

GENDER DIVERSITY ON CORPORATE BOARDS: REVIEW AND FUTURE RESEARCH AGENDA THROUGH BIBLIOMETRIC MAPPING

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Abstract

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With growing regulatory changes with respect to the composition of the board of directors, the regulation for the appointment of women directors on the corporate boards has seen an upsurge in recent times. It is quite evident to believe that with so many countries mandating the appointment of women, the reasons are not just social but also economic in nature. The extant literature provides enough evidence based on various social and psychological theories that support the diversity element for better decision-making. This study is an attempt to analyze the scientific articles to understand the growth of this concept under various dimensions. The search, undertaken over the Scopus database, led to the retrieval of a total of 547 articles published during the period 1989-2021 which, after final filtration, brought the total number of results to 352 articles. VOSviewer software was employed for the purpose of analyzing these articles which helped in the formulation of bibliometric citation, co-citation, and co-word maps. The findings suggest the prominent countries, significant authors, major studies, and top journals in this domain. In addition, the study also identifies the various dimensions such as financial performance, social performance, environmental performance, sustainability disclosures being impacted due to the presence of gender diversity. The study is significant and unique based on the pretext that it uses the Scopus database for the purpose of bibliometric mapping whereas past studies have used the Web of Science database, thus the study's outcome made a strong corroboration in identifying emerging paradigms in the gender diversity literature.

Keywords: Gender Diversity, Women on Board, Financial Performance, Bibliometric Analysis

Authors' individual contribution: Conceptualization — S.S.; Methodology — J.S., D.A., and S.S.; Validation — J.S. and D.A.; Formal Analysis — S.S.; Investigation — J.S. and D.A.; Writing — Original Draft — S.S.; Writing — Review & Editing — J.S., D.A., and S.S.

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1. INTRODUCTION

Gender balance under various dimensions, such as economic participation and opportunity, political empowerment, educational attainment, has shown

improvements in recent years at the global level. However, gender parity is still a distant dream. According to MSCI All Country World Index, in 2019, about 20% of all directors across companies were female, as compared to 17.9% in 2018. The reasons

for the slow-paced growth of women can be attributed to various reasons which are collectively known as the “glass ceiling” (Heredia, Ramos, Sarrió, & Candela, 2002). These obstacles, based on the societal perceptions, can take several forms including favoritism of male directors for other male directors (Hutchinson, Mack, & Plastow, 2015), the tendency of directors to feel more comfortable among directors from the same gender and demographic as per the similarity attraction theory (Chatman & O’Reilly, 2004), and the idea of prestigious occupations such as directorship belonging to males (Ridgeway, 2014).

The challenges amidst the growth of women directors on corporate boards are not just restricted to male directors but also certain perceptual biases of female directors, for example, due to the occupational identity threat females feel that growth in the number of females will lead to a fall in the esteem they have in the occupation (Cacouault-Bitaud, 2008), and, therefore, Queen Bee strategy is adopted by females to distance themselves with the other females (Derks, Ellemers, van Laar, & de Groot, 2011). The advancement of women studies has given rise to various phenomena that portray various kinds of reasons that showcase the situations due to which even if women are being employed on board, they are not able to escalate to the upper echelons. One such phenomenon is the “double burden syndrome” that highlights the dual responsibilities of household along with the professional responsibilities of work which are considered as traditional gender-based responsibilities (Hochschild, 1990) this does not permit the women directors to take up higher responsibilities even if they wish to owe to lack of efficiency (Bratberg, Dahl, & Risa, 2002).

Another theory that documents the low representation of women on corporate boards is the concept of “glass cliff” that emphasizes the appointment on women on boards only in the situation of crisis when the firms are struggling to perform and there is a high likelihood of failure (Francoeur, Labelle, & Sinclair-Desgagné, 2008; Ryan & Haslam, 2007). Moreover, in case the situation of these firms deteriorate post appointment of women on boards, which in any case has been done noticing crisis, they shall be soon replaced by their male counterparts (Cook & Glass, 2014). Another deterrent theory is the concept of the sticky floor which is a slight contrast to the glass cliff theory and states that women are equally appointed as often as males, but they tend to receive lesser compensation (Adams & Funk, 2012). In addition to the above phenomena, women have also addressed semi-hostile work environments with regard to stereotyping, gender discrimination, and social exclusion (Abdalla, 2015).

The act of promoting adequate gender representation on corporate boards is not merely a social phenomenon to promote gender equality, but rather the presence of diversity can accord various economic benefits to the firms. The same can be justified with the help of agency theory, upper echelon theory, stakeholder’s theory, as well as resource dependence theory. Agency theory postulates that the presence of women directors shall reduce the information symmetry and hence improve the CSR quality and thus will also lead to

the reduction in the agency issues (Reguera-Alvarado, de Fuentes, & Laffarga, 2017). Stakeholder theory supports women’s presence by suggesting that women possess more communal qualities than men, such as helpfulness, kindness, sympathy, interpersonal sensitivity, etc., which may facilitate their say based on stakeholders’ claims and expectations (Eagly, Johannesen-Schmidt, & van Engen, 2003). In contrast, upper echelons theory (UET) suggests that the prior experiences, value systems, and knowledge of the directors impact their decision-making, and men and women, therefore, bring different sets of strategies into the boardroom (Byron & Post, 2016). Resource dependency theory also advocates that the female directors’ presence shall turn out to be fruitful for the CSR disclosures since they would through their connections entail legitimacy between the society and stakeholders (Lückerath-Rovers, 2013). In this sense, gender diversity on boards helps in better decision-making, since women are more inclined towards asking questions and they make sure that the decisions are not finalized without adequate discussions (Konrad, Kramer, & Erkut, 2008).

The objective of this bibliometric review was to identify the theoretical and intellectual evolution in the domain of gender diversity on corporate boards. We believe that the concept of gender diversity on corporate boards affects the decision-making and, in turn, would impact the practices undertaken by the firms. This paper throws light on the following research questions:

RQ1: What is the current publication volume and trends under gender diversity on boards?

RQ2: Which are the most influential countries publishing extensively in the gender diversity domain?

RQ3: Which are the top journals publishing articles on gender diversity?

RQ4: Which are the most significant research articles on gender diversity?

RQ5: Which themes under gender diversity have been popular among the research scholars in the past, as well as current, and which topics have scope for future research?

To answer these research questions, we systematically explored the various studies conducted on the theme of gender diversity on corporate boards using the Scopus database. The study is also unique in the sense that past studies have focused on the Web of Science database (Sánchez-Teba, Benítez-Márquez, & Porrás-Alcalá, 2021) thus, the study would be helpful in identifying and complementing various emerging paradigms in gender diversity literature. The keywords that were used for finding the research articles were: *women on board* and *board gender diversity*. Further, bibliometric analysis was used to identify the various dimensions in which the studies have been conducted and what are the emerging domains of research in this area. VOSviewer software was used as a tool that helped us create the mapping based on the bibliometric citations, co-citations, and word maps. This further enabled us to identify and evaluate the major thrust areas where research has been conducted, the dominant journals extensively publishing, major countries in which research has been conducted, etc.

The remainder of the paper is organized as follows. The second section comprises the literature review that describes the various studies conducted in this area in a chronological pattern. The following section deals with the methodology used for the collection of the research studies, literature review, and sample. The fourth section comprises the analysis of the bibliometric maps. The last section deals with the results and conclusions.

2. LITERATURE REVIEW

The theme of board gender diversity impacting firm performance has been the center of focus for researchers across the globe. According to Torchia, Calabrò, and Huse (2011), women can add unique perspectives, experience, working styles, more wisdom, good atmosphere in the boardroom, they are also found to have different values and are more sensitive to women issues. There are multiple theories, such as agency theory, resource dependence theory, upper echelon theory, etc., that clearly project the needs of creating a gender-diverse board. These theories have become the basis for academicians, policymakers, as well as regulators for formulating the legal regulations which shall put a thrust on such issues (Moreno-Gómez, Lafuente, & Vaillant, 2018). Based on the quick search, using the keywords: *board gender diversity* and *women on boards*, we could infer that the research studies in this domain of gender diversity have grown substantially in recent years. The results show that there were merely 19 papers on the issue of gender diversity in the year 2010 as compared to 334 articles by the year 2020. The major research studies that were conducted were inclined towards measuring the impact of gender diversity on financial performance (Campbell & Mínguez-Vera, 2008; Lückerrath-Rovers, 2013).

Adams and Ferreira (2009) suggested that board diversity impacts corporate governance, though they could not find any positive linkages with the financial performance. Even though there is a vast number of studies conducted to measure financial performance (Adams & Ferreira, 2009; Campbell & Mínguez-Vera, 2008; Haldar, Shah, & Nageswara Rao, 2015; Sanan, 2016b; Singh, Singhania, & Sardana, 2019) across varying time periods, there is lack of consensus on the effect of board gender diversity on the firm performance. Many researchers found a positive linkage between gender diversity and financial performance measured through various market and accounting-based dimensions (Abdelzaher & Abdelzaher, 2019; Campbell & Mínguez-Vera, 2008; Giraldez-Puig & Berenguer, 2018; Terjesen, Couto, & Francisco, 2016; Velte, 2017), while other scholars have found a negative or no significant relationship (Chebri & Bahoussa, 2020; Sanan, 2016a; Shehata, Salhin, & El-Helaly, 2017; Singh et al., 2019). In this aspect, Campbell and Mínguez-Vera (2008) suggested that mixed results are caused due to varying legal and intuitional contexts in different countries, time periods, and based on the increased complexity owing to the larger boards which make it difficult for women due to lack of their representation (Pletzer, Nikolova, Kedzior, & Voelpel, 2015).

The research on board gender diversity has also taken various forms, such as corporate sustainability (Nadeem, Zaman, & Saleem, 2017),

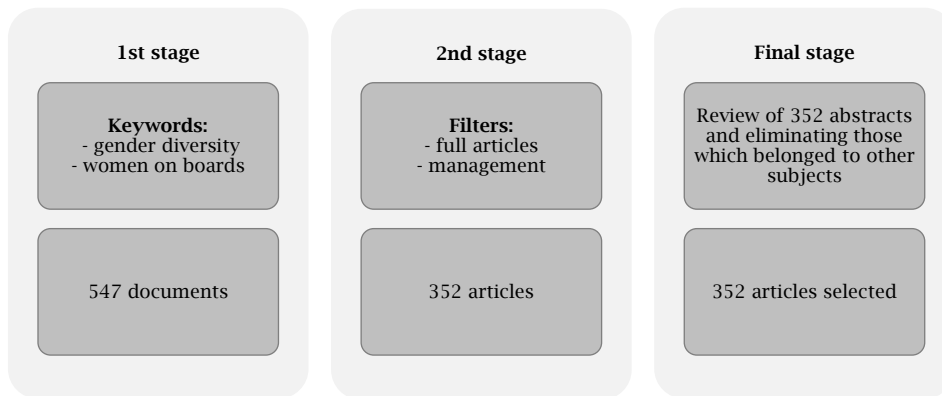
corporate social responsibility reporting (Pucheta-Martínez, Bel-Oms, & Olcina-Sempere, 2019), sustainable reporting quality (Al-Shaer & Zaman, 2016), etc. Birindelli, Iannuzzi, and Savioli (2019) also found that women CEOs are the linking pin to enhance the role of gender diversity on board with respect to environmental policies. Thus, we can see through a glass lens that various dimensions of board gender diversity require further exploration based on the systematic literature review.

In addition to this, various other institutions, as well as contextual factors, have also been looked upon. Institutional elements, such as corporate governance and societal perceptions (Abdullah, Ismail, & Nachum, 2016), social capital and institutional pressure (Rigolini & Huse, 2021), "soft laws" and gender-based quotas (Mateos de Cabo, Terjesen, Escot, & Gimeno, 2019) have been explored. Moreover, contextual factors, such as women's risk-taking ability in technology firms (Mukarram, Ajmal, & Saeed, 2018), the moderating role of industry-based sensitivity (Qureshi, Kirkerud, Theresa, & Ahsan, 2020) have also been studied to some extent.

Despite growth and advancement, there are various aspects of board gender diversity where the literature is still in the state of dilemma, and the research in this area needs further exploration and investigation. Through this study, various research avenues shall be identified, research gaps shall be bridged and future directions for research shall also be established.

3. RESEARCH METHODOLOGY

The study focuses on the bibliometric analysis of the research articles on the topic of gender diversity on board based on the data (research articles) retrieved from the Scopus database (www.scopus.com). Though the Web of Science database is often considered a more popular database, the Scopus database launched by Elsevier in 2004 is found to have a broader database in social sciences, significantly covering more than 16 million references dating back to 1996 (Vieira & Gomes, 2009). Since the area of gender diversity is deeply rooted in the discipline of corporate governance, which saw an upsurge in the late 1990s, the Scopus index database by Elsevier was found to be the best match for the same. The above argument was further corroborated by various scholars as well (Mongeon & Paul-Hus, 2016). Based on the preliminary search of keywords: *gender diversity* and *women on boards*, a total stream of 547 articles were found. Accordingly, in the second phase filters were placed to screen out those articles which were not connected to the subject of the study, and we have only considered full articles, and have excluded publications, such as book chapters, conference papers, editorials, etc., since they ideally do not go through a full-fledged review process. After adequate refinement and filters in the second phase, a total of 352 articles were found relevant for the study which were published during the years 1983–2021. In the final phase, abstracts of 352 articles were scrutinized to eliminate those which did not belong to the subject domain.

Figure 1. Selection process in the Scopus database for the finalization of the research articles

Source: Authors' elaboration.

4. ANALYSIS RESULTS

Firstly, based on the data extracted from the Scopus database, the author employed various descriptive statistics for the generation of various tables and graphs that could help in the identification of patterns within the database. The trends were identified in terms of the number of publications, top publishing countries, journals, top authors, most cited articles as well as the evolution of the keywords.

The author made use of citation, as well as co-citation analysis, to identify the features of the area of gender diversity on corporate boards to enhance the intellectual base (Zupic & Čater, 2015). Citation analysis refers to the frequency with which a research article or a document is cited or used by other papers located in the same database (Scopus, in this case). The author made use of the citation analysis to evaluate the top countries, journals, influential articles in the domain of gender diversity based on the number of citations (Tables 2-4).

Co-citation analysis helps us supplement the citation analysis by enhancing the intellectual base in a particular area by examining two research articles or documents which have been cited in a common document (Small, 1973).

The findings of the bibliometric analysis have been laid down in the order of research questions based on the gender diversity on the board domain.

4.1. Volume and trend analysis of published studies

The primary analysis is based on the volume of publication in the gender diversity domain. The final number of research articles post-filtration was 352 over a period of approximately 32 years (1989-2021) which represents that the area of gender diversity has not seen extensive publications but is growing at a rapid pace. Also, Table 1 points to the fact that Norway was the first country which passed mandatory legislations of gender-based quota in the year 2003. This further led to the series of legislations being passed in other countries leading to the gender diversity domain receiving wide scholarly attention.

Trends and evolution in the area were analyzed based on seeing the annual growth in the volume of

publications. Figure 2 points towards the year-wise trends in the publications ranging from the years 1989-2021. We could notice a rising trend in the number of studies being published: 9 studies (1989-2006), 33 studies (2007-2013), 310 studies (2014-2021). The studies in gender diversity gained momentum post-2013 and the studies have seen exponential growth in various dimensions. This is indicative of the fact that the scope of research in gender diversity has increased over the year and carries huge potential in the coming future as well. Through this graphical representation, we could clearly notice that the number of publications has got a boost post-2010. The plausible reason for the same could be the parallel growth in the mandatory and voluntary provisions for the appointment of women on board in various countries. Table 1 clearly indicates that the majority of the countries mandated the gender quotes post-2010. This led to various researchers explore the various dimensions of having a gender-diverse board.

4.2. Publication by countries

The number of articles considered for the study was spread across 74 countries throughout the world. This clearly points to the fact that the gender diversity area has received wide attention globally and is not limited to certain continents. Table 2 provides the list of the top 20 most active countries with at least five publications in gender diversity on board. The US tops the list with 64 research publications and three thousand six hundred and thirty-six (3636) citations followed by the UK with 52 publications and nineteen hundred and sixty-four (1964) citations. The third spot is captured by Australia with 34 documents and sixteen hundred and eighty-one (1681) publications. Gender diversity on board is majorly connected to the corporate governance literature and the UK being the pioneer based on its Cadbury Report (The Committee on the Financial Aspects of Corporate Governance, 1992) and the US and Australia being the countries which have seen major corporate scams during 2000, the results are not surprising at all. The area would have received greater attention with a view to leverage out gender diversity-based advantages.

Table 2 also highlights an important aspect that more than 70% of the research on gender diversity has been conducted in the developed economies especially from Europe. The plausible reason that could explain such phenomenon is the emergence of OECD which has taken a strong take on corporate governance issues. Figure 3 provides a visual representation of the relationship

between the various countries, through a bibliometric citation map.

Though the number of publications in emerging and developing economies is not much, we could still notice a sound number of publications of the countries like India and Pakistan which could be to test the impact of gender diversity post their mandatory provisions.

Figure 2. Articles showing gender diversity on corporate boards growth and trend based on publication each year

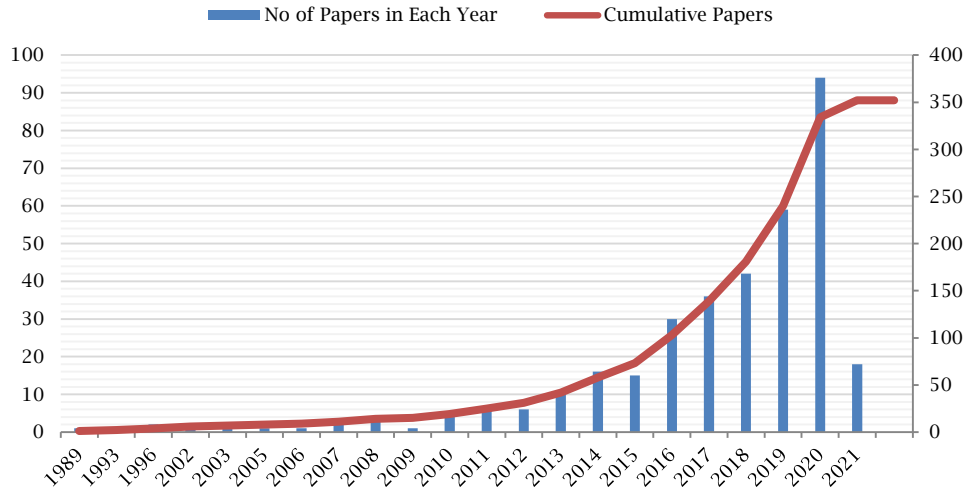


Table 1. Gender-based quota on board for various countries

Countries	Quota	Year of passing	Compliance
France	40%	2011	2017
Norway	40%	2003	2008
Spain	40%	2007	2015
Finland	40%	2005	2005
Canada	50%	2006	2011
Israel	50%	2007	2010
Iceland	40%	2010	2013
Kenya	33%	2010	2010
Belgium	33%	2011	2012
Italy	33%	2011	-
Australia	30%	2018	-
India	1 woman on board	2013	2015
Pakistan	1 woman on board	2017	2020
Germany	1 woman if 4 or more executives in the board	2021	2022

Source: Authors' compilation.

Table 2. Top 20 most active countries publishing on gender diversity

Rank	Country	Type of economy	Documents	Percentage of documents	Citations	ACPD	Nominal GDP
1	United States	Developed	64	0.16	3636	57	1
2	United Kingdom	Developed	52	0.13	1964	38	5
3	Australia	Developed	34	0.08	1681	49	13
4	Spain	Developed	31	0.08	1346	43	14
5	Malaysia	Developing	27	0.07	799	30	40
6	China	Developing	23	0.06	277	12	2
7	France	Developed	19	0.05	214	11	7
8	Germany	Developed	19	0.05	583	31	4
9	Italy	Developed	19	0.05	482	25	8
10	Canada	Developed	18	0.04	403	22	9
11	Pakistan	Developing	14	0.03	118	8	43
12	New Zealand	Developed	12	0.03	58	5	52
13	Norway	Developed	11	0.03	148	13	33
14	India	Developing	10	0.02	32	3	6
15	Netherlands	Developed	10	0.02	252	25	17
16	Tunisia	Developing	10	0.02	95	10	91
17	Lebanon	Developing	8	0.02	202	25	115
18	Turkey	Developing	8	0.02	101	13	20
19	United Arab Emirates	Developing	7	0.02	76	11	35
20	South Africa	Developing	6	0.01	9	2	42

Note: ACPD – Average citation per document.

4.3. Publication by journals

Next, we focus on describing the top journals publishing in gender diversity on board. The articles that were considered for the bibliometric analysis were spread across 155 journals throughout the world under several domains, such as ethics, corporate governance, finance, gender, accounting, economics, strategic management, psychology, etc. Table 3 points to the list of top 20 journals based on the number of publications and the *Journal of Business Ethics* published by Springer Nature's tops the list with 38 research papers. The position of the journal contemplates the fact of how closely the gender diversity element is linked to ethics, governance, and sustainability. The ranking is followed by the *Corporate Governance Journal* with 28 publications. Next in line is *Corporate Social Responsibility and Environment Management, Business Strategy and Environment & Corporate Governance: An International Review*, to name a few. Out of the top 20 journals majority of the journals belongs to the Corporate Governance discipline that also deduces us to the premise of the existence of the strong relationship between gender diversity and corporate governance. The remaining list comprises some of the top journals in Finance, Management, Strategic Management, and Accounting, such as *Journal of Corporate Finance* (#6), *Management Decision Journal* (#13), *Strategic Management Journal* (#18), and *Accounting & Finance* (#19). Most of these journals have top ratings based on the Chartered Association of Business Schools rating which also confirms that the gender diversity area has found its place in some of the top journals and the area has wide scope for further exploration.

Table 4 comprises the list of the top 20 most active journals based on their citations in the Scopus database. *Journal of Business Ethics* published by Springer Nature yet again tops the list with three thousand two hundred and sixty-nine (3269) citations being the most impactful journal in gender diversity. Interestingly, the *Academy of Management Journal*, which is a top-rated management journal, has taken the second spot with seven hundred and eighty (780) citations and with one of the highest ACPD (390). The own specialized area journal *Corporate Governance: An International Review* (#3), *Corporate Governance* (#7), *Business Strategy & Environment* (#9), *Corporate Social & Environment Management* (#10) are also included in the list. The list of other journals also comprises the top journals in various areas, such as Finance, Management, Accounting, etc., that portray the multidimensional aspect of the gender diversity issue.

A quick glance making a comparison between Table 3 and Table 4 reveals that though a large number of research articles are published in the same area-based journals, such as Corporate

Governance, Ethics, and Sustainability (*Journal of Business Ethics, Corporate Governance, Corporate Social Responsibility and Environment Management, etc.*), but the highest impact in terms of citations (total and ACPD) is caused by the journals in the area of Management, Accounting, and Economics which have relatively lesser publications (*Academy of Management Journal, Journal of Management Studies, Journal of Accounting & Economics*).

Figure 3 represents the journal co-citation analysis (JCA) that complements the outcomes of the citation analysis represented in Table 4. The various-sized bubbles or the nodes depicted on the JCA map represent the number of co-citations associated with the respective journals. The journals which are located closely are co-cited frequently (Zupic & Čater, 2015) or have been cited in similar content-based articles. The links associated with these nodes or bubbles act as an indication of the co-citation of articles that appear in these related journals. The frequency of co-citation of these research articles with related journals helps in the determination of the color of the nodes. Thus, common color nodes of these journals depict association or similarity in the contents being published (Zheng & Kouwenberg, 2019).

The JCA represents 4 major distinct sets of clusters that are associated with journals represented with unique areas or subject-based dimensions. The red-colored cluster is associated with Finance and Economics, the green color represents a majority of Management and Strategy-based journals, the blue color focuses on Accounting-based journals, and, finally, the yellow color comprises miscellaneous journals from the area of Governance, and Business Ethics. The focal point of the JCA map comprises of *Journal of Business Ethics and Corporate Governance: An International Review* which is associated with all the disciplines (Finance and Economics, Management, Strategy, and Accounting, as well as Governance and Business Ethics). Moreover, the *Academy of Management Journal*, as well as *Journal of Financial Economics*, are the most impactful journals in the discipline of Management, Finance, and Economics.

Figure 3 substantiates the outcomes derived based on the citation analysis represented in Table 4 which highlighted the presence of gender diversity-based articles in multi-discipline areas-based journals, such as Finance, Economics, Management, Strategy, and Accounting apart from Governance and Ethics.

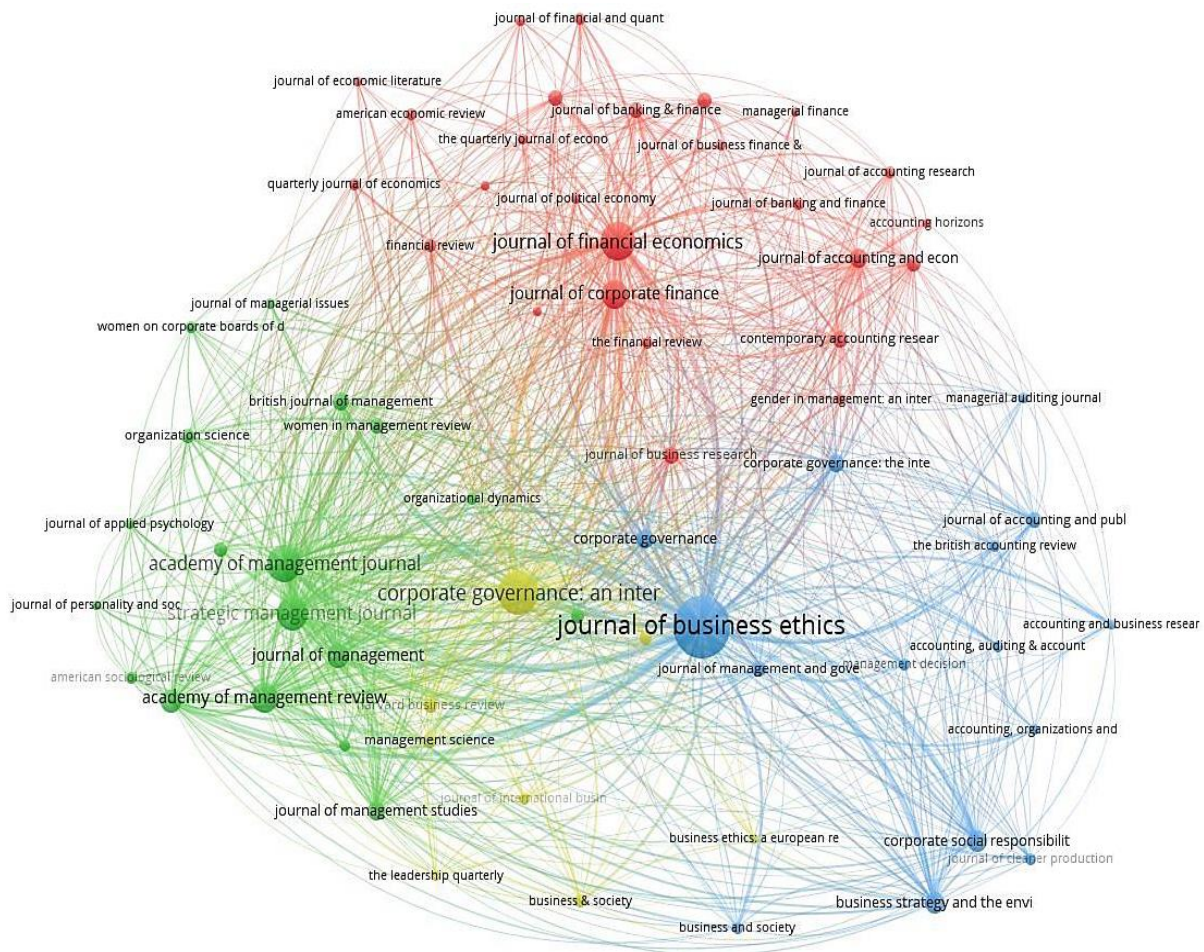
Finally, based on the dual dimension of co-citations impact (number of co-citations), as well as boundary-based extension (links to the other journals), *Journal of Business Ethics and Corporate Governance: An International Review* is found to be the most impactful, as well as influential, journals publishing in gender diversity.

Table 3. The top 20 most active journals publishing articles in gender diversity on board based on volume (1989–2021)

Rank	Name of the journal	Publisher	Coverage	No. of articles	Scopus citations	ACPD
1	<i>Journal of Business Ethics</i>	Springer Nature	1982–Ongoing	38	3269	86.03
2	<i>Corporate Governance (Bingley)</i>	Emerald	2001–Ongoing	28	308	11.00
3	<i>Corporate Social Responsibility and Environmental Management</i>	Wiley-Blackwell	2003–Ongoing	13	203	15.62
4	<i>Business Strategy and the Environment</i>	Wiley-Blackwell	1992–Ongoing	12	226	18.83
5	<i>Corporate Governance: An International Review</i>	Wiley-Blackwell	1993–Ongoing	9	686	76.22
6	<i>Journal of Corporate Finance</i>	Elsevier	1994–Ongoing	8	512	64.00
7	<i>Gender in Management</i>	Emerald	2008–Ongoing	8	111	13.88
8	<i>International Journal of Business Governance and Ethics</i>	Inderscience	2004–Ongoing	5	61	12.20
9	<i>Equality, Diversity, and Inclusion</i>	Emerald	2010–Ongoing	5	27	5.40
10	<i>Corporate Ownership and Control</i>	Virtus Interpress	2003–2016	5	9	1.80
11	<i>Journal of management and Governance</i>	Springer Nature	1997–Ongoing	4	297	74.25
12	<i>Leadership Quarterly</i>	Elsevier	1990–Ongoing	4	176	44.00
13	<i>Management Decision</i>	Emerald	1967–Ongoing	4	47	11.75
14	<i>International Journal of Accounting and Information Management</i>	Emerald	2007–Ongoing	4	35	8.75
15	<i>Australasian Accounting, Business, and Finance Journal</i>	University of Wollongong	2014–Ongoing	4	24	6.00
16	<i>European Management Journal</i>	Elsevier	1982–Ongoing	4	23	5.75
17	<i>International Journal of Finance and Economics</i>	Wiley-Blackwell	1996–Ongoing	4	4	1.00
18	<i>Strategic Management Journal</i>	Wiley-Blackwell	1980–Ongoing	3	103	34.33
19	<i>Accounting and Finance</i>	Wiley-Blackwell	1979–Ongoing	3	86	28.67
20	<i>Business and Society</i>	SAGE	1983–Ongoing	3	76	25.33

Table 4. The top 20 most active journals publishing articles in gender diversity on board based on citations (1989–2021)

Rank	Name of the journal	Publisher	Coverage	No. of articles	Scopus citations	ACPD
1	<i>Journal of Business Ethics</i>	Springer Nature	1982–Ongoing	38	3269	86.03
2	<i>Academy of Management Journal</i>	Academy of Management	1989–Ongoing	2	780	390.00
3	<i>Corporate Governance: An International Review</i>	Wiley-Blackwell	1993–Ongoing	9	686	76.22
4	<i>Journal of Corporate Finance</i>	Elsevier	1994–Ongoing	8	512	64.00
5	<i>Journal of Management Studies</i>	Wiley-Blackwell	1964–Ongoing	1	440	440.00
6	<i>Journal of Accounting and Economics</i>	Elsevier	1979–Ongoing	1	393	393.00
7	<i>Corporate Governance (Bingley)</i>	Emerald	2001–Ongoing	28	308	11.00
8	<i>Journal of Management and Governance</i>	Springer Nature	1997–Ongoing	4	297	74.25
9	<i>Business Strategy and the Environment</i>	Wiley-Blackwell	1992–Ongoing	12	226	18.83
10	<i>Corporate Social Responsibility and Environmental Management</i>	Wiley-Blackwell	2003–Ongoing	13	203	15.62
11	<i>Leadership Quarterly</i>	Elsevier	1990–Ongoing	4	176	44.00
12	<i>Accounting Horizons</i>	American Accounting Association	1996–Ongoing	2	151	75.50
13	<i>Journal of Management and Organization</i>	Cambridge University Press	1995–Ongoing	2	126	63.00
14	<i>Organization Science</i>	Institute for Operations Research and the Management Sciences	1996–Ongoing	1	112	112.00
15	<i>Gender in Management</i>	Emerald	2008–Ongoing	8	111	13.88
16	<i>Strategic Management Journal</i>	Wiley-Blackwell	1980–Ongoing	3	103	34.33
17	<i>Scandinavian Journal of Management</i>	Elsevier	1988–Ongoing	2	98	49.00
18	<i>Accounting and Finance</i>	Wiley-Blackwell	1979–Ongoing	3	86	28.67
19	<i>Business and Society</i>	SAGE	1983–Ongoing	3	76	25.33
20	<i>Journal of Business Research</i>	Elsevier	1973–Ongoing	2	72	36.00

Figure 3. The network map of journal co-citations based (threshold 50 citations, display of top 70 journals)

4.4. Influential articles

The bibliometric analysis also helps us identify those research articles available in our database which have made a significant impact in the area, or the discipline being studied. Citation analysis helps in measuring the number of times a particular research article has been quoted or cited after being used by the other documents. It also helps to determine the impact of the article on the scientific community (Ding & Cronin, 2011). Table 5 lists down the top 20 most cited papers based on the citations available in the Scopus database. The list provided in Table 5 re-confirms the impact and dominant position of the *Journal of Business Ethics* as 8 out of 20 (40%) of the top 20 most influential articles are published in this journal.

Campbell and Mínguez-Vera (2008) were among the pioneer authors to study the impact caused by gender diversity on boards on firms' financial performance. They found in their study that gender diversity on board based on parameters such as percentage of women on board, diversity indices like Blau and Shannon have a positive impact on firms' financial performance whereas the reverse relationship is not true. Bear, Rahman, and Post (2010) extended the knowledge base of gender-based literature by evaluating the relationship between board diversity and gender aspect on corporate social responsibility and firm reputation. The study found positive linkages between gender diversity

and firm reputation mediated through the CSR ratings. Miller and del Carmen Triana (2009) brought an interesting dimension through their study, where they found that board racial and gender diversity are not causally linked to the firm performance rather, they are partially mediated by firm reputation and innovation. They also found positive linkages between gender diversity and innovation.

We came across an interesting aspect represented by Table 5, that 12 out of 20 most cited articles (60%) were focused upon linking gender diversity and financial performance aspects in various forms. Now, to enhance the intellectual base of the literature we performed the document co-citation analysis (DCA). DCA is performed to extend the literature to a wider number of research articles, where 21630 referenced articles were considered for the analysis. The top 20 most co-cited articles are represented in Table 6.

The list of articles in Table 6 demonstrates that "Women in the Boardroom and their Impact on Governance and Performance" (Adams & Ferreira, 2009) is the most cited and impactful article in the gender diversity literature. The study found that gender-diverse boards trigger the board-related aspects in terms of governance, and this leads to an impact on a firm's financial performance. Though the paper was not part of our Scopus database but has received the highest co-citation owing to its impactful literary contribution. They also concluded

that mandatory women quotas are detrimental to a firm's performance. Table 6 re-affirms that Bear et al.'s (2010) and Miller and del Carmen Triana's (2009) are the other two most influential co-cited articles published in the literature.

Moreover, Table 6 clearly depicts and confirms the premier position held by the *Journal of Business Ethics and Corporate Governance: An International Review* as both these journals account for 25% (5 each) out of the 20 most co-cited articles.

Table 5. Top 20 most influential journals articles published in the area of gender diversity based on Scopus citations (1989–2021)

Rank	Title	Authors	Paper type	Name of the journal	Year	Citations
1	Gender Diversity in the Boardroom and Firm Financial Performance	Campbell and Mínguez-Vera	Empirical	<i>Journal of Business Ethics</i>	2008	654
2	The Impact of Board Diversity and Gender Composition on Corporate Social Responsibility and Firm Reputation	Bear, Rahman, and Post	Empirical	<i>Journal of Business Ethics</i>	2010	588
3	Demographic Diversity in the Boardroom: Mediators of the Board Diversity – Firm Performance Relationship	Miller and del Carmen Triana	Empirical	<i>Journal of Management Studies</i>	2009	440
4	Organizational Predictors of Women on Corporate Boards	Hillman, Shropshire, and Cannella	Empirical	<i>Academy of Management</i>	2007	406
5	Does Board Gender Diversity Improve the Informativeness of Stock Prices?	Gul, Srinidhi, and Ng	Empirical	<i>Journal of Accounting and Economics</i>	2011	393
6	Women on Boards and Firm Financial Performance: A Meta-Analysis	Post and Byron	Review	<i>Academy of Management Journal</i>	2015	374
7	The Contribution of Women on Boards of Directors: Going beyond the Surface	Nielsen and Huse	Empirical	<i>Corporate Governance: An International</i>	2010	369
8	Women on Corporate Boards of Directors and their Influence on Corporate Philanthropy	Williams	Empirical	<i>Journal of Business Ethics</i>	2003	277
9	Do Women Directors Improve Firm Performance in China?	Liu, Wei, and Xie	Empirical	<i>Journal of Corporate Finance</i>	2014	264
10	Gender Diversity in the Boardroom and Firm Performance: What Exactly Constitutes a "Critical Mass?"	Joecks, Pull, and Vetter	Empirical	<i>Journal of Business Ethics</i>	2013	231
11	Hidden Connections: The Link Between Board Gender Diversity and Corporate Social Performance	Boulouta	Empirical	<i>Journal of Business Ethics</i>	2013	211
12	Female Presence on Corporate Boards: A Multi-Country Study of Environmental Context	Terjesen and Singh	Empirical	<i>Journal of Business Ethics</i>	2008	174
13	Women on Boards and Firm Performance	Lückerath-Rovers	Empirical	<i>Journal of Management and Governance</i>	2013	172
14	Women on Board: Does Boardroom Gender Diversity Affect Firm Risk?	Sila, Gonzalez, and Hagendorff	Empirical	<i>Journal of Corporate Finance</i>	2016	170
15	Board Gender Diversity and Corporate Response to Sustainability Initiatives: Evidence from the Carbon Disclosure Project	Ben-Amar, Chang, and McIlkenny	Empirical	<i>Journal of Business Ethics</i>	2017	137
16	Are There Gender-Related Influences on Corporate Sustainability? A Study Of Women on Boards of Directors	Galbreath	Empirical	<i>Journal of Management and Organization</i>	2011	119
17	The Double-Edged Nature of Board Gender Diversity: Diversity, Firm Performance, and the Power of Women Directors as Predictors of Strategic Change	del Carmen Triana, Miller, and Trzebiatowski	Empirical	<i>Organization Science</i>	2014	110
18	Women on Boards of Directors and Corporate Social Performance: A Meta-Analysis	Byron and Post	Empirical	<i>Corporate Governance: An International Review</i>	2016	106
19	Does Board Gender Diversity Have a Financial Impact? Evidence Using Stock Portfolio Performance	Chapple and Humphrey	Empirical	<i>Journal of Business Ethics</i>	2014	106
20	Female Board Appointments and Firm Valuation: Short and Long-Term Effects	Campbell and Mínguez-Vera	Empirical	<i>Journal of Management and Governance</i>	2010	103

Table 6. The top 20 most influential research articles based on document co-citation analysis on gender diversity literature

Rank	Co-cited reference	Authors	Paper type	Name of the journal	Year	Citations
1	Women in the Boardroom and their Impact on Governance and Performance	Adams and Ferreira	Empirical	<i>Journal of Financial Economics</i>	2009	78
2	Women Directors on Corporate Boards: A Review and Research Agenda	Terjesen, Sealy, and Singh	Review	<i>Corporate Governance: An International Review</i>	2009	67
3	Gender Diversity in the Boardroom and Firm Financial Performance	Campbell and Minguez-Vera	Empirical	<i>Journal of Business Ethics</i>	2008	56
4	Women Directors on Corporate Boards: From Tokenism to Critical Mass	Torchia, Calabrò, and Huse	Empirical	<i>Journal of Business Ethics</i>	2011	51
5	Women on Boards and Firm Financial Performance: A Meta-Analysis	Post and Byron	Review	<i>Academy of Management Journal</i>	2015	44
6	The Impact of Board Diversity and Gender Composition on Corporate Social Responsibility and Firm Reputation	Bear, Rahman, and Post	Empirical	<i>Journal of Business Ethics</i>	2010	41
7	Gender Diversity in Corporate Governance and Top Management	Francoeur, Labelle, and Sinclair-Desgagné	Empirical	<i>Journal of Business Ethics</i>	2008	37
8	The Contribution of Women on Boards of Directors: Going Beyond the Surface	Nielsen and Huse	Empirical	<i>Corporate Governance: An International Review</i>	2010	34
9	Corporate Governance, Board Diversity, and Firm Value	Carter, Simkins, and Simpson	Empirical	<i>The Financial Review</i>	2003	32
10	Board of Director Diversity and Firm Financial Performance	Erhardt, Werbel, and Shrader	Empirical	<i>Corporate Governance: An International Review</i>	2003	32
11	Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure	Jensen and Meckling	Empirical	<i>Journal of Financial Economics</i>	1976	31
12	Does Female Board Representation Influence Firm Performance? The Danish Evidence	Rose	Empirical	<i>Corporate Governance: An International Review</i>	2007	31
13	Does Board Gender Diversity Improve the Informativeness of Stock Prices?	Gul, Srinidhi, and Ng	Empirical	<i>Journal of Accounting and Economics</i>	2011	28
14	The Gender and Ethnic Diversity of US Boards and Board Committees and Firm Financial Performance	Carter, D'Souza, Simkins, and Simpson	Empirical	<i>Corporate Governance: An International Review</i>	2010	24
15	Critical Mass: The Impact of Three or More Women on Corporate Boards	Konrad, Kramer, and Erkut	Empirical	<i>Organizational Dynamics</i>	2008	23
16	Female Directors and Earnings Quality	Srinidhi, Gul, and Tsui	Empirical	<i>Contemporary Accounting Research</i>	2011	23
17	Additions to Corporate Boards: The Effect of Gender	Farrell and Hersch	Empirical	<i>Journal of Corporate Finance</i>	2005	22
18	Hidden Connections: The Link Between Board Gender Diversity and Corporate Social Performance	Boulouta	Empirical	<i>Journal of Business Ethics</i>	2013	21
19	Boards of Directors and Firm Performance: Integrating Agency and Resource Dependence Perspectives	Hillman and Dalziel	Conceptual	<i>Academy of Management Review</i>	2003	21
20	Organizational Predictors of Women on Corporate Boards	Hillman, Shropshire, and Cannella	Empirical	<i>Academy of Management Journal</i>	2007	21

4.5. Topical focus in gender diversity knowledge base in past, present, and future

To respond to the final research question, we made use of the keywords occurrence analysis that helped them identify the most widely studied topics as well as their association with other dimensions. In the words of Zupic and Čater (2015), "When words frequently co-occur in documents, it means

that the concepts behind those words are closely related. The output of the co-word analysis is a network of themes and their relations that represent the conceptual space of a field" (p. 435). The co-occurrence of these keywords acts as an important tool to identify the trends as well as various dimensions of scientific research in a particular area (Madani & Weber, 2016) which have been studied by academicians and scholars.

The keyword co-occurrences were conducted based on the “all keywords” and it led to the identification of 45 keywords with a minimum of 5 occurrences. The keywords that dominated the co-occurrence analysis were “Corporate Governance” (112 cases), “Gender Diversity” (100 cases), “Board of Directors” (54 cases), “Corporate Social Responsibility” (25 cases), and “Firm Performance” (23 cases). The results clearly re-affirm the dominant linkage of gender diversity with corporate governance mechanisms as has been found in the “canonical” paper of Adams and Ferreira (2009). The other major dimensions that have been widely explored were the implications on corporate social responsibility and firm performances.

Another added feature of conducting a co-occurrence keyword analysis is to identify the “emerging research topics” which shall provide directions for future research in the same discipline as well as associated disciplines. Through the VOSviewer software author has also constructed a visualization keyword co-occurrence map of the literature keeping the threshold occurrence level as 5. The rationale behind keeping a low occurrence count is, the gender diversity literature is an emerging topic and does not comprise many frequently occurring keywords. To have a comprehensive idea of the emerging topics the author has eliminated some of the keywords such as gender diversity (100 cases), as well as some other related terms, such as women on boards (35 cases), etc., due to their extreme and frequent occurrences.

The keyword occurrence map primarily focuses on two aspects: firstly, the frequency of occurrence of keywords and, secondly, the transition in popularity of these keywords over a period. Figure 4 shows a depiction of the most frequently used keywords over some of the past decades.

The emerging research topics can be identified from Figure 4 based on the light green as well as yellow colors. On the parameters of frequency as well as recency the topics that have emerged significantly in the last few years are Sustainable Development (7 cases), Environmental Performance (7 cases), Innovation (7 cases), Agency Theory (6 cases), Board Size (5 cases) and Corporate Social Responsibility (CSR) Reporting (5 cases). These are

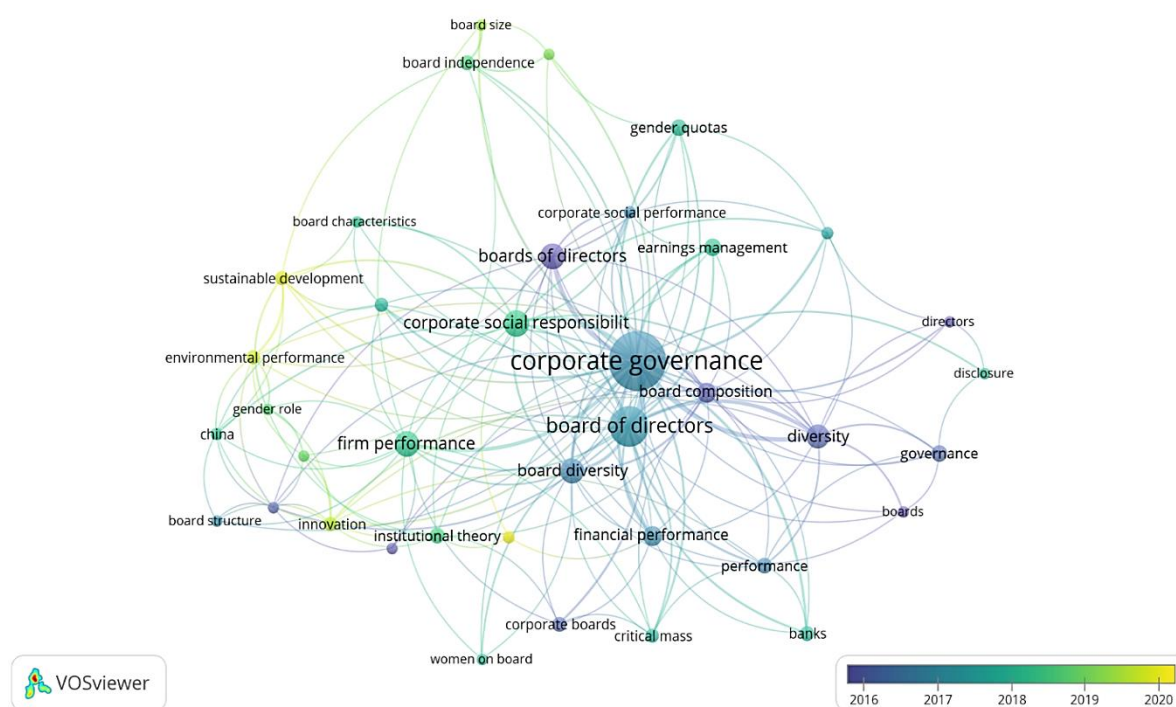
some of the emerging topics that can be built upon by scholars and academicians for future research.

The emerging studies have focused upon the role of gender diversity on sustainable development (Bravo & Reguera-Alvarado, 2019; Sumedrea, 2016; Valls Martínez, Cruz Rambaud, & Parra Oller, 2019) and they have also found that bringing together of the diverse range of expertise and knowledge in the form of women’s representation on board would improve decision making in the context of sustainability (Nadeem et al., 2017). Furthermore, it has also been found that women directors tend to show a greater inclination towards the community service projects as compared to the male directors (Groysberg & Bell, 2013) and they are found less guilty of violations related to environmental concerns (Donaldson & Preston, 1995), this has further led to policy thinkers invoke more stringent gender diverse laws and policies.

Another topic that has received attention in the gender diversity literature in recent years is how do gender diversity impact environmental performance (Alazzani, Hassanein, & Aljanadi, 2017; Birindelli et al., 2019; Lu & Herremans, 2019). In this domain, some recent developments have been in investigating the relationship between the moderating role of family and dual ownership structures and gender diversity on environmental performance (Cordeiro, Profumo, & Tutore, 2020).

Recent studies have also investigated the role of gender diversity on corporate social responsibility reporting (Issa & Fang, 2019; Pucheta-Martínez & Gallego-Álvarez, 2019). The studies have also highlighted the role played by various elements of board composition such as board size, board independence, CEO duality, etc., on CSR reporting (Pucheta-Martínez & Gallego-Álvarez, 2019). The typology of female directors, such as independent and outside directors, is also a growing stream that impacts CSR disclosures (Cabeza-García, Fernández-Gago, & Nieto, 2018). We also notice the prevalence of the terms like “agency theory and “innovation” in the knowledge base of gender diversity literature, therefore, future studies can also be linked to measuring the moderating role of agency theory or innovation and gender diversity on various dimensions, such as sustainability, environmental performance, and CSR reporting.

Figure 4. Temporal overlay on a keyword co-occurrence map for the BDCG knowledge base published from 1989 to 2021 (threshold 5 co-occurrences, display 45 keywords)



5. CONCLUSION

The bibliometric analysis clearly reveals that the knowledge base of gender diversity on boards has grown exponentially from 1989 to 2021. The study reveals that the literature has diversified globally and is spread across 74 countries but there is a dominance of studies conducted by the developed nations like the US, the UK, Australia, Spain, France, Germany, etc. The plausible reason for the same could be the inherent linkage of the gender diversity literature with corporate governance, and since these developed nations were the pioneers of various corporate governance codes, the outcome seems justified. There also appears to be growing in the research studies conducted in the developing economies post-adoption of mandatory and voluntary codes for women directors' appointments.

The citation, as well as co-citation analysis, reveals the multidisciplinary nature of the topic covering journals across various subjects, such as Finance, Economics, Management, Strategy, Accounting, as well as Corporate Governance, and Ethics. The two most influential journals that should be of most interest to scholars working in the gender diversity area are *Journal of Business Ethics* and *Corporate Governance: An International Review*. Though considering the multidisciplinary nature, *Journal of Financial Economics* and *Academy of Management Review*, are also well sought-after journals that could be of insight. These journals portray potential publishing avenues for scholars and researchers.

Moreover, the inherent linkage of the Gender Diversity area towards Corporate Governance impacts several other dimensions through the decision-making attribute of the board, such as Finance, Corporate Social Responsibility, Sustainability, Leadership, Accounting, etc. Another

valuable contribution made with the help of citation analysis is to identify the pioneer articles that have made a significant impact on the intellectual development of the area. The two pioneer studies by Campbell and Mínguez-Vera (2008) and Bear et al. (2010) threw light on two major dimensions of gender diverse boards that is Financial Performance and Corporate Social Responsibility, respectively. These studies were the steppingstones for other scholars to explore the dimension of gender diversity in both developed and developing economies.

The distribution of literature in the various multidisciplinary subjects along with the keyword co-occurrence analysis affirms wide scope of research in developing economies as well as several dimensions that have seen meagre growth and development. Since developing economies widely differ from developed ones owing to weak legal frameworks (Djankov, La Porta, Lopez-de-Silanes, & Shleifer, 2008; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1997) along with the prevalence of concentrated ownerships (Claessens, Djankov, & Lang, 2000). The keyword evolution map highlighted various emerging topics in the literature that can provide a future scope of the study for the researchers; some of the prominent ones being Sustainable Development, CSR Reporting, Environmental Performance as well as Innovation. We would like to suggest that though some past contributions (Al-Shaer & Zaman, 2016; Nadeem et al., 2017; Valls Martínez et al., 2019; Zahid et al., 2020) have been made in evaluating the role of gender diversity on corporate sustainability practices/disclosures. There is still a dearth of research articles in this knowledge base especially in the context of emerging economies that provide sufficient room for research in this dimension.

Despite the great contribution of this study, the study also has its share of innate limitations like

various other studies. The primary limitation of this study is that a single database (Scopus) has been used for the collection of the research studies. This could have led to the missing of various other studies that could have been collected from multiple data sources. This shall also limit the interpretation of the results to some extent.

The study has certain practical, as well as managerial, implications as the study throws to light various elements where the benefit of gender diversity could accrue and can help the firms in better decision-making. For various firms, it also

opens policy implications where they could understand the relevance of having adequate gender diverse representation on the board. The literature clearly points towards the critical mass aspect of gender diversity (Lafuente & Vaillant, 2019; Yarram & Adapa, 2021) and the benefits that might accrue from the same. The literature clearly points towards other interdisciplinary aspects, such as corporate sustainability, innovation, CSR reporting, agency theory, etc. Policymakers, as well as scholars, must identify these research gaps and dimensions and must address these gaps in future studies.

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