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Unveiling the Trajectory of Board Diversity Research: A Bibliometric Study

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Abstract: This study aims to investigate board diversity using bibliometric analysis. This study examines publication sources, authorship, citations, distribution of publications, and other bibliometric indicators. This study focuses on 290 articles published from 2013 to 2022. Using an automated process, these articles were extracted from the Scopus database and analyzed using bibliometric indicator analysis, VOSviewer, Microsoft Excel, OpenRefine and Perish or Publish. A total of 290 research articles and reviews on board diversity were included in this study. The present study found that the United States was the most productive country (n = 61), followed by the United Kingdom (n = 42), Australia (n = 29), and China (n = 27). The Centre National de la Recherche Scientifique (CNRS), France (n = 8) was the most prominent institution. This study unveils relevant articles, authors, and journals that have discussed board diversity. This study's findings can inform practitioners of the state of the art and the particulars of the most prolific studies. In addition, this study aims to clarify the project themes and tools utilized most frequently in these works. The locations of influential articles and their authors are disclosed. In addition, a list of often-used terms aids in developing a research agenda that highlights pertinent themes, methods, and industries.

Keywords: *Board diversity, corporate governance, board composition, bibliometric analysis, Scopus database.*

1. Introduction

Board diversity represents different backgrounds, experiences, perspectives, and characteristics on a corporate board of directors. This can include diversity in terms of gender, race, ethnicity, age, education, professional background, industry experience, and cultural background. Research has shown that board diversity can positively impact organizational performance, innovation, decision-making, and risk management. For instance, Bussoli et al. (2023) showed board gender and age diversity positively influenced bank social performance in 46 European banks. Diverse boards can better understand and respond to the needs and preferences of various stakeholders, including customers, employees, investors, and the wider community. Additionally, board diversity can help mitigate the risk of groupthink (Ferreira, 2010) and enhance the quality of board discussions and decision-making (Anderson et al., 2011). However, achieving board diversity can be challenging, as it often requires overcoming structural and systemic barriers, such as unconscious biases and limited networks (Erhardt et al., 2003; Huse et al., 2009).

In response to the persistent challenges of boardroom diversity, many organizations have taken proactive measures by implementing diversity and inclusion initiatives to foster a more inclusive and diverse composition of boards (Konrad et al., 2008). These initiatives reflect the growing recognition of the importance of diverse perspectives, experiences, and backgrounds in decision-making processes and the need to address historical disparities in board representation. Such efforts are intended to promote inclusivity, equity, and fairness in corporate governance and capitalize on the potential benefits of board diversity, including improved decision-making, innovation, and stakeholder engagement (Campbell & Minguez-Vera, 2008; Ferreira, 2015). However, despite the increasing emphasis on diversity in practice and research, the evolution and impact of these initiatives remain complex and multifaceted, warranting a comprehensive investigation using bibliometric analysis to explore the scholarly landscape and uncover research development and dissemination patterns in this field.

Board diversity is complex and multifaceted, and various factors may shape the development and dissemination of research in this field. Bibliometric analysis is better for comprehending the scholarly landscape of board diversity research. The bibliometric analysis involves quantitatively examining publications, such as articles and journals, to identify patterns, trends, and relationships among scholarly works. By applying bibliometric analysis, researchers can gain a deeper understanding of the research

development and dissemination of diversity. Bibliometric analysis can help uncover meaningful insights, such as research trends, citation patterns, collaboration networks, content analysis, and impact assessment. By systematically examining these aspects, researchers can obtain a comprehensive overview of the scholarly landscape of board diversity research, identify gaps or areas of potential future research, and contribute to advancing knowledge in this field.

Consequently, this study's objectives are as follows: Using bibliometric analysis, this study first examines the trends and productivity of research on board diversity. This analysis is a technique that examines all articles that contain the specified keywords and sorts them by document and source type, publication year, language, topic, and most active source titles. For this study, a bibliometric analysis will be conducted from 2013 through 2022. The second objective of this study is to examine the cluster analysis of one co-occurrence network. This means that the bibliometric study considers the keywords of the reviewed publications and examines which keywords and words from titles and abstracts appear frequently in the same article. The third objective is to synthesize research trends on board diversity, with a focus on publication and authorship geographical distribution. This study's insights can inform policy and practice related to board diversity by identifying research gaps and areas requiring further investigation, guiding policymakers in designing targeted interventions, and reporting practitioners and researchers on potential focus areas for future research and practice initiatives.

The following section is divided into five sections: The second section provides a concise literature review regarding board diversity. The third section discusses the methodology employed in this current study. The fourth and fifth sections describe the data analysis, results, conclusion, and recommendations.

2. Literature Review

In the literature on corporate governance, Walt and Ingley (2003) defined board diversity as "board composition and the diverse combination of attributes, characteristics, and expertise contributed by individual board members to board processes and decisions" (p. 219). Other scholars define board diversity as the heterogeneity of board members, which can be visible or non-visible and consist of numerous dimensions, such as age, nationality, gender, religious background, educational background, and industry experience (Knippenberg et al., 2007). Both definitions include the notion that differences in board member attributes, values, and perceptions allow for better board decisions because the board can engage in in-depth discussions and generate multiple solutions to the problems at hand (Hartmann & Carmenate, 2020). Gender-balanced board composition can increase board effectiveness by bringing diverse perspectives. On the other hand, homogeneous boards tend to share the same viewpoints and impede quality deliberations and effective decision-making. Julizaerma and Sori (2012) defined gender diversity as utilizing men's and women's diverse characteristics and skills to the firm's advantage. When multiple women are in the boardroom, the diversity can be used to its full potential. Consequently, this circumstance can lead to board effectiveness and high company performance.

Two primary dimensions characterize the board's diversity: demographic and cognitive (Al-Qahtani & Elgharbawy, 2020; Baker et al., 2020). Kagzi and Guha (2018b) added the dimension of diversity to the board structure. The demographic dimension includes age, nationality, gender, personality, cultural values, and information processing style, while the cognitive dimension consists of organizational position, occupation, skills, specialized knowledge, and family role (Al-Qahtani & Elgharbawy, 2020). Furthermore, Anderson et al. (2011) classified the variations in board diversity into two categories of heterogeneity. The first category is occupational diversity, which includes education, experience, and occupation. The second category is social heterogeneity, which includes age, gender, and ethnicity. Broadly, board diversity refers to various characteristics or dimensions of board composition (Gordini & Rancati, 2017; Kagzi & Guha, 2018a). It also refers to the board's demographic, human, and social capital, including gender, age, education, ethnicity, gender, experience, and tenure (Goyal et al., 2019). At the same time, Ali et al. (2020) classified board diversity as relational and task related. Age and gender make up the diversity in relationships. Board members' cognitive abilities, knowledge, tenure, expertise, education, and skills are related to task-related diversity. Thus, Jouber (2021) defined board diversity as the heterogeneity of board members.

A company must have different board members with diverse backgrounds and characteristics regarding board diversity. Due to differences in board member qualities, morals, and perspectives, better board decisions will be made due to diverse perspectives and problem-solving approaches (Hartmann & Carmenate, 2021). This can contribute to the success of a business (Hassan & Marimuthu, 2018). Hassan and Marimuthu (2018) examined the impact of demographic diversity on the performance of upper-level management, including gender, ethnic, and Muslim diversity. They discovered a positive correlation between gender diversity and firm performance in a sample of 529 Malaysian listed firms in 2013. The study indicated that board diversity can boost company performance (Hassan & Marimuthu, 2018). Schopohl et al. (2021) suggested that companies and policymakers must consider not only the gender of executives but also the diversity of the board and the CEO's power to increase women's managerial discretion and permit female leaders to influence corporate policies.

According to intergroup contact theory and the cognitive resource diversity perspective, diversity may result in more creative problem-solving (Harjoto et al., 2019). As predicted by social categorization theory, diversity may result in a lack of cooperation and cohesion, affecting group decision-making (Harjoto et al., 2019). The premise that diversity influences performance through a broader pool of candidates for director positions results in the selection of directors with more vital knowledge, skills, the capacity and willingness to exert effort, and a change in board dynamics (Wahid, 2019). The interpersonal dynamics between the executive management team and the board of directors would be reflected in the demographic similarity or dissimilarity between these individuals, which could exacerbate or enhance monitoring activity (Lee, 2015). Moreover, Bernile et al. (2018) examined the effect of board diversity on corporate policies and risk. Age, gender, race, financial expertise, the number of directorships, and educational background were examined as multidimensional measures of board diversity in the study. Using a sample of all non-financial and non-utility firms in the United States from 1996 to 2014, the study found that greater board diversity leads to less volatility and better performance. The study demonstrated that diverse backgrounds acting as a governance mechanism, moderating decisions, and reducing groupthink-related issues reduce stock return volatility. In addition, companies with diverse boards are more likely to adopt more stable and consistent rules and board decisions are less susceptible to eccentricities. Greater director diversity increases firm profitability and valuations (Bernile et al., 2018).

Therefore, the gap in the study from the provided explanation is that it focuses specifically on the effect of board diversity on corporate policies and risk, with a focus on multidimensional measures of board diversity such as age, gender, race, financial expertise, number of directorships, and educational background. It also highlights the positive impacts of board diversity on reducing stock return volatility, moderating decisions, and improving firm profitability and valuations. However, the explanation does not mention any analysis or insights related to the evolution and impact of diversity and inclusion initiatives or the use of bibliometric analysis to explore the scholarly landscape and uncover patterns of research development and dissemination in the field of board diversity. Thus, the gap in the study is the lack of a comprehensive investigation into the evolution and impact of board diversity research using bibliometric analysis, which could provide additional insights and understanding of the field.

3. Methods

This study employs the bibliometric analysis method to evaluate contemporary developments in board diversity. Specifically, this study utilizes network visualization and bibliometric indicators to present the analysis findings.

Bibliometric Analysis: Bibliometric analysis is a quantitative research method used to evaluate the characteristics of scientific publications, such as articles, journals, or authors, based on their citations and other bibliographic data. This method is widely used in academic research to assess the impact, productivity, and trends in specific fields or disciplines. The bibliometric analysis involves various statistical techniques to identify patterns and relationships among scientific publications, including citation, co-citation, bibliographic coupling, and network analysis. By analyzing bibliometric data, researchers can identify influential authors, highly cited publications, emerging research topics, and critical research collaborations within a particular field.

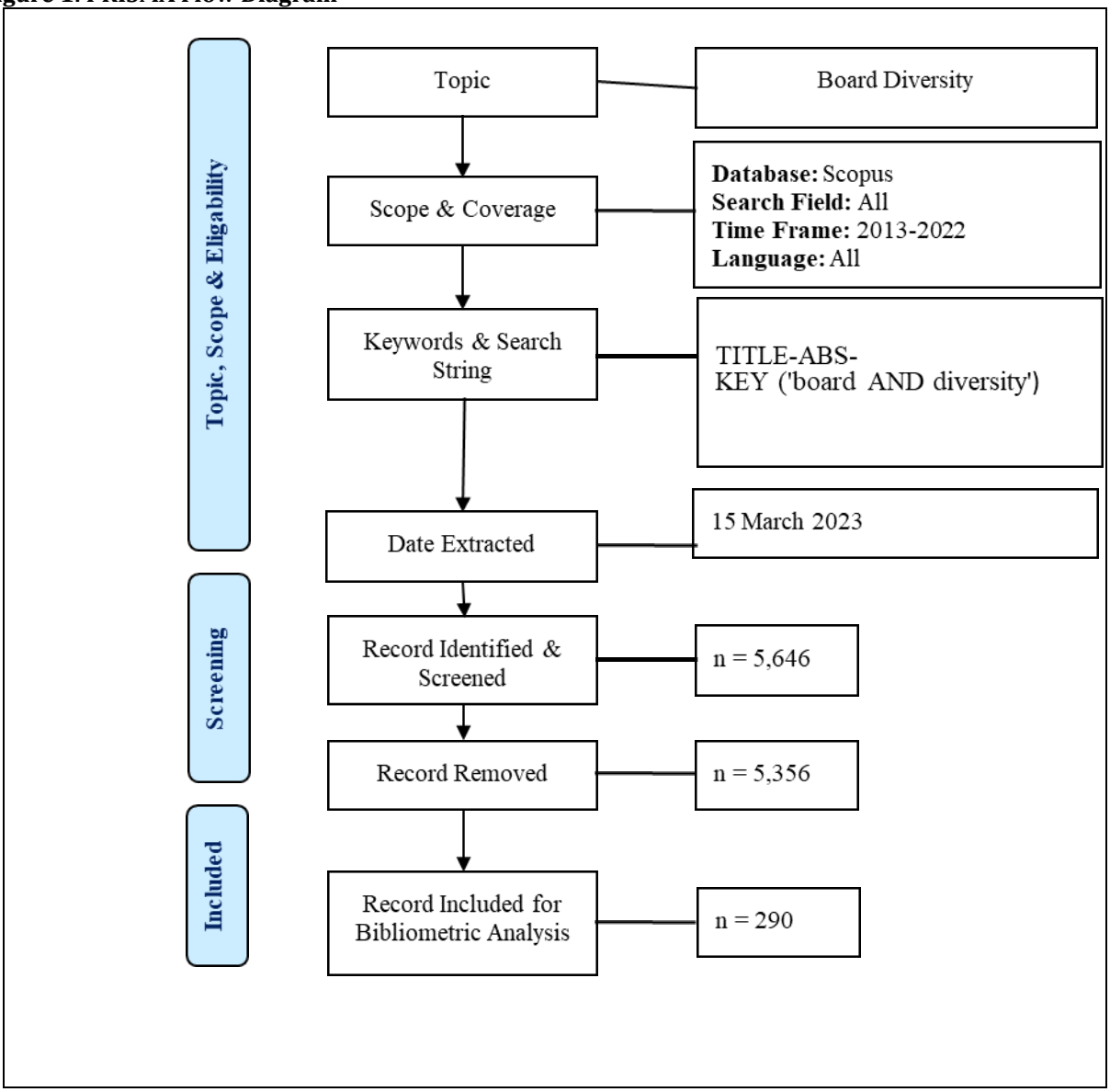
Bibliometric analysis has been used in numerous fields, including environmental science, economics, and social sciences. For example, a bibliometric analysis conducted by Sordan et al. (2020) evaluated the research trends of Lean Six Sigma in the manufacturing process over sixteen years, identifying key research themes and the most influential authors in the field. In another study, Anuar et al. (2022) employed bibliometric analysis to assess the research trends in immigration and environmental degradation, identifying the most cited articles and the most active authors. Overall, bibliometric analysis is a valuable tool for understanding the development and trends in academic research, allowing for the identification of key players and emerging themes in a particular field.

In this current study, VOSviewer was employed as a freely available tool to conduct bibliometric analysis by constructing and visualizing networks (vosviewer.com). This software utilizes citation data extracted from established databases, Scopus, and standardizes the weights of the links by number and total strength to represent the nodal network graphically. The size of the nodes and interconnecting lines represent the significance and strength of the links (Donthu et al., 2021). Additionally, VOSviewer was utilized to create a visualization of network co-occurrence based on the extracted terms from the literature review. A threshold indicating the minimum number of keywords required to be present in a paper was also set (Ciano et al., 2019).

Furthermore, in this study, Harzing's Publish or Perish, Microsoft Excel, and OpenRefine were employed as data analysis and manipulation tools. This established software program is designed to retrieve and analyze academic citations, enabling individual academics to demonstrate the impact of their research even with limited citations. Moreover, it can be used in bibliometric research (Harzing.com). Microsoft Excel can be a valuable tool for conducting bibliometric analysis, which is the quantitative study of publication patterns, citations, and collaboration in academic literature. Excel offers several functions to help organize, analyze, and visualize bibliometric data. Here are some functions of Microsoft Excel for conducting. Meanwhile, OpenRefine is a powerful open-source tool that can be used for data cleaning, transformation, and exploration, which can help conduct bibliometric analysis. Therefore, using VOSviewer, Publish or Perish, Microsoft Excel, and OpenRefine, this study further examined the influence of publications as measured by the number of citations, the impact of each publication, and the number of citations for each publication.

Source and Data Collection: The Scopus database was employed for the bibliometric analysis to extract the required data, owing to its ability to provide bibliometric indicators swiftly and conveniently (Sweileh et al., 2018). With its extensive collection of approximately 5,646 titles, Scopus is recognized as one of the foremost academic databases, making it the primary source for data collection in this study. This review's topical scope was limited to board diversity globally. As shown in Figure 1, the authors followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines for the document search (Moher et al., 2009). A series of investigations were performed using various permutations of the following keyword string: (TITLE-ABS-KEY (“board AND diversity”). This Scopus search yielded 5,646 documents (see Figure 1) and was conducted on March 15, 2023. Next, the list of 5,646 documents was filtered by including (1) publications from 2013 until 2022 and (2) papers that satisfy the concept of global board diversity. Finally, 290 documents were generated and thoroughly analyzed by eliminating 5,356 documents. Additional analysis was carried out with the assistance of various software applications, including Harzing Publish or Perish, Microsoft Excel, OpenRefine, and VOSviewer.

Figure 1: PRISMA Flow Diagram



Source: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Med* *6*(7): e1000097. doi:10.1371/journal. pmed1000097.

4. Results

The extracted academic work was analyzed based on the following attributes: research productivity, document and source type, document language, subject area, most active source title, publication distribution by country, most active institutions, authorship analysis, keyword analysis, title and abstract analysis, and citation analysis. The findings also included annual growth data through 2022, including their frequency and percentage.

Document and Source Types: The types of documents and sources in which the research on board diversity was published were analyzed further. Table 1 shows that the majority of studies on board diversity were dominated by articles (70.34 percent), followed by conference papers (10.69 percent) and book chapters (8.28 percent). Smaller numbers of reviews (4.83 percent), editorials (2.41 percent), books 2.07 percent), and notes

(0.69 percent were also present. Interestingly, only one data paper (0.34 percent) and one erratum (0.34 percent) were discovered in the relevant literature.
The preponderance of articles in the literature on board diversity suggests that researchers in this field are primarily concerned with empirical research and data analysis. The relatively low number of reviews and books in this field suggests a need for more comprehensive and synthesized works.

Table 1: Document Type

Document Type	Total Publications (TP)	Percentage (%)
Article	204	70.34%
Conference Paper	31	10.69%
Book Chapter	24	8.28%
Review	14	4.83%
Editorial	7	2.41%
Book	6	2.07%
Note	2	0.69%
Data Paper	1	0.34%
Erratum	1	0.34%
Total	290	100.00

This study also revealed that these documents fall into four distinct source types: journals, conference proceedings, books, and book series (see Table 2). 78.97% of the 290 documents are published in journals, 9.66% in conference proceedings, 8.97% in books, and 2.41% in book series.

Table 2: Source Type

Source Type	Total Publications (TP)	Percentage (%)
Journal	229	78.97%
Conference Proceeding	28	9.66%
Book	26	8.97%
Book Series	7	2.41%
Total	290	100.00

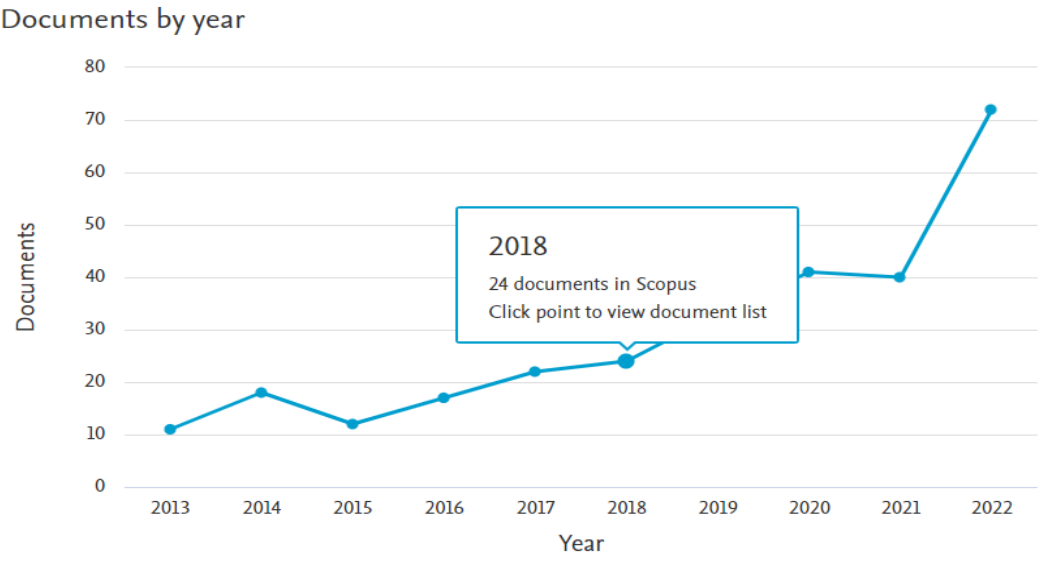
Year of Publications/Evolution of Published Studies: This study examines research productivity based on the number of documents generated annually. Publication year analysis of the documents allows the researcher to comprehend the topic's development over time (Ahmi & Mohamad, 2019). As shown in Table 3, the number of articles published in this field peaked in 2022, with 72 (24.83 percent). They were followed by 2021 (13.79 percent), 2020 (14.14 percent), 2019 (11.38 percent), and 2018 (8.28 percent). (8.02 percent). In contrast, only 3.79 percent of the total publications on this topic or theme were produced in 2013. Figure 2 depicts the growth of this subject's publication activity from 2013 to 2022 using a similar graph format. It would appear, based on the pattern and growth, that scholars have become more interested in board diversity. This is a surprising outcome.

Table 3: Year of Publications

Year	Total Publications	Percentage (%)
2022	72	24.83%
2021	40	13.79%
2020	41	14.14%
2019	33	11.38%
2018	24	8.28%
2017	22	7.59%
2016	17	5.86%
2015	12	4.14%

2014	18	6.21%
2013	11	3.79%
Total	290	100.00

Figure 2: Document by Year



Document Languages: The collected data sets were also analyzed to determine the language used in the published documents. As shown in Table 4, most publications on board diversity are written in English (97.94 percent). Intriguingly, some publications were written in languages other than English, including Chinese, Spanish, German, and Russian. However, German and Russian had the lowest percentage of publications (0.34 percent) of any language.

Table 4: Languages Used in Publishing

Language	Total Publications*	Percentage (%)
English	285	97.94%
Chinese	2	0.69%
Spanish	2	0.69%
German	1	0.34%
Russian	1	0.34%

*One document has been prepared in dual languages.

Subject Area: The publications are summarised in Table 5 by subject area. It demonstrates that with 116 (40.00 percent) publications, "business, management, and accounting" had the most publications. This is followed by "social science" (29.66 percent), "economics, econometrics, and finance" (25.17 percent), "environment science" (13.10 percent), “engineering” (12.41 percent) and "computer science" (10.69 percent). Other subject areas, such as agricultural and biological sciences, medicine, arts and humanities, earth and planetary sciences, energy, decision sciences, physics and astronomy, mathematics, psychology, and multidisciplinary, accounted for less than 10% of the total publications. Board diversity is a global phenomenon, so the focus is primarily on business, management, and accounting.

Table 5: Subject Area

Subject Area	Total Publications	Percentage (%)
Business, Management and Accounting	116	40.00%
Social Sciences	86	29.66%
Economics, Econometrics and Finance	73	25.17%
Environmental Science	38	13.10%
Engineering	36	12.41%
Computer Science	31	10.69%
Agricultural and Biological Sciences	25	8.62%
Medicine	24	8.28%
Arts and Humanities	17	5.86%
Earth and Planetary Sciences	17	5.86%
Energy	15	5.17%
Decision Sciences	10	3.45%
Physics and Astronomy	10	3.45%
Mathematics	9	3.10%
Psychology	6	2.07%
Multidisciplinary	5	1.72%

Most Active Source Titles: Table 6 specifies the most popular board diversity source titles. However, the total number of publications displayed in this table is quite impressive because Sustainability Switzerland is the source of 6 (2.07 percent) of them. Corporate Governance Bingley ranked second with five publications. Corporate Social Responsibility and Environmental Management, Effective Directors the Right Questions to Ask and Journal of Cleaner Production ranked third with four publications each. Other journals contributing to publications on board diversity include ASEE Annual Conference and Exposition Conference Proceedings, Cogent Business and Management Gender in Management, Icarus and Social Responsibility Journal, with a total of nine (1.03 percent). Whereas Accounting Education, Animal, BMJ Open and British Accounting Review were the least prolific sources, with two publications (0.69 percent).

Table 6: Most Active Source Title

Source Title	Total Publications	Percentage (%)
Sustainability Switzerland	6	2.07%
Corporate Governance Bingley	5	1.72%
Corporate Social Responsibility and Environmental Management	4	1.38%
Effective Directors: the Right Questions to Ask	4	1.38%
Journal Of Cleaner Production	4	1.38%
ASEE Annual Conference and Exposition Conference Proceedings	3	1.03%
Cogent Business and Management	3	1.03%
Gender In Management	3	1.03%
Icarus	3	1.03%
Social Responsibility Journal	3	1.03%
Accounting Education	2	0.69%
Animal	2	0.69%
BMJ Open	2	0.69%
British Accounting Review	2	0.69%

Keywords Analysis: Table 7 displays the most prominent keywords that emerged from the bibliometric search. This study examines the most prominent keywords used to categorize particular subject areas. Corporate governance, gender diversity, human, board diversity and board gender diversity were some of the most prevalent and frequently used keywords in relevant publications. This study further analyses the author's keywords by generating a word cloud using WordSift (WordSift.org 2021) with a maximum of 100 words and a scale setting; Figure 3 depicts the result of a word cloud generated with n scale settings. The chart displayed the top 100 words (or keyword phrases) utilized in the published article on board diversity. The size of each word characterizes the frequency of each keyword. Despite the keyword used to search the document's title,

the word cloud also displays other emerging keywords, including board, gender, and diversity. Furthermore, small-sized words made a significant contribution to the research topic of board diversity. It is essential to note that all the terms generated in Figure 3 are popular or trending terms associated with research on board diversity. Thus, we can anticipate that future research will focus on these keywords.

Table 7: Top Keywords

Author Keywords	Total Publications	Percentage (%)
Corporate Governance	53	18.28%
Gender Diversity	42	14.48%
Human	23	7.93%
Board Diversity	18	6.21%
Board Gender Diversity	18	6.21%
Humans	18	6.21%
Article	15	5.17%
Corporate Social Responsibility	15	5.17%
Female	15	5.17%
Board Of Directors	14	4.83%
Diversity	12	4.14%
Sustainability	10	3.45%
Sustainable Development	10	3.45%
Gender	9	3.10%
Leadership	9	3.10%
Male	9	3.10%
Biodiversity	8	2.76%
Board Composition	8	2.76%
China	8	2.76%
Climate Change	8	2.76%

Figure 3: Word Cloud of the keywords



Publication Geographical Distribution - Most Influential Countries: This study also identifies the countries that have published the most documents on board diversity. According to recent academic sources, Table 8 illustrates the top 20 countries contributing to publications in a particular field as of 2022. The table presents the total number of publications and their respective contribution percentages to the field. The United States leads with 61 publications, accounting for 21.03% of the total publications. The United Kingdom follows closely with 42 publications, which account for 14.48% of the total publications. Other countries in the top five include Australia with 29 publications (10.00%), China with 27 publications (9.31%), and Spain with 24 publications (8.28%). The remaining countries in the top 20, including Malaysia, Canada, France, New Zealand, Italy, Germany, India, the United Arab Emirates, Japan, Nigeria, Turkey, Indonesia, the Netherlands, Pakistan, and Switzerland, contributed significantly to the field, with publications ranging from 6 to 19 and accounting for a total percentage of 60.69%.

Table 8: Top 20 Countries Contributed to the Publications

Country	Total Publications	Percentage (%)
United States	61	21.03%
United Kingdom	42	14.48%
Australia	29	10.00%
China	27	9.31%
Spain	24	8.28%
Malaysia	19	6.55%
Canada	18	6.21%
France	18	6.21%
New Zealand	17	5.86%
Italy	16	5.52%
Germany	14	4.83%
India	12	4.14%
United Arab Emirates	8	2.76%
Japan	7	2.41%
Nigeria	7	2.41%
Turkey	7	2.41%
Indonesia	6	2.07%
Netherlands	6	2.07%
Pakistan	6	2.07%
Switzerland	6	2.07%

Authorship: To identify the most prolific authors in the context of this study, Table 10 provides a list of the most productive authors in a particular field based on the latest research available. The table lists the authors' names, the number of documents they have produced, and their respective percentages of contribution to the field. Among the most productive authors, Ahmed, A., Atif, M., Guo, C., Kamarudin, K.A., Li, G., and Yang, Y. each have three publications, accounting for 1.03% of the total publications each. Several other authors have produced two publications and have contributed significantly to the field. These authors include Amran, A., Blain, S., Cai, X., Cicchiello, A.F., Elgharbawy, A., Gallego-Álvarez, I., Gherghina, C., Hedding, D.W., Hossain, M., Hu, Y., Issa, A., Janis, J.P., Javeed, S.A., and Jones, M.R., each accounting for 0.69% of the total publications. It is worth noting that this list is not exhaustive, and there may be other productive authors in the field that were not included in this study. Nonetheless, the contributions of these authors to the field are significant, and their work has likely impacted future research in the field. The table provides a helpful summary of the authors who have made the most substantial contributions to the field, and it can be used as a reference for future researchers looking to build on this body of work.

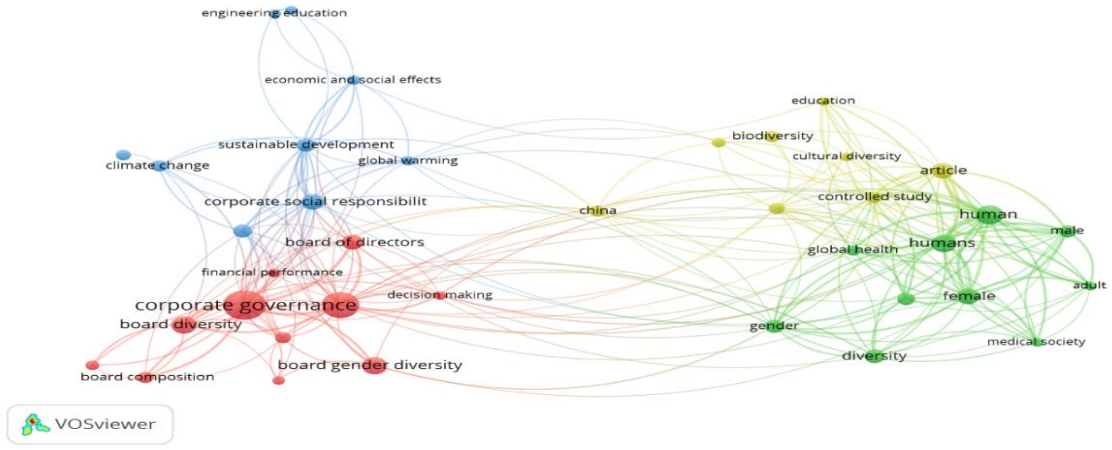
Table 10: Most Productive Authors

Author's Name	No. of Documents	Percentage (%)
Ahmed, A.	3	1.03%
Atif, M.	3	1.03%
Guo, C.	3	1.03%
Kamarudin, K.A.	3	1.03%
Li, G.	3	1.03%
Yang, Y.	3	1.03%
Amran, A.	2	0.69%
Blain, S.	2	0.69%
Cai, X.	2	0.69%
Cicchiello, A.F.	2	0.69%
Elgharbawy, A.	2	0.69%

Gallego-Álvarez, I.	2	0.69%
Gherghina, C.	2	0.69%
Hedding, D.W.	2	0.69%
Hossain, M.	2	0.69%
Hu, Y.	2	0.69%
Issa, A.	2	0.69%
Janis, J.P.	2	0.69%
Javeed, S.A.	2	0.69%
Jones, M.R.	2	0.69%

Text Analysis: Using VOSviewer software, the title and abstract of the gathered documents were analyzed using the full counting method. Figure 4 depicts the visualization of the noun occurrences based on the title and abstract. The size of the nodes indicates the strength of the occurrences, while the thickness of the lines between nodes indicates the strength of the relationship. Similar words are grouped to demonstrate their relationship. According to the analysis results, corporate governance, board diversity, board gender diversity, and board of directors are interconnected and frequently occur together. Four distinct colors were derived from the analysis, each representing one of the four essential groups identified by the analysis.

Figure 4: VOSviewer Visualization of a Term Co-Occurrence Network based on Title and Abstract Fields (Full Counting)



Most Influential Institutions: The most influential institutions in publishing board diversity articles are listed in Table 11. Table 11 presents the most influential institutions with a minimum of three publications. The CNRS Centre National de la Recherche Scientifique tops the list with eight publications, followed by Universiti Sains Malaysia, Universiti Teknologi MARA, University of Otago, Universidad de Salamanca, The University of Sydney, Universiti Malaya, Dalian Maritime University, Universidad Nacional Autónoma de México, Griffith University, INRAE, and Griffith Business School, each with four publications. Moreover, Sorbonne Université, Universiti Utara Malaysia, The University of Auckland, Victoria University, the University of Reading, and the University of Florida are tied for third place with three publications, each representing 1.03% of the total publications.

Table 11: Most Influential Institutions with a Minimum of Three Publications

Institution	Total Publications	Percentage (%)
CNRS Centre National de la Recherche Scientifique	8	2.76%
Universiti Sains Malaysia	4	1.38%
Universiti Teknologi MARA	4	1.38%
University of Otago	4	1.38%
Universidad de Salamanca	4	1.38%
The University of Sydney	4	1.38%
Universiti Malaya	4	1.38%
Dalian Maritime University	4	1.38%
Universidad Nacional Autónoma de México	4	1.38%
Griffith University	4	1.38%
INRAE	4	1.38%
Griffith Business School	4	1.38%
Sorbonne Université	3	1.03%
Universiti Utara Malaysia	3	1.03%
The University of Auckland	3	1.03%
Victoria University	3	1.03%
University of Reading	3	1.03%
University of Florida	3	1.03%

Citation Analysis: Table 12 summarises the citation metrics data from 2013 to 2022 generated by Harzing's Publish and Perish software. Harzing's Publish or Perish software was used to determine the citation metric for the Scopus database retrieval. The brief description includes the number of citations along with their citations per year, per paper, and author. Board diversity publications comprise 290 papers with 3,417 citations, averaging 342 citations per year. Each paper is cited 11.78 times, and the total h-index and g-index for all the publications are 31 and 50.

Table 12: Citations Metrics

Metrics	Data
Papers	290
Citations	3,417
Years	10
Cites_Year	341.7
Cites_Paper	11.78
Cites_Author	1333.84
Papers_Author	129.42
Authors_Paper	3.46
h_index	31
g_index	50

5. Conclusion and Recommendations

This study offered a bibliometric analysis of board diversity in the current research agenda. It was determined by how many Scopus-indexed articles were published between 2013 and 2022. The bibliometric indicators and analytical analysis based on the tools and techniques used in this study highlight the contribution of data mining and bibliometric techniques to improve the process of selecting the literature, as the study identified the trend and productivity of research on board diversity using bibliometric analysis (documents and source types, year of publications, languages, subject area and most active source titles, all keywords and title and abstracts, and the geographical distribution of publications from 2013–2022). In 2022, however, this subject

attracted considerable scholarly interest. Most articles appeared in academic journals, and English is the preferred language for research.

The United States reported the highest number of contributing authors for its publications, followed by the United Kingdom, Australia, China, and Spain. Business, management, and accounting were the most important fields that produced the sources. However, the topic also appears in publications covering other disciplines, including arts and humanities, earth and planetary sciences, physics and astronomy, mathematics, energy, and multidisciplinary. Despite making a few contributions to the field, this study has some limitations. This study utilized specific queries and keywords to locate the initial list of scholarly works published and indexed by Scopus, a common practice in previous bibliometric research. Although Scopus has been recognized as one of the most comprehensive online databases indexing all scholarly works, it does not include all accessible sources. Therefore, some exclusions are highly anticipated from this study. In addition, no search query is perfect enough to capture all scholarly works in this field. Indeed, results are anticipated to be inconsistent. Second, board diversity is a relatively new concept recently gaining popularity. There is a chance that other types of research conducted in the past have focused on board diversity without employing these keywords. Thirdly, this research analyzed the publications with stringent restrictions to avoid obtaining irrelevant search results. In the future, this work could be expanded to yield more precise results when searching for articles.

The proposed bibliometric study on board diversity research's evolution can contribute to theoretical and managerial aspects. The study's theoretical contribution lies in providing a comprehensive overview of the existing literature on board diversity, including research trends, citation patterns, and content analysis. This can help identify research gaps, emerging themes, and potential areas for future investigation, thereby advancing the theoretical understanding of board diversity. On the managerial side, the study's findings can have practical implications for managers and practitioners promoting board diversity in organizations. For example, by identifying key sources of influential research through citation analysis, managers can stay updated with the latest developments in the field and make informed decisions on resource allocation, collaboration opportunities, and strategic initiatives.

Furthermore, this bibliometric study has implications for regulatory bodies and policymakers in developing board structures. Regulators should be aware of the recent policy of worldwide on-board diversity, which encourages corporate firms to increase board diversity on corporate boards. This finding suggests that policymakers should be more concerned with issues surrounding board diversity and other related issues that could increase good corporate governance. This bibliometric study highlights the importance of board diversity literature and unveils patterns in theory, data, methods, and content. It can serve as a means of improving corporate governance for regulatory bodies and policymakers. This study offers valuable insights for companies and policymakers to develop a more refined governance structure that accommodates board demographic diversity attributes. Regulators should devise policies to encourage board diversity. In addition, policymakers should develop regulations and promote diversity of directors as one of the factors for improving governance mechanisms, which will ultimately improve firms' productivity.

By analyzing publications across various disciplines, bibliometric analysis can highlight interdisciplinary approaches to studying board diversity. Policymakers can encourage collaboration between different fields, fostering a holistic understanding of the topic and promoting comprehensive policy development. Bibliometric analysis can identify influential authors, institutions, and journals in board diversity research. Policymakers can leverage this information to facilitate knowledge transfer and collaboration between researchers, policymakers, and practitioners. Encouraging collaboration can lead to the development of more informed and impactful policies.

Bibliometric analysis can facilitate international comparisons of research output and trends related to board diversity. Policymakers can use this information to benchmark their country's research activities against those of other nations, identifying best practices and areas for improvement in their policies and initiatives. Bibliometric analysis can be used to monitor research progress on board diversity over time. Policymakers can track the growth of research output, identify emerging themes, and assess the impact of policy interventions. This monitoring can inform adaptive policymaking, ensuring policies remain relevant and effective in addressing current challenges.

By highlighting the existing research landscape, bibliometric analysis can help policymakers identify areas where additional research funding is needed. Allocating resources to under-researched areas can stimulate new studies, leading to a more comprehensive understanding of board diversity issues and potential solutions. Policymakers can leverage the insights from bibliometric analyses to develop well-informed and effective policies promoting board diversity and inclusion.

For future research, it has been suggested to expand this work to include other databases and bibliometric analyses of board diversity in developed and developing countries. Concerning this study's implications, the key findings are significant for policymakers and academics because they are aligned with a managerial impact for managers to promote board diversity for effective corporate governance practice.

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References

Ahmi, A. & Mohamad, R. (2019). Bibliometric Analysis of Global Scientific Literature on Web Accessibility. *International Journal of Recent Technology and Engineering*, 77(6S2), 250–258.

Al-Qahtani, M. & Elgharbawy, A. (2020). The effect of board diversity on disclosure and management of greenhouse gas information: evidence from the United Kingdom. *Journal of Enterprise Information Management*, 33(6), 1557–1579.

Ali, F., Wang, M., Jebran, K. & Ali, S. T. (2020). Board diversity and firm efficiency: evidence from China. *Corporate Governance (Bingley)*, 21(4), 587–607.

Anderson, R. C., Reeb, D. M., Upadhyay, A. & Zhao, W. (2011). The economics of director heterogeneity. *Financial Management*, 40(1), 5–38.

Anuar, A., Marwan, N. F., Smith, J., Siriyanun, S. & Sharif, A. (2022). Bibliometric analysis of immigration and environmental degradation: evidence from past decades. *Environmental Science and Pollution Research*, 29(9), 13729–13741.

Baker, K. H., Pandey, N., Kumar, S. & Haldar, A. (2020). A bibliometric analysis of board diversity: Current status, development, and future research directions. *Journal of Business Research*, 108, 232–246.

Bernile, G., Bhagwat, V. & Yonker, S. (2018). Board diversity, firm risk, and corporate policies. *Journal of Financial Economics*, 127(3), 588–612.

Bussoli, C., Conte, D. & Barone, M. (2023). Board diversity as a determinant of the social performance in the European banking sector. *Equality, Diversity and Inclusion*, 42(2), 248–265.

Ciano, M. P., Pozzi, R., Rossi, T. & Strozzi, F. (2019). How IJPR has addressed 'lean': a literature review using bibliometric tools. *International Journal of Production Research*, 57(15–16), 5284–5317.

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N. & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133(May), 285–296.

Erhardt, N. L., Werbel, J. D. & Shrader, C. B. (2003). Board of director diversity and firm financial performance. *Corporate Governance*, 11(2), 102–111.

Ferreira, D. (2010). Board diversity. In Corporate governance: A synthesis of theory, research and practice (pp. 225–242). John Wiley & Sons, Inc.

Gordini, N. & Rancati, E. (2017). Gender diversity in the Italian boardroom and firm financial performance. *Management Research Review*, 40(1), 75–94.

Goyal, R., Kakabadse, N. & Kakabadse, A. (2019). Improving corporate governance with functional diversity on FTSE 350 boards: directors' perspective. *Journal of Capital Markets Studies*, 3(2), 113–136.

Harjoto, M. A., Laksmana, I. & Yang, Y. wen. (2019). Board nationality and educational background diversity and corporate social performance. *Corporate Governance (Bingley)*, 19(2), 217–239.

Hartmann, C. C. & Carmenate, J. (2021). Does board diversity influence firms' corporate social responsibility reputation? *Social Responsibility Journal*, 17(8), 1299–1319.

Hassan, R. & Marimuthu, M. (2018). Bridging and bonding: having a Muslim diversity on corporate boards and firm performance. *Journal of Islamic Accounting and Business Research*, 9(3), 457–478.

Huse, M., Nielsen, S. T. & Hagen, I. M. (2009). Women and employee-elected board members and their contributions to board control tasks. *Journal of Business Ethics*, 89(4), 581–597.

Jouber, H. (2021). Is the effect of board diversity on CSR diverse? New insights from one-tier vs two-tier corporate board models. *Corporate Governance (Bingley)*, 21(1), 23–61.

Julizaerma, M. K. & Sori, Z. M. (2012). Gender diversity in the boardroom and firm performance of Malaysian public listed companies. *Procedia - Social and Behavioral Sciences*, 65(ICIBSoS), 1077–1085.

Kagzi, M. & Guha, M. (2018a). Board demographic diversity: A review of the literature. *Journal of Strategy and Management*, 11(1), 33–51.

Kagzi, M. & Guha, M. (2018b). Does board demographic diversity influence firm performance? Evidence from Indian-knowledge-intensive firms. *Benchmarking*, 25(3), 1028–1058.

Knippenberg, D., Haslam, S. A. & Platow, M. J. (2007). Unity through diversity: Value-in-diversity beliefs, work group diversity, and identification. *Group Dynamics*, 11(3), 207–222.

Konrad, A. M., Kramer, V., & Erkut, S. (2008). Critical mass: The impact of three or more women on corporate boards. *Organisational Dynamics*, 37(2), 145–164.

Lee, S. Y. (2015). The effect of top management team and board diversity on fraudulent financial reporting. [Master dissertation, Seoul National University].

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., Altman, D., Antes, G., Atkins, D., Barbour, V., Barrowman, N., Berlin, J. A., Clark, J., Clarke, M., Cook, D., D'Amico, R., Deeks, J. J., Devereaux, P. J., Dickersin, K., Egger, M., Ernst, E. & Tugwell, P. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. In *PLoS Medicine*, 6(7), 1000097.

Schopohl, L., Urquhart, A. & Zhang, H. (2021). Female CFOs, leverage and the moderating role of board diversity and CEO power. *Journal of Corporate Finance*, 71, 101858.

Sordan, J. E., Oprime, P. C., Pimenta, M. L., Chiabert, P. & Lombardi, F. (2020). Lean Six Sigma in manufacturing: a bibliometric study and research agenda. *TQM Journal*, 32(3), 381–399.

Van der Walt, N. & Ingley, C. (2003). Board Dynamics and the Influence of Professional Background, Gender and Ethnic Diversity of Directors. *Corporate Governance: An International Review*, 11, 218–234.

Wahid, A. S. (2019). The effects and the mechanisms of board gender diversity: Evidence from financial manipulation. *Journal of Business Ethics*, 159(3), 705–725.