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EDITED BY

Waseem ul Hameed
The Islamia University of Bahawalpur,
Pakistan

*CORRESPONDENCE

Kanwal Iqbal Khan
kanwal.khan@uet.edu.pk

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ACADEMIC PAPER

A Bibliometric Analysis of Board Gender Diversity in the Perceptive of Social Equity: A Science Mapping and Performance Analysis in the Banking Sector

Kanwal Iqbal Khan^{1*}, Albert John², Gulnaz Shahzadi³,
Rizwan Ali⁴

¹Department of Management Studies, New Campus, University of Engineering and Technology, KSK, Pakistan

Email: kanwal.khan@uet.edu.pk

²Lahore Business School, University of Lahore, Lahore, Pakistan

Email: albert.john@lbs.uol.edu.pk

³Department of Management Studies, Green International University, Lahore, Pakistan

Email: gulnaz.shahzadi@giu.edu.pk

⁴Lahore Business School, University of Lahore, Lahore, Pakistan

Email: rizwan@uet.edu.pk

ABSTRACT

Gender equality is becoming a well-discussed phenomenon among scholars, policymakers, and governments, particularly after the emphasis on gender equality goals by the United Nations. As a result, women increasingly occupy higher managerial positions within the firm hierarchy in the banking sector to achieve social equity which is only possible to address the gender disparity issue. That is why the literature on female representation in corporate boards has dramatically increased in recent years, proving unequivocally that specific traits of women favorably influence many domains inside the organization. However, the conflicting empirical evidence regarding the significance of gender board diversity (GBD) leads scholars to revisit the underpinning theories and literature. The current study conducted a bibliometric analysis to evaluate scholarly papers concerning female participation on governing boards from 2012-22. The Scopus database was used for document extractions, and 792 publications were included in the bibliometric analysis. The findings emphasize important journals, institutes, countries, pertinent authors, and research on this issue. The United States, the United Kingdom, and Spain are the most dominant regions, and University Utara Malaysia is the leading institute in publications. Journal of Business Ethics is the primary source of publication, and García-Sánchez is the most contributing author based on article metric. The study also reported the five major research themes: board structure and composition, CSR disclosure and sustainability, the financial impact of board gender diversity (BGD), demographic diversity, and the significance of female CEOs in decision-making opening new research areas for scholars and practitioners. The study will be helpful in theoretically supporting the concept of GBD in the banking sector and highlighting the reasons for conflicting findings from the prior studies that will be useful in achieving sustainable organizational goals.

KEYWORDS

Gender Equality, Board Diversity, Social Equity, Bibliometric Analysis, Corporate Governance, Sustainable Development Goals, Banking Industry, Firm Performance

INTRODUCTION

Recently, gender equality has gained popularity after the emphasis of the United Nations on achieving gender equality and female empowerment goals (Girón & Kazemikhasragh, 2022). That is why, it has become a debatable phenomenon that specifies women's representation on board which is also following the SDGs (Julizaerma & Sori, 2012). Social equity is also essential to attain which cannot be possible without addressing gender diversity (GD) (Kuteesa et al., 2024). Most empirical study on the topic is limited to industrialized nations, even though corporate governance research has been expanding recently, specifically in the banking sector (Kang et al., 2007). Previous studies reported contradictory findings regarding female involvement in board-level positions (N. Ali & K. I. Khan, 2022).

Various studies reported positive economic and financial performance due to women's representation on the board (Dezsö & Ross, 2012). The empirical findings state that directors must consider the company's interests in their decision-making, reducing agency conflicts among different stakeholders (Julizaerma & Sori, 2012). Further, female directors in banks can enhance the ethical and moral standards of the board which enhances the credibility and standard of their decisions (Lückerath-Rovers, 2013). Previous research, on the other hand, has also reportedly found an inverse relationship between GD and a company's performance (Adams & Ferreira, 2009). Research finds no proof connecting board diversity to business performance (Carter et al., 2010).

Similarly, female involvement on the corporate board creates an ethical environment that increases the morality standards, which improves its social performance and promotes social equity. There is a shred of evidence that companies with diverse boards are more inclined toward social activities (Post & Byron, 2015). The CSR reporting helps them to remove asymmetric information and ultimately results in a better corporate image (Setó-Pamies, 2015). These findings are in line with the corporate finance theories. Another advantage of female inclusion is to promote and support environmental regulations (Khan, Nasir, & Saleem, 2021), which creates a positive image and also increases the sale of the product (Glass et al., 2016).

The link between GD and the banking sector's performance has not been shown yet. Further empirical research is needed as many scholars still believe in a strong correlation between GD and business performance (social, financial, and environmental). Therefore, there is a need to conduct a comprehensive analysis of the topic to understand (1) what has been the evolution of GBD research corporate finance and governance? (2) what are the existing theories, concerns, and development of the concept in the study domain? (3) what are the key contributors (sources, authors, institutions, countries, etc.) in the fields? (4) what are the future directions of the GBD research in dealing with the corporate finance and governance issue and enhancing the firm performance?

LITERATURE REVIEW AND THEORETICAL UNDERPINNINGS OF THE CONCEPT OF "GENDER BOARD DIVERSITY"

In the literature on corporate governance and finance, the importance of GBD is extensively studied. Several theories are rendered to examine the consequences and determinants of board gender diversity (BGD) and its impact on overall business performance (Khan, Qadeer, Mata, Chavaglia Neto, et al., 2021), specifically banking sector performance. The earliest theory that emphasizes the importance of an individual's knowledge, skills, education, and experience for an organization's effectiveness and efficiency is the human capital theory (Burke, 2003). Corporate board members bring knowledge, skills, perspectives, and understanding to the significant predictors of boards' effective functioning. Because directors' aptitudes and competencies impacted their evaluations, the effectiveness of a company's human capital positively affected the board's performance (Joecks et al., 2013). To use the talent pool, businesses should always give both male and female board candidates serious consideration.



In addition, another study claims that The human capital needed by boards is requisite for female directors (Singh et al., 2008). Therefore, adding a woman to the board is advantageous for the company from the standpoint of human capital. The "why" and "how" of having a woman director increases the board's social capital and has been the subject of prior research. For instance, it is asserted that a female director may operate as a role model for female members of the organization, further assisting in breaking the "Glass Ceiling" effect, which enriches a female director's network connections with other female directors (Burke, 2003). Additionally, women who serve on boards of directors tend to be more philanthropic, have more experience outdoors, and have a more significant influence on society (Hillman et al., 2009). They may also improve corporate social responsibility and bring peace to the workplace (Post & Byron, 2015).

Another prominent theory used to study BGD is the social identity theory. According to this theory, people feel at ease when surrounded by others who share their demographic characteristics (Tajfel, 1974). When surrounded by a homogenous group, a person with unusual demographic features may be considered an outcast (tokenism viewpoint). Women directors on boards with male executives are therefore viewed as out-group members. One of the main objections is appointing female directors to corporate boards while a man serves as the CEO. When choosing board members, a male CEO often prefers the same demographic features (Daily & Dalton, 1995). Both social cohesiveness and social network theories contend that group members create their networks based on the shared social identities they possess. They formerly shared a common way of thinking and had their norms. As a result, these individuals are very connected and utilize their solidarity to support, affirm, and encourage one another. As a result, a board with a majority of male members could create a less friendly environment for female directors to express their views and impact other board members.

According to tokenism theory, minorities are seen as symbols or tokens because of their insufficient involvement in a group and their propensity to be easily manipulated by the majority. According to Milliken and Martins (1996), the marginalized group or token experiences three outcomes: performance anxiety, efforts at exclusion by the influential group, compulsion into "stereotypical roles," and less respect for their abilities and achievements (Naheeda Ali & Kanwal Iqbal Khan, 2022). Additionally, a token female member is confronted by behavioral, cultural, and organizational barriers, which include being mistrusted, having their judgment regularly questioned, and being regarded unfavorably.

Another theory in BGD literature is critical mass theory. According to the theory, a minority is simply trapped by the majority in a group setting, referred to as a token (Milliken & Martins, 1996). According to earlier studies, a group can be said to have "critical mass" when at least three members (Nemeth, 1986). When a subgroup (minority) or token gains this advantage, it promotes diversity since a diverse group may exercise better judgment than an identical group. Additionally, diversified corporate boards in a company are more productive than homogenous boards (Torchia et al., 2011). According to Bear et al. (2010), as the minority population becomes the majority, the group members prioritize change. Therefore, when there are enough tokenisms, they become respected, and heard, and could influence the other group members. This may also indicate better interaction and collaboration with the influential group, which results in better decision-making (Torchia et al., 2011).

According to the resource dependency theory, the organization is an open system that depends on its environment to survive (Pfeffer & Salancik, 2015). The company boards are a bridge between the business and the outside world. A well-organized board may help the business by providing legitimacy, guidance, advice, and strong networking with internal and external environments (Hillman et al., 2007). Hillman et al. (2009) explored the following ways of examining how the board of directors might take on resource-dependence duties to lessen the organization's reliance on its external environment: by providing the board with the resources it needs and by establishing a network with the external environment to guarantee the company has access to resources. In addition, a gender-diverse board sends the market and investors a positive message about the availability of a diversified workforce (Carter et al., 2010). Female directors often hold more directorships than male colleagues (Hillman et al., 2007). Additionally, according to Hillman et al. (2007), companies are employing more women as



directors due to their ability to network effectively. Therefore, from the standpoint of resource reliance, having a board that is made up of both men and women may help the company forge solid relationships with other players in the market, reduce uncertainty by cutting down on transaction costs, and increase firm power (Hillman et al., 2009).

The institutional approach is dominant in studying the legitimacy of the business. According to institutional theory, a firm approves plans and policies to allay societal concerns and strengthen its legitimacy (DiMaggio & Powell, 1983). A gender-diverse board can strengthen the directors and make them more visible to the outside world. Due to this, rather than increasing corporate value, Dunn (2012) noted that companies are choosing female directors to demonstrate their legitimacy to society. Although companies are adding GD on corporate boards to demonstrate their legitimacy to society, this does not mean that women lack the necessary knowledge to work for the company (Khan, Qadeer, & Ghafoor, 2017; Khan et al., 2016).

To understand the relationship between board qualities and business value, agency theory is the basic theory used in the research of boards of directors (Hillman et al., 2009). Accordingly, a board is responsible for supervising managers on behalf of the shareholders and reducing agency fees (Hillman et al., 2007). A diverse board may reduce opportunistic executive conduct through thorough oversight and protect shareholders' wealth (Rasheed et al., 2021). A diverse board can enhance managerial oversight since it is more independent. Additionally, a gender-diverse board's vigilant oversight, consistent auditing efforts, management responsibility, and specific risk perception reduce the firm's rigidity, enhance transparency, and reduce agency conflict (Srinidhi et al., 2011).

In contrast to agency theory, stewardship theory holds this viewpoint. According to this notion, insiders of a company act as good agents or stewards to benefit the shareholders and other stakeholders (Donaldson & Davis, 1991). Insiders seek more achievement, recognition, and intrinsic satisfaction for their honorable efforts. Managers do not want to mishandle the corporation's assets and are trying to preserve shareholders' investment (Aguilera et al., 2008). Therefore, the company's gender-diverse board may keep an eye on, influence, encourage, advise, and coach organizational management to perform a decisive stewardship role.

Stakeholder theory by Freeman (1999) expanded on the original definition of organizational performance. According to this idea, an organization is a component of an open system; as a result, for the organization to exist in the system, it must take care of its stakeholders (Rashid et al., 2022). If a company doesn't look out for the interests of its stakeholders, it won't function as well as it should. The relationship between stakeholder theory and corporate board diversity demonstrates the necessity for businesses to consider society's expanding requirements and interests (Kang et al., 2007). Instead of having a gender-biased board, GD in the board might be a creative method to protect the community's interests. Therefore, a gender-diverse board positively signals potential employees, staff, customers, investors, and other stakeholders (Rose, 2007).

According to Aghion et al. (2013) quiet life hypothesis and career concern hypothesis, businesses must nominate female directors based on business competitiveness in the banking industry. When analyzing issues on a gender-diverse board, female directors base their decisions on thorough information about male directors (Milliken & Martins, 1996). Therefore, it may be anticipated that well-governed businesses will be more visible to stakeholders and more likely to adhere to voluntary codes of behavior (Khan, Qadeer, & Rizavi, 2017), such as GD to protect their competitiveness and deal with complicated business difficulties (Dalton et al., 1998). The existence of female directors on corporate boards is thus supported by the career concern hypothesis and the quiet life hypothesis.

METHODOLOGY

The study aims to highlight the importance of "GBD" by conducting a bibliometric analysis which is one of the most rigorous and popular methods of analyzing large volumes of scientific data (Adeel Nasir et al., 2021). The bibliometric analysis unveils the performance analysis, collaborating networks, future



trends, themes, and intellectual structure of the specific domains in the extant literature (Khan, Qadeer, Mata, Dantas, et al., 2021). For the current study, the Scopus database was used to extract data from 2012-22. However, information related to the topic under study is available from 1974, but 174 documents from 1974-2011(38 years) were excluded as they represented, on average, 4.60 publications per year. The study excluded book chapters (34), reviews (27), and editorials (2). It included only articles (877) and conference papers (23). In the publication stage, we only need those articles that were already published, so we excluded in-press documents (85) as they initially do not receive and have very rare chances to receive citations. Finally, the documents written in other languages like Spanish (13), German (3), Portugal (2), Russian (2), etc., a total of 23 were excluded and finally, we ended up with 792 documents written in English focus on the banking sector.

Table 1: Main Information about Data.

Description	Results
Timespan	2012-2022
Sources (Journals, Books, etc)	322
Documents	792
Annual Growth Rate %	14.28
Document Average Age	3.59
Average citations per Documents	24.44
References	45482
Document Contents	
Keywords Plus	400
Author's Keywords	1487
Authors	
Authors	1775
Authors of Single-authored Documents	94
Authors Collaboration	
Single-authored Documents	100
Co-Authors per Documents	2.7
International Co-authorships %	26.01
Document Types	
Article	769
Conference Papers	23

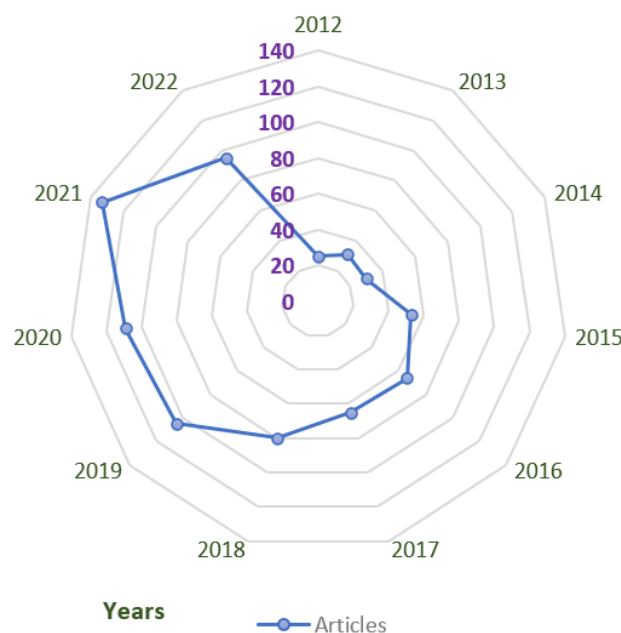


Figure 1. Annual Scientific Production.



The VOS Viewer and R-software tools of bibliometrix and bibliophily tool were used for data analysis. Table 1 provides the main information about the data used in the analysis. Total of 792 documents including articles (769) and conference papers (23). The annual growth rate (14.28%), document average age (3.59), average citations per document (24.44), and total references (45482). Total authors (1775) and authors of the single-authored documents (94). The authors' collaboration included: single-authored documents (100), co-authors per document (2.7), and international co-authorships (26%). Figure 1 presents the annual production of documents related to GBD for 11 years (2012-22). The increasing trend depicts the significance of the topic over time. Initially, the first article was published in 1974, but its importance has enhanced after the inclusion of gender equality goals in the United Nations SDGs. From 2019 onward, the number of publications has significantly increased and crossed 100 per year, even till the date of a query (17 August 2022). The publications in 2022 are 95, and the number is expected to increase significantly by the end of the year.

RESULTS

This section presented the results of performance analysis, citation, and keyword analysis. These three categories are the main techniques of bibliometric analysis.

Performance Analysis

Performance analysis explains the contributions of the leading research constituents (sources, authors, institutions, countries, etc.) (A. Nasir et al., 2021). Table 2 explains the core publications sources that publish the papers related to the topic. The origin and selection of a journal enable readers to quickly comprehend the significant findings and recommendations of the research, in this case, on GBD. Table 2 contains the characteristics of the top 10 research journals according to quality indices indexes (h, g, m). According to quality indices, the top six journals are the most prestigious journals working on BGD with an h-index higher than 10. “Journal of Business Ethics” (NP=38; TC=3879), “Corporate Governance (Bingley)” (NP=46; TC=1170), “Corporate Social Responsibility and Environmental

Management”(NP=23; TC=1540), “Business Strategy and the Environment”(NP=12; TC=807), “Gender in Management”(NP=15; TC=293), “Corporate Governance: An International Review”(NP=9;TC=455), “Journal of Corporate Finance”(NP=8;TC=861), “Journal of Management and Governance”(NP=11;TC=637), “Management Decision”(NP=7;TC=230), “Social Responsibility Journal” (NP=9;TC=260) were the journals with the highest number of publications and citations on the GBD.

Table 2: Top Ten Publication Sources.

Publication Sources	h_index	g_index	m_index	TC	NP	PY_start
Journal of Business Ethics	31	38	2.818	3879	38	2012
Corporate Governance (Bingley)	20	33	1.818	1170	46	2012
Corporate Social Responsibility and Environmental Management	17	23	1.7	1540	23	2013
Business Strategy and the Environment	12	12	1.714	807	12	2016
Gender in Management	10	15	0.909	293	15	2012
Corporate Governance: An International Review	7	9	0.636	455	9	2012
Journal of Corporate Finance	7	8	0.778	861	8	2014
Journal of Management and Governance	7	11	0.636	637	11	2012
Management Decision	7	7	1	230	7	2016
Social Responsibility Journal	7	9	0.7	260	9	2013

Figure 2 presents the top authors' production over time (A. Nasir et al., 2021). We analyzed ten leading authors in BGD research. García-Sánchez is the most contributing author based on article metric and has contributed eleven articles while receiving 501 citations. One of his research projects from 2012 revealed that when working circumstances and academic background are comparable, female directors do better in fields historically dominated by males (Rodríguez-Domínguez et al., 2012). Additionally, it is clear that more diverse boards have a positive influence on the application of ethical codes (García-



Meca et al., 2015) and have a more significant impact on the conservatism and earnings quality of banks (García-Sánchez et al., 2017), and have a positive interest in enhancing the efficiency of business (Uribe-Bohorquez et al., 2019). Increased BGD minimizes the impact of impression management techniques on sustainability disclosures (García-Sánchez et al., 2019) and has a positive effect on voluntary socially responsible and gender issues disclosures (Amorelli & García-Sánchez, 2020; García-Sánchez et al., 2020). In contrast to other research, one of his studies found that independent directors are vital in executing eco-innovation and eco-design projects rather than either diversity or specialist directors (García-Sánchez et al., 2021).

Siri Terjesen is the most influential author based on citation metric and has contributed seven articles while receiving 645 citations. His study primarily focuses on the factors that enact gender quota laws in various nations. For instance, Terjesen et al. (2015) show that countries with the most favorable welfare systems, left-leaning governing alliances, and a history of path-dependent efforts toward gender equality are the only ones who enact gender quota legislation. Another study on the implementation of gender quotas in Spain found that the government was not committed to the policy and that the quota's normative requirements did not lead to the creation of gender-balanced boards (García-Sánchez et al., 2018). It was also found that businesses that depend on government contractual agreements are much more likely to raise female representation. A related study in the USA discovered that corporations with their headquarters in states with progressive laws protecting women from discrimination have higher proportions of female directors on their boards of directors (Thams et al., 2018). According to his research, female directors improve the efficacy of boards of directors and company success (Terjesen et al., 2016).

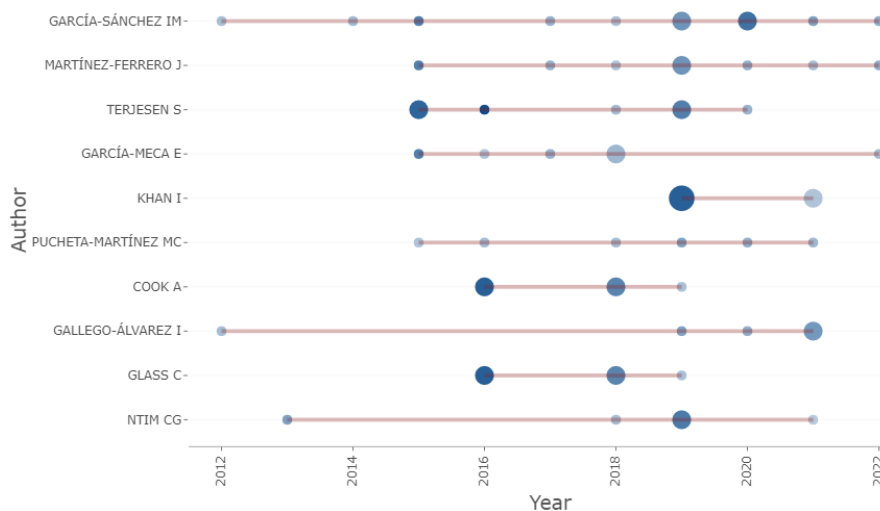


Figure 2. Authors' Production over Time.

Based on publications and citation metrics, Martnez-Ferrero is the third-most influential author and contributing author. He has written eight papers and received 347 citations. Most of his research focused on how GD affected CSR performance and sustainability reporting. For instance, his research indicated that increasing BGD would improve sustainability reports' quality, CSR reporting, and performance (García-Sánchez et al., 2022), and the increased likelihood that organizations will voluntarily report on gender issues (García-Sánchez et al., 2020). In addition, his studies looked at the effects of GD on boards of directors. They discovered that it improves company technical efficiency in economically oriented cultures, bank performance, and profit quality in banks (Uribe-Bohorquez et al., 2019).

Based on publications and citation metrics, Garca-Meca is the fourth most influential author and contributing author. He has written six papers and received 267 citations. In addition, Garca-Meca studied the effects of GD on board, manager compensation, and dividend payout policy (Khan, Qadeer, & Ghafoor, 2017). They discovered a negative correlation between managerial compensation in Spanish banks and GD on the board of directors (García-Meca, 2016) and an inverted-U connection between the dividend payout



ratio and GD as it depends on the relationship with the family owners (García-Meca et al., 2022).

The fifth top author is Pucheta-Martínez, who has published six articles with a citation of 148. Most of his research examined the impact of BGD on CSR performance and disclosure. Their findings claimed that women are often underrepresented in corporate boards, particularly in developing and emerging market economies. According to research that examined the dual nature of GD, women with political and social ties don't boost CSR transparency; instead, they decrease it (Ramon-Llorens et al., 2021). Further, Pucheta-Martínez and Gallego-Álvarez (2019) revealed the disclosure of CSR concerns is encouraged by board features including board size, GD, and CSR committees.

Pucheta-Martínez also works on GBD and the wage gap. He contended that the gender wage difference is unaffected by the presence of females on the board of directors (Pucheta-Martínez et al., 2015). Another study suggested that the ratio of female executives had a negative influence on dividend payouts. However, Pucheta-Martínez et al. (2016) reported that the proportion of female independent directors has no impact on the dividend distribution. They also found that while female institutional board directors improve their performance, once their board percentage reaches a specific point (11.72%) after that firm value starts declining. Similar pressure-resistant female board members also boost company value, but only up to a certain point (12.71%), negatively affecting business performance.

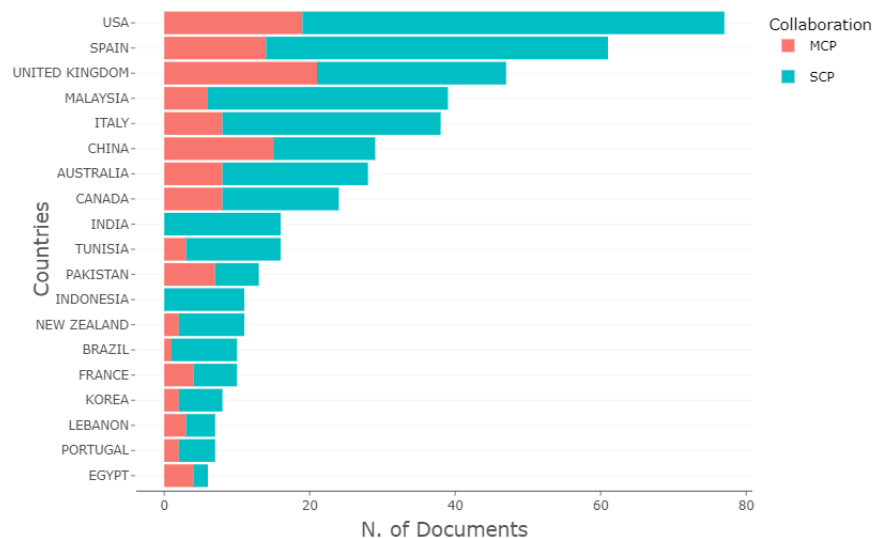


Figure 3. Most Significant Corresponding Authors' Countries.

The sixth top author is Imran Khan, who has published three articles with citation 134. These three papers investigated the impact of GD on the quality of CSR disclosure. He suggested that GD among board members has significantly improved the quality of CSR disclosure in Pakistan (Khan et al., 2019). Gallego-Álvarez, Ntim, and Cook follow them; they have published three, two, and one article and received 55, 35, and 11 citations, respectively. Gallego-Álvarez and Pucheta-Martínez (2020) reported that in developing market economies, the number of women executives on boards is extremely restricted; hence, their involvement in decision-making is modest and has little influence on the disclosure of CSR.

Gallego-Álvarez revealed in another study that the inclusion of women on boards had a beneficial effect on the CSR disclosure procedures in Brazilian enterprises (Formigoni et al., 2021). García-Sánchez et al. (2021) revealed that implementing environmentally friendly policies including introducing eco-innovation and eco-design projects requires a diversity of directors on the board. They revealed that female directors in monitoring and advisory roles perform better to benefit shareholders. In another study, Tran et al. (2021) revealed GD as a significant determinant of corporate sustainability disclosures. According to Cook et al. (2019) research, the top executive pay gap is reduced when women serve as the head of the compensation committee and have a say in compensation choices.



Figure 3 explains the most contributing corresponding authors' countries. It includes 24 countries based on their collaboration indexes MCP=Multiple Country Production and SCP= Single Country Production. The USA is the most prominent country in the list with 77 article production and SCP=175. Spain and the UK stand in second and third place with 61 and 47 articles and 47, and 26 SCP, respectively. The UK is involved in the largest number of multi-country productions as its MCP is 21. In comparison, the USA and China place second and third place with 19 and 15. Finally, Saudi Arabia, Egypt, and Pakistan are the top three countries based on the MCP ratio (0.833; 0.667; 0.538), respectively.

Table 3: Top Five Countries and Institutions' Production Over Time.

Year	Core Countries					Affiliated Institutes				
	Italy	Malaysia	Spain	UK	USA	Universiti Utara Malaysia	University of Salamanca	University of Southampton	Universiti Teknologi Mara	Qatar University
2012	2	1	5	5	5	1	1	1	0	0
2013	3	5	6	11	12	2	1	2	0	0
2014	3	5	12	16	28	2	1	2	0	0
2015	11	5	22	32	48	2	2	2	0	0
2016	13	19	28	46	68	4	2	2	2	0
2017	20	31	38	55	89	7	3	2	4	2
2018	24	44	59	69	121	7	6	3	5	2
2019	38	63	82	79	152	14	10	6	8	3
2020	63	73	104	91	170	16	11	7	10	4
2021	85	80	117	113	206	16	13	8	13	6
2022	100	86	147	128	226	16	14	8	14	8

Table 3 reveals that the United States, the United Kingdom, and Spain are the dominant regions in terms of the quantity of papers, accounting for almost 75% of all published research articles on board diversity subjects which show that these countries are key players in developing this concept. More specifically, the highest number of publications in the world related to BGD was published by the USA (n = 226), followed by Spain (n = 147), the UK (n = 128), Italy (n = 100) and Malaysia (n = 86). The most productive five institutions on the topic under study are also reported in Table 3 where Universiti Utara Malaysia is the most productive institute in Malaysia, with 87 documents on board diversity.

Similarly, Universiti Teknologi Mara, also from Malaysia, falls in the top five productive institutions with 56 documents. From the UK, the University of Southampton is also one of the productive institutions with 43 documents. From Spain, the University of Salamanca also secured its position as the most prestigious institution in research on BGD with 64 documents. Although the surprising finding is that the USA led the list of top five countries on this subject research, not even a single institute from the USA can be on the list of top five productive institutes. Instead, Qatar University is the fifth most productive institution in research, with 25 documents though Qatar is not on the list of the top countries.

Citation Analysis

Citation analysis analyzes the relationship between the most influential publications by acknowledging their published work cited by other scholars (Khan et al., 2022). Table 4 shows that over the years, the number of citations of the publications has been increasing. The research articles published in 2012 (N=25) received an average total of citations per article (55.04) and year (5.5) in 10 citable years. Similar is the case with the other years. In 2022 as a citable year is zero; its mean total citation per article is 1.29 till the query date. However, it is expected to increase till the end of the year. Figure 4 shows the most cited countries in the world. The USA (3109), the UK (2177), and Spain (2085) are the most prominent countries that focus on the gender-board diversity concept. Figure 5 depicts the most relevant institutional affiliations whose work is acknowledged by other scholars in terms of citations. Dongbet University of Finance and Economics ranked at the top with 16 citations.



Table 4: Citation Trends over the Years.

Year	N	Mean TC per Article	Mean TC per Year	Citable Years
2012	25	55.04	5.50	10
2013	31	68.39	7.60	9
2014	30	44.90	5.61	8
2015	53	62.02	8.86	7
2016	66	51.03	8.51	6
2017	65	31.26	6.25	5
2018	80	23.90	5.97	4
2019	105	18.21	6.07	3
2020	109	11.31	5.66	2
2021	133	4.84	4.84	1
2022	95	1.29	-	0

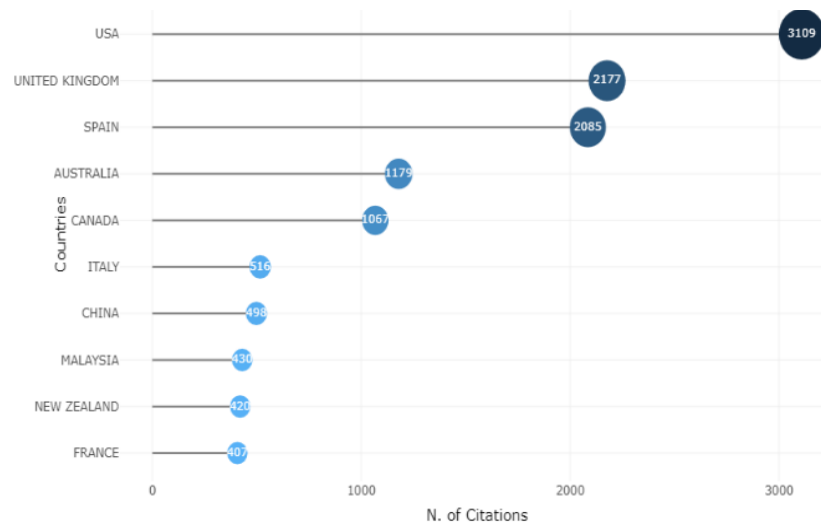


Figure 4. Most Cited Countries.

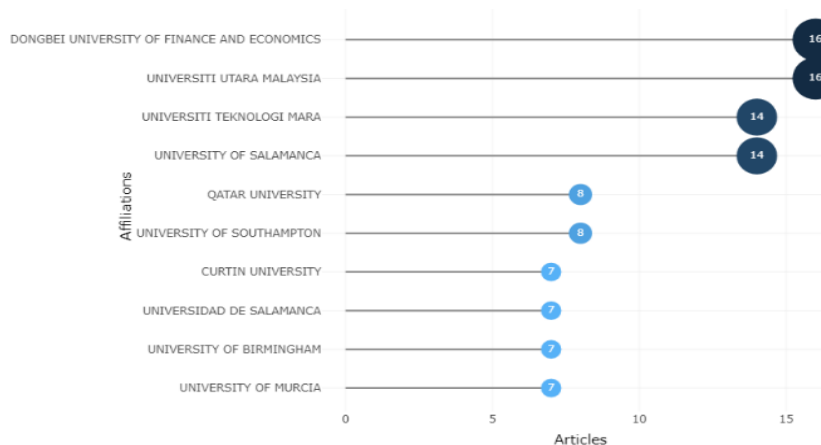


Figure 5: Most Relevant Affiliations.

Table 5 shows the first most cited article (citation = 600) by Post and Byron (2015) investigated the role of female directors on a firm's performance and found a favorable correlation between them. They further state that this association is higher in terms of economic targets and ensures better shareholder rights. Additionally, we establish a positive correlation between female inclusion on board and market performance in countries with higher gender equity and a negative correlation in those with lower gender equity. They also establish a good correlation between female board presence and the board's two primary duties, strategy engagement and monitoring. The second paper with a high global citation (citation = 331) is written by Rao and Tilt (2016), reviewing articles on board diversity and CSR and



its reporting. This study suggested that greater board diversity positively impacts CSR and its reporting, but they also highlighted the need for more research on this topic using qualitative and longitudinal methods.

The third most widely cited paper (citation count: 311) was produced by Sila et al. (2016), who examined the connection between corporate risk and GD on boards. According to this study, there is no proof that the participation of women in boardrooms affects equity risk. Furthermore, they prove that the prior findings of a negative link between the two factors are falsified and caused by unrecognized inter-firm heterogeneity factors. The fourth most cited article (citation count: 308) is written by Harjoto et al. (2015) to examine the impact of board diversity on CSR performance. The results showed that, for businesses that provide consumer-focused products and for businesses engaged in more competitive industries, board diversity is positively correlated with CSR performance by raising CSR strengths and lowering CSR worries. The banking industry is also customer-focused and faces intense competition, therefore, GBD gives them more benefits. These results are consistent with the idea that having a diverse board of directors improves a company's capacity to meet the requirements of a broader range of stakeholders.

Table 5: Most Local and Global Cited Documents.

References	Local Citations	Global Citations	LC/GC Ratio (%)	Normalized Local Citations	Normalized Global Citations
Post and Byron (2015)	102	600	17.00	9.37	9.67
Lückerath-Rovers, (2013)	60	244	24.59	4.92	3.57
Hafsi and Turgut (2013)	60	272	22.06	4.92	3.98
Rao and Tilt (2016)	57	331	17.22	7.03	6.49
Sila et al. (2016)	57	311	18.33	7.03	6.09
Terjesen et al. (2016)	55	264	20.83	6.79	5.17
Terjesen et al. (2015)	53	242	21.90	4.87	3.90
Mahadeo et al. (2012)	53	217	24.42	5.10	3.94
Harjoto et al. (2015)	48	308	15.58	4.41	4.97
Zhang et al. (2013)	46	235	19.57	3.77	3.44

The fifth most cited article is (citation count: 272) written by Hafsi and Turgut (2013) to examine the relationship between board diversity and organizational social performance. They identified a clear link between social performance and board diversity and suggested that board diversity moderates this connection. Terjesen et al. (2016) wrote the sixth most referenced paper (citation count: 264), which empirically examines whether GD improves firms' performance. According to a study, companies with more women on their boards of directors do better in the market and financial performance. The findings also imply that unless the board is gender diverse, independent external directors do not improve banking performance.

The seventh most referenced article (citation count: 244), authored by Lückerath-Rovers (2013), evaluates the financial performance of firms both with/without women directors. They argued that banks with female directors outperform those with male directors. Another article by Terjesen et al. (2015) holds the eighth position in the list of most cited articles (citation count: 242). Terjesen's study primarily focuses on the factors that enact gender quota laws in various nations. For instance, Terjesen



et al. (2015) show that countries with the most favorable welfare systems, left-leaning governing alliances, and a history of path-dependent efforts toward gender equality are the only ones who enact gender quota legislation.

Zhang et al. (2013), the ninth most referenced paper (citation count = 235), intends to investigate the effects of BGD on CSR performance. This study proves that having more women and outside directors is associated with improved CSR performance. The last article in the most cited articles list is written by Mahadeo et al. (2012), who investigated the impact of board diversity on firms' performance in developing economies. The researchers noted that developing nations had a very low gender representation on boards. They have, however, raised the prospect that, in the case of female representation, their symbolism should be sufficient to bring about significant changes in viewpoints at the board level, resulting in improved performance.

Keywords Analysis

The keyword analysis shows the frequency and interrelationship of the most used terms in the data set of studies. In doing this research, the co-occurrence of keywords was used. The minimum criterion for how many times a keyword must occur for it to be incorporated into the mapping was set to 10 times. This was necessary for the mapping to be representative. Therefore, keywords that satisfy this condition were chosen to obtain the map depicted in Figures 6.1 and 6.2. The most popular terms, as displayed in this map, are "corporate governance", "GD", "board diversity", "gender", "firm performance", "board composition", "diversity", and "corporate social responsibility", "boards of directors", "female directors", "women directors", "corporate boards".



Figure 6.1: Authors Keyword.



Figure 6.2: Keyword Plus.

SCIENCE MAPPING

Science mapping explains the relationship between different research constituents through the techniques of co-citation analysis, bibliographic coupling, and co-occurrence analysis.

Co-Citation Analysis

Co-citation analysis examines the relationship between the cited publications based on references, sources, and authors to report the development of the main themes related to GBD (Khan, Qadeer, Mata, Chavaglia Neto, et al., 2021). It shows the frequency of the two documents cited together by another document. Simply, it shows when two documents are co-cited and appear in the reference list of the third document. Figure 7 presents the co-citation analysis highlighting the most prominent authors related to GBD. Adams and Ferreira (2009) explained the importance of female directors by highlighting their active participation in monitoring and other firm-related matters. But at the same time, they believe that mandating female participation on the board of directors can negatively impact the firm value even in well-governed firms. However, Carter et al. (2003) reported a positive relationship between the percentage of female and minority directors and firm value. These conflicting findings enhance the importance of the concept.



Scholars try to explore its further dimensions like corporate social performance (Bruna et al., 2022), board cultural diversity, gender gaps and policies (Dalvit et al., 2021), corporate governance developments (Bezemer et al., 2012).

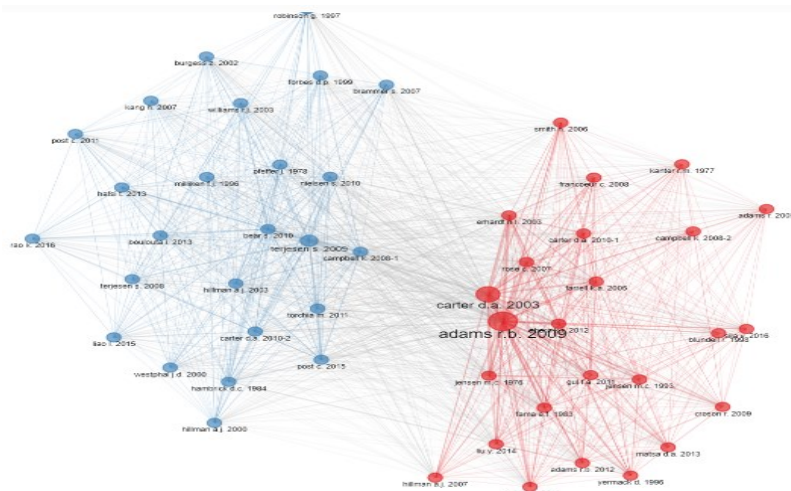


Figure 7: Co-Citation Analysis.

Bibliographic Coupling

Bibliographic coupling explains the article citation when two articles cite the same reference. All documents were included in the analysis, but the minimum citations of the documents were set at a level of 20 documents. The remaining documents were 230. Figure 8 shows the bibliometric coupling of GBD literature and divides it into 5 clusters: red, green, blue, yellow, and purple. Cluster 1 represented 83 items that mainly focused on the role of GD in risk-level decisions (Sila et al., 2016), board independence and efficiency (Terjesen et al., 2016), effectiveness in regulation and fraud detection, dividend announcement (Chen et al., 2017) and ownership structure and firm-level performance. Cluster 2 includes 71 items which mainly discuss CSR reporting and social performance (Rao & Tilt, 2016), the relationship between female directors and CSR activities (Setó-Pamies, 2015), board composition, and sustainability initiatives (Ben-Amar et al., 2017).

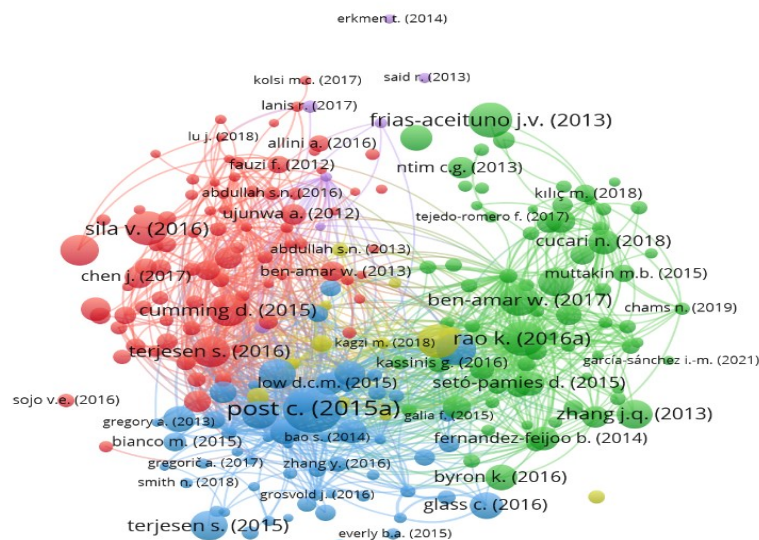


Figure 8: Bibliographic Coupling.

Cluster 3 is depicted in blue color and added 57 items. It explains gender quota legislation on corporate board composition (Terjesen et al., 2015), the effect of female participation in board and financial returns (Post & Byron, 2015), women directors, sustainable development, and environmental



performance (Glass et al., 2016). Cluster 4 is shown in yellow and includes 12 items. It highlights the agency conflicts between different stakeholders and how board diversity resolves the investment-related issues (Kang et al., 2007). Cluster 5 is the smaller cluster that adds only 7 items describing female directors' role in governance and performance issues (Adams & Ferreira, 2009). Kolsi and Grassa (2017) explained corporate governance's role in companies' earnings management.

Co-Occurrence Analysis

Co-occurrence analysis is used to identify and reveal the most significant research trends in corporate finance and governance during the study period (Adeel Nasir et al., 2021). It is an effective tool to support knowledge mining and provide an overview of underpinning research areas (Khan, Nasir, & Saleem, 2021). It is conducted by selecting the most frequent words from titles and other keywords (Khan et al., 2022). The minimum threshold was set as an occurrence of at least 10 words in a term. Out of 11689, 454 meet the threshold. Based on the relevance score, 60 percent of the most relevant terms are selected in VOS Viewer. The total number of threshold terms is 272. After screening, 147 items were left, resulting in five clusters considered the most relevant to the research. VOS Viewer helps to identify the main terms and relationships between those terms through a total link strength attribute. Each cluster is represented by a specific color to which a term is assigned (See Figure 9).

All these clusters provide a specific research direction and trend in corporate finance and governance. They also present coherence and consistency between the terms that fall under a specific cluster and relate them with their description and contents of the scientific production in the field. Cluster 1, represented by red color included 51 items. The central theme extracted from it is "board structure and composition". Its focus is on the boardroom composition, social performance, gender quota, leadership position, regulation, and female representation on the corporate board. Uyar et al. (2022) stated that BGD was essential in ensuring the firm's financial stability. GBD enhances performance by ensuring a strong regulatory system that protects investors (García-Meca et al., 2015). It also includes two theories: institutional and critical mass theory. Both theories emphasized on inclusion of female directors on the board to improve institutional performance (Dunn, 2012; Torchia et al., 2011).

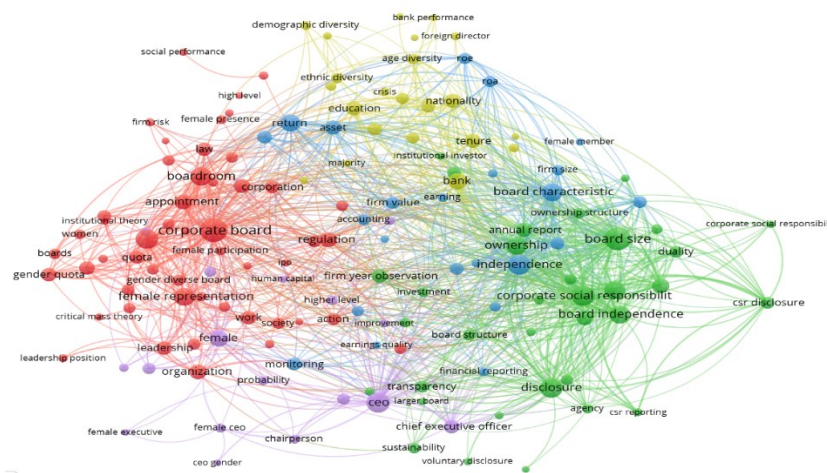


Figure 9: Co-Occurrence Analysis.

The second research dimension includes 34 items and highlights the "CSR disclosure and sustainability" perspective. Its main items show corporate social responsibility, CSR disclosure, transparency, voluntary disclosure, and financial and CSR reporting. Bruna et al. (2022) believe the inclusion of female directors increases corporate social performance. Feminization can help to improve decision-making, social participation, and the reputation of the firm (Reguera-Alvarado & Bravo-Urquiza, 2022; Uribe-Bohorquez et al., 2019). Hence, better decision-making improves financial reporting systems and board independence and achieves sustainable development targets (Bear et al., 2010). They believe that women play an influential role in regulatory matters, particularly fraud detection. Tapver et al. (2020) stated that the proportion of women on board improves the disclosure requirements, positively



influencing stakeholders. It also helps to portray a positive image in the market that helps to reduce agency conflicts which is why the theme represents the concept of agency cost theory (Nguyen & Truong, 2022).

Cluster 3 presents the research theme of "the financial impact of BGD " by containing 23 items which are firm size, assets, ROA(return on asset), ROE(return on equity), earnings, and financial monitoring. Terjesen et al. (2016) stated that board diversity increases the efficiency of and firm market and accounting performance. However, if a firm is concerned with board independence, female inclusion may not provide fruitful results as it may create a complex environment. Adams (2016) explained the significance of females. He believes the research in this area is still lacking and needs to be advanced by dealing with the critical challenges of data limitations, selection, and causal inference. Female participation can also improve the financial position (Nelson, 2005) and positively affect firm value (Carter et al., 2003).

Cluster 4 added 22 items highlighting the "demographic diversity", including age, education, nationality, ethnicity, tenure, and country assortment. Researchers consider diversity an essential component of achieving better organizational performance (Song et al., 2020). Gender and skill diversity has a positive effect while nationality has a negative influence on financial performance. Education, tenure, and networking do not affect financial performance. GD negatively influences market-based performance (Hosny & Elgharbawy, 2022). The final cluster 5 emphasizes the significance of the "Female CEO" in the organization. This cluster is depicted in purple color and includes 17 items. Previous studies reported that female CEOs have strong decision-making and risk-taking power (Schopohl et al., 2021). They reduce the firm leverage with a corporate board that comprises diverse genders, ages, and nationalities.

CONCLUSION

GD has gained importance in recent era due to the initiative taken by the United Nations to include it in its SDGs. The banking sector also emphasized it and drastically increased scholarly research on the concept. However, still, there is no consensus in the prior studies regarding the role of the BGD on firm value, risk-taking decision-making, and financial, economic, social, and environmental performance. Therefore, the current study conducted a bibliometric analysis of GBD to understand the underpinning theories and streamline the views of different authors about the concept. The analysis could adequately appreciate the fields in which the topics are already being studied, the pattern in the number of studies published throughout the decade, the major countries in which these publications have been authored, the leading universities, and the most pertinent journals where the research have been published, the ten leading authors with the highest articles published, as well as the most cited publications. Data were extracted from the Scopus database from 2012-2022. We found 792 publications published in the past ten years. Performance analysis reported that the "Journal of Business Ethics" is the most prominent source of publication. The US (226 articles) is the country that has produced the most papers on the subject.

At the same time, "Universiti Utara Malaysia," with 87 publications, is the university that has produced the most publications throughout the investigation. "Corporate Governance (Bingley)" is the journal that has produced the most articles on the subject during the past ten years (46 articles). Garca-Sánchez, Siri Terjesen, and Martnez-Ferrero are the writers who have authored the most publications. The paper by Post and Byron (2015), which has 600 citations, is the most often referenced. The study conducted co-citation analysis, bibliographic coupling, and co-occurrence analysis. It identifies the five major research themes: board structure and composition, CSR disclosure and sustainability, the financial impact of BGD, demographic diversity, and the significance of female CEOs in decision-making. These research themes help to identify the potential areas for future research.

DECLARATION

Implications of the Study

The findings of this study are very beneficial from both an academic and business standpoint. First,



having the most women's talents on corporate governing boards is a crucial topic. This bibliometric study demonstrates the various phases of this study and develops research avenues that might be researched more thoroughly. Second, it highlights the qualities and traits of women that, when applied to positions of authority, can positively affect organizations and the wider society. Third, it identifies the powerful role of female directors in risk-taking investment decisions that can enhance the banks' financial performance. This finding will be useful in dealing with the stereotypical thoughts regarding the weak decision-making powers of women. Fourth, the keen interest of female directors in ethical, social, and environmental issues emphasizes their inclusion on the corporate board. Finally, BGD helps to meet United Nations SDGs which is essential to deal with gender discrimination issues.

Limitations and Future Research

The study makes several contributions to the literature, but it also reports certain limitations that are essential to address: first, despite the results being extremely valuable for the corporate finance and governance fields. Still, the biggest weakness of it is the use of only one repository (Scopus) to gather the data. In contrast, more databases (Web of Sciences) may have provided a wider range of publications. The reliance on only one database somewhat restricts how the results may be interpreted. Future researchers may consider other databases or a combination of two or more databases to provide a broader view of the concept. Second. The current study discusses the literature on firm performance regarding economic, financial, social, and financial. The scholars may conduct further bibliometric or systematic analysis on the GBD concerning only one type of performance. It may help to understand the in-depth analysis. Third, the current study reported the five evolving themes. Future researchers may contemplate consolidating the developing research areas, developing theories, and suggesting real-life solutions related to GBD. Fourth, the bibliometric analysis particularly focuses on the gender board composition of the banking sector, future researchers conduct bibliometric analysis on manufacturing and other service sectors and compare their findings. Finally, scholars should emphasize more on exploring the issues related to women's representation in senior leadership. This will help to get more insight into the concept and help in dealing with corporate governance problems of the organization.

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Appendix A: Table of Acronyms.

Acronyms	Description
GD	Gender Diversity
BGD	Board Gender Diversity
CSR	Corporate Social Responsibility
SDG	Sustainable Development Goals
GBD	Gender Board Diversity

