was based on methodological triangulation, which was conducted in two sequential phases: quantitative and qualitative, from March to June 2024. The population included 98 non-financial Croatian public interest entity supervisory boards with 503 members in total. The final sample in the quantitative research phase consisted of 44 supervisory boards and 57 supervisory board members. Microsoft Excel and SPSS were used to process the collected data in the quantitative phase. Inferential statistics included simple linear regression and moderation analysis using multiple linear regression.

Primary data for the quantitative phase was collected through a questionnaire which was disseminated to supervisory board members email addresses via Google Forms platform. Levels of board involvement in strategy were measured using the following five statements³⁷ aiming to determine the degree to which supervisory board is: (1) often making suggestions to improve strategic decisions; (2) initiating strategy proposals; (3) making decisions on long-term strategies and main goals; (4) implementing strategy decisions; (5) controlling and evaluating strategy decisions. A Likert scale was used in the surveys, with 5 representing very high agreement. The Cronbach's alpha for this variable was .925. Strategic integration of sustainability initiatives was measured using a scale³⁸ describing the following levels of integration: (1) sustainability is fully embedded in the strategic actions and decision making processes of the organization; (2) sustainability has led to operational efficiencies and is bringing additional value to the organization; (3) sustainability has led to operational efficiencies and is helping senior management better understand strategic op-

³⁶ Harjoto, M. A., Laksmana, I., Lee, R.: Board Diversity and Corporate Social Responsibility, *Journal of Business Ethics*, 132(4) 2015, p. 654.

³⁷ Barroso-Castro, C, Villegas-Periñan, M. M., Domínguez, M. J. G.: Board members' contribution to strategy: The mediating role of board internal processes, *European Research on Management and Business Economics*, 23(2) 2017, pp. 85.

³⁸ Ballou, B. et al.: Exploring the Strategic Integration of Sustainability Initiatives: Opportunities for Accounting Research, *Accounting Horizons*, 26(2) 2012, p. 274.

portunities; (4) sustainability initiatives are being undertaken and the organization is investigating additional initiatives; (5) sustainability initiatives have not really gained any traction at the organization and continue to be a struggle to implement. Levels of supervisory board members knowledge and experience diversity were measured using the following three statements³⁹: (1) our board members represent diversity with regard to functional background (e.g. sales, finance, accounting, market); (2) our board members represent diversity with regard to industrial background (e.g. manufacturing, telecommunication, finance); (3) our board members represent diversity with regard to educational background (i.e. educational disciplines and degrees). A Likert-type scale was used in the surveys, with 7 representing very high agreement. The Cronbach's alpha for this variable was .72. Secondary data for the first research phase was obtained from Info.biz - Financial Agency's business information portal, Top 10 - a Central Clearing & Depository Company's registry, the national Court registry, and annual reports of companies in the sample.

The research model used five control variables: company size, industrial affiliation, ownership concentration, orientation of top management towards sustainability and financial performance of the company. Company size was measured as a linear transformation (ln) of company assets in million Euro's. The companies were classified as per the National classification of activities 2007 Edition. Ownership concentration was measured using the following six variables: (1) percentage of ownership in the hands of insiders (members of top management); (2) percentage ownership in the hands of the supervisory board; (3) percentage of ownership in the hands of the largest individual owner; (4) percentage of ownership in the hands of the three largest shareholders; (5) percentage of ownership in the hands of the five largest shareholders; (6) percentage of ownership of all owners with at least 5% ownership. Orientation of top management towards sustainability, as perceived by supervisory board members, was measured using the following nine statements⁴⁰: (1) businesses need to spend more money on environmental protection; (2) resources should not be devoted to environmental protection because a firm's profitability will be harmed; (3) in the future, environmental protection should be seen as a part of a firm's „bottom line“; (4) business leaders ought to be leading environmental protection efforts; (5) we must protect the environment even if it means that

³⁹ Kanadlı, S. B., Zhang, P., Kakabadse, N. K.: How job-related diversity affects boards' strategic tasks performance: the role of chairperson, *Corporate Governance: The International Journal of Business in Society*, 20(4) 2020.

⁴⁰ Pagell, M., Gobeli, D. H.: How Plant Managers' Experiences and Attitudes Toward Sustainability Relate to Operational Performance, *Production and Operations Management*, 18(3) 2009, p. 291.

jobs in our community will be lost; (6) businesses need to spend more money on employee well-being; (7) resources should not be devoted to employee well-being because a firm's profitability will be harmed; (8) in the future, employee well-being should be seen as part of the firm's „bottom line“; (9) business leaders should be leading efforts at improving employee well-being. A Likert-type (1-7) scale was used in the surveys, with 7 representing very high agreement. The Cronbach's alpha for this segment investigating environmental attitudes was 0.696, while the segment exploring supervisory board member attitudes toward social issues was 0.82. Company financial performance was measured as three-year compounded annual growth rate of return on assets.

The sample for the qualitative phase consisted of 7 supervisory members and was determined by reaching the saturation level at which no new input was expected to be received from another interviewee. The interviews were transcribed and analyzed using NVivo, a qualitative data analysis software. Data was collected using a semi-structured in-depth interview method.

4. DISCUSSION

Descriptive statistics on the supervisory board member level indicate the prevalence of men (61%) in the quantitative research phase sample. The largest proportion (42%) of supervisory board members in the sample was between 45 and 54 years of age. Also, the biggest group in terms of tenure (37%) was over 6 years. Some 63% of supervisory board members in the sample had multiple directorships. Descriptive statistics on the supervisory board level indicate that, while 11% of supervisory boards were exclusively male, there were no supervisory boards consisting of women only. Most supervisory boards (41%) consisted of 5 members. Most companies (30%) were engaged in transport and warehousing activities. Finally, there was an equal share of private and government-owned companies in the sample.

The first and central hypothesis was initially confirmed. There was a strong correlation between the two variables ($r=0.74$, $\text{sig}<0.01$). Since the scatter diagram indicated the existence of heteroscedasticity, Huber-White's regression, or standard robust error method, was used. The model explained almost 62% ($R\text{ Squared}=0.618$) of variability in data when also controlling for orientation of top management towards sustainability. The regression was shown to be significant ($F(2.41)=33.095$, $p<0.001$). The augmented model (with the controlling variable) indicated a very high significance level for board involvement ($\text{sig}<0.001$) and an acceptable level of significance ($\text{sig}<0.011$) for integration of sustainability variable. Therefore, there was very strong evidence, on a quantitative level, of a positive relationship between the level of board involve-

ment in strategy and the integration of sustainability goals. The fact that the regression was significant even without the controlling variable indicates supervisory boards importance for the integration of sustainability in corporate business models. Logically, positive attitude of the management team towards corporate sustainability in general facilitates the incorporation of sustainability initiatives in corporate business models.

Multiple linear regression was employed to test the remaining hypotheses. First, a correlation table was created.

Table 1. Correlation analysis

	IoS	ModSBS	ModSBI	ModPoW	ModK&ED
IoS	1	0.752	0.255	0.354	0.731
ModSBS	-	1	0.449	0.329	0.787
ModSBI	-	-	1	0.201	0.489
ModPoW	-	-	-	1	0.364
ModK&ED	-	-	-	-	1

Note: IoS - Integration of sustainability, ModSBS – Supervisory board size (moderator variable), ModSBI – Supervisory board independence (moderator variable), ModPoW - Proportion of women in the supervisory board (moderator variable), ModK&ED - Knowledge and experience diversity (moderator variable)

Source: authors’ calculation

The results indicate high levels of correlation between the integration of sustainability on one side and board size moderator variable and knowledge and experience diversity moderator variable on the other. High levels of correlation were also found between certain moderator variables, for example the one between supervisory board independence moderator variable and knowledge and experience diversity moderator variable. However, an acceptable level of correlation was not found between the integration of sustainability and supervisory board independence moderator variable ($r=0.26$, $sig=0.09$).

The model explained about 65% of variability in data. The regression was shown to be significant ($F(4,39)=17.756$, $p<0.001$). Supervisory board size ($sig=0.004$) and diversity of board members in knowledge and experience ($sig=0.016$) were significant variables in the model. However, significance levels were not acceptable for supervisory board independence moderator variable ($sig=0.115$) and proportion of women in the supervisory board moderator variable ($sig=0.426$). Therefore, only the second and the fifth hypotheses were also initially confirmed, while no support could be found for the third or the

fourth hypotheses. Therefore, the qualitative research phase was initiated to assist in explaining these initial results.

Key demographic characteristics of interviewees in the qualitative research phase include the following: average age of 58 years, very high education level (57% of PhD's), dominance (71%) of male interviewees and average tenure in the supervisory board of almost 6 years. Therefore, the qualitative sample was appropriately heterogeneous.

Qualitative research findings strongly supported the findings from the quantitative phase regarding a positive link between supervisory board involvement in strategy and integration of sustainability goals. The interviewees pointed out the significance of information asymmetry, existing between supervisory boards and management teams, on the way supervisory boards assume their strategic roles. Two-tier board structure was identified as the main culprit for the asymmetry. Nevertheless, the interviewees testified to the existence of supervisory boards that participate in strategic activities of their companies both actively and passively. Some supervisory boards were described as management teams sparring partners while others were content to be classified as disciples of the passive school of board involvement. In terms of the level of integration of sustainability strategies in corporate business models, there were also mixed findings. While some supervisory boards were not expected to participate in the formulation of such strategies at all, others testified that such strategies were considered only as a public relations stunt and some attested to corporate sustainability being perceived as a means to an end in terms of drumming up new business. There was no evidence of supervisory boards becoming conscious of a change in how success is to be measured or how sustainability initiatives improve corporate resilience and long-term survivability. The main promoters of corporate sustainability, as per the interviewee's testimonies, were foreign, mainly Western European owners. Scarcity of local corporate sustainability knowledge and expertise was found to be the fundamental reason for the apparent lack of recognition of positive effects of corporate sustainability integration into corporate operations. The results are in line with Hannes et al. (2022)⁴¹ who find that corporate managers have neither the motivation nor the competence to deal with sustainability issues which makes the board the only entity in the position to promote strategic sustainability integration. Therefore, active board involvement, as opposed to the board simply "rubber stamping" managers' decisions, is a key prerequisite for substantial and meaningful integration of sustainability initiatives in corporate strategies.

⁴¹ Hannes, S., Libson, A., Parchomovsky, G.: The ESG gap, *SSRN Electronic Journal*, 2022, p. 17.

Qualitative data could not support initial finding related to supervisory board size moderating effect on the relationship between board involvement and sustainability integration. Emphasizing quality over quantity, respondents' testimonies indicated the unimportance of supervisory board size relative to members preparing for the discussion and the president successfully moderating the debate. Only positive testimony refers to the indirect effect of supervisory board size on knowledge and experience diversity within the supervisory board. The extant scientific literature finds both positive and negative relationships between board size and board involvement⁴². In this regard, divergent findings observed across research methodologies (quantitative and qualitative) appear to align with existing scholarly literature.

A univocal conclusion of supervisory boards members independence being a myth was reached. Respondents observed that truly independent members shall never be proposed for membership by an owner doubting their inclination to act as per instructed. Situation was characteristic of state-owned companies. In terms of the quantitative research not being able to find significant moderating effects, these results contradict dominant empirical studies^{43,44}. However, categorical qualitative research evidence clearly points to local cultural and institutional idiosyncrasies.

Respondents provided some testimony of a greater female supervisory board members activity in sustainability issues and of their slightly more positive reactions to the concept itself, but mainly related to their existing or former work experience. However, interviewees found no existence of a female style, as opposed to a male style, when it comes to sustainability. This is perhaps best explained by research conducted by Hechavarria et al. (2017)⁴⁵ who find that women in weak post-materialistic societies, trying to avoid being perceived as weak, align their goals with those of their male colleagues and begin to emphasize economic over environmental and societal goals.

Positive moderating effect of supervisory board members knowledge and experience on the relationship between board involvement and sustainability integration was fully corroborated by qualitative data. Respondents pointed to

⁴² Talaulicar, W. Q., Judge, T.: Board Involvement in the Strategic Decision-Making Process: A Comprehensive review, *Annals of Corporate Governance*, 2(2) 2017, p. 113.

⁴³ Ludwig, P. W., Sassen, R.: Which internal corporate governance mechanisms drive corporate sustainability?, *Journal of Environmental Management*, 301 2022, pp. 113780.

⁴⁴ Velte, P.: Meta-analyses on Corporate Social Responsibility (CSR): a literature review, *Management Review Quarterly*, 72(3) 2021, p. 639.

⁴⁵ Hechavarría, D. M. et al.: Taking care of business: the impact of culture and gender on entrepreneurs' blended value creation goals, *Small Business Economics*, 48(1) 2016, p. 250.

heterogeneity of the three aspects of sustainability: environmental, social, and economical and consequent need for specific knowledge and skills to address emerging issues. These findings are fully in line with relevant scientific literature indicating that expertise diversity enhances sustainability-related outcomes⁴⁶⁴⁷⁴⁸ by enhancing boards' monitoring and advisory capabilities.

Table 2 summarizes the findings from the two research phases.

Table 2. Triangulation results (source: authors)

Hypothesis	Quantitative	Qualitative
H1	Yes	Yes
H2	Yes	No
H3	No	No
H4	No	No
H5	Yes	Yes

Source: authors' calculation

Qualitative research data were able to confirm initial quantitative research finding relating to the first and the fifth hypotheses. Therefore, we conclude that there is a significant and positive relationship between levels of supervisory board involvement in strategy and integration of sustainability goals in corporate business plans and that this relationship is positively moderated by the availability of diverse knowledge and experience of supervisory board members.

5. CONCLUSION

The study's findings have several theoretical implications. First, they support theories that emphasize an active role of the supervisory board in strategy, particularly in integrating corporate sustainability which challenges theories that view the board as weak or merely symbolic. It also confirms that the board's strategic role evolves with the increasing importance of corporate sustainabil-

⁴⁶ Harjoto, M., Laksmana, I., Lee, R.: Board Diversity and Corporate Social Responsibility. *Journal of Business Ethics*, 132(4) 2014, p. 645.

⁴⁷ Lau, C., Lu, Y., Liang, Q.: Corporate Social Responsibility in China: A Corporate Governance approach, *Journal of Business Ethics*, 136(1) 2014, p. 73.

⁴⁸ Gallego-Álvarez, I., Rodríguez-Dominguez, L.: Board of directors and environmental practices: the effect of board experience, culture, and tenure, *Environment Development and Sustainability*, 27 2023, p. 1644.

ity. The results specifically support stakeholder theory, suggesting the board considers the interests of various stakeholders in its strategic decisions about sustainability. Overall, the study contributes to the academic debate by providing empirical evidence for the active involvement of the supervisory board in strategic matters related to sustainability. The research also highlights the importance of diverse skills and knowledge within the board for effective strategic involvement in sustainability.

Managerial hegemony perspective considers supervisory boards to be ultimately weak, top management dominated corporate governance mechanisms. Similarly, neo-institutional theorists characterize supervisory boards as ceremonial and void of real power. On the other hand, stewardship theory, resource dependence theory and stakeholder theory take an opposite view towards supervisory boards influence. Debate on board involvement, as a level of attention boards attribute to the strategic process⁴⁹ between proponents of these competing theories is still a matter of much interest. Advent of corporate sustainability on boards agendas has made the supervisory boards strategic role even more complex and the debate on board involvement even more important. Empirical results of this mixed-method triangulation study strengthen the position of those advocating for increasing board involvement.

Stakeholder theory offers an approach to balancing often competing stakeholder interests that is very familiar and generally acceptable to managers and board members. Therefore, stakeholder theory, even with its inability to consistently define the environment as a stakeholder, is very important for furthering the case of supervisory boards as key corporate governance mechanisms, their importance being the ability of boards to assume a long-term approach to evaluating company results and their closeness to many stakeholder groups traditionally neglected by management.

Even if EU's Directive on corporate sustainability reporting (CSRD) and accompanying European sustainability reporting standards (ESRS) are still in process of being implemented within corporate environments, these institutionalization mechanisms already strongly define the way European supervisory board members perceive corporate sustainability today. In this regard, two schools of thought have emerged: one with a perception of a tedious and ultimately meaningless compliance exercise, all the while cursing the growing EU bureaucracy, and thrilled by the latest political developments in the United States, and the other that perceives these mechanisms as a new *lingua franca* of sustainability and an evolutive leap forward in terms of companies being

⁴⁹ Zahra, S. A., Pearce, J. A.: Determinants of board directors' strategic involvement, *European Management Journal*, 8(2) 1990, p. 165.

able to uniformly report on their true impact - environmental, social, and economical. While some passivity in supervisory boards involvement in strategy, and therefore in corporate sustainability, surely comes from information asymmetry and supervisory boards views concerning the division of responsibility between management and the supervisory board, much of it comes from their personal values and the overall attitude towards the concept of corporate sustainability. Therefore, there might be active boards that will remain silent only on corporate sustainability issues, and *vice versa*. However, a strong positive relationship between board involvement and corporate sustainability integration is undeniable. The only fully confirmed significant positive moderator of this relationship was supervisory boards members knowledge and experience and the only relevant controlling variable was top managers positive orientation towards sustainability. It can therefore hardly be disputed that hiring for sustainability, both within top management and supervisory boards is essential for overall success. A lack of local talent, indicated in the qualitative stage of empirical research, must therefore be quickly addressed through both education initiatives, and hiring processes.

Lack of support for board size, proportion of women in supervisory boards and board independence is surprising, but only to a certain extent. Academic literature is replete with quantitative empirical research finding positive, negative, U shaped, inverted U shaped and insignificant relationships between many board demographics and relevant organizational outcomes. However, qualitative research phase yielded important information on why some of these variables, especially ones relating to key supervisory board demographics, are not relevant in the Croatian cultural and institutional context.

In terms of practical research implication, introducing board of directors' sustainability committees as a solution to the issue of information asymmetry between supervisory board members and top management is proposed. The purpose of such committees, consisting of board members and key company stakeholders, would be to acquire direct information about the company's actual and potential impacts on the environment and society, as well as the impacts that environmental and social factors have on the company's business. Another problem hindering more significant progress in the integration of sustainability into business operations is the lack of expert knowledge in this area. In this context, it is proposed not only to revise the regulations related to the selection of supervisory board members but also to introduce an obligation for continuous education, as well as regular reviews of the knowledge and skills of supervisory board members of public interest entities.

Researchers identify several potential avenues for future research. For instance, differences between geographies as manifested in dissimilar positions

of women or the concept of independence, indicate a potential for replicating identical research in other cultural and institutional environments. Next, institutionalization of corporate sustainability via CSRD and ESRS is expected to result in much more objective data with regards to sustainability goals integration in corporate business models. Therefore, replicating the same research might yield improved results. Further, integration of sustainability initiatives in corporate strategies, although important, does not guarantee successful outcomes of these initiatives. Supervisory boards' role in monitoring and guiding the execution of sustainability strategies might be important in achieving the desired results from these activities. It would therefore be interesting to investigate the board's role in advising the management during the implementation stage. Also, controlling for privately owned vs state-owned enterprises might be beneficial to determine if the value maximization paradigm is to be deemed guilty for low levels of sustainability integration. Finally, it would be of much interest to find out if shifting social priorities, embodied on the one hand in initiatives such as the total ESG deregulation announced by US authorities and the EU's simplification of sustainability reporting, and on the other hand in initiatives such as the Chinese introduction of ESG reporting standards, influence the level of board involvement in sustainability-related issues.

Key research limitations include its cross-sectional character and the resulting inability to recognize trends. Another research limitation is the sample consisting of public interest entities only, therefore limiting generalization of findings beyond PIE's. Next, the limitations of the qualitative research stage include the researchers being potentially biased in collecting and interpreting data, as well as the potential inadequacy of methods and software employed in the research, for example NVivo transcripts not taking note of any non-verbal gestures. Finally, some of the investigated corporate governance concepts are measured using proxies, for example the orientation of managers towards sustainability is operationalized as a perception of the supervisory boards' members.

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