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# Looking into Corporate Boardrooms Through the Lens of Gender Diversity: A Bibliometric Review and META Analysis



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**ABSTRACT** 

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#### Keywords:

board diversity, bibliometric analysis, R-studio, VOS viewer, women directors

The present study examines the literature on the corporate boardroom through the lens of gender diversity. The study identified 1413 studies from Scopus database to identify the corporate board gender diversity ranging from a period of 1998 to 2021 (November). The identified studies are reviewed by using VOS viewer software and R-Studio. The study also employed META analysis to further analyse the data and draw meaningful results. The study identifies the current themes in the literature of corporate boardroom diversity, find impediments to the growth in literature, find the most relevant paper over the years, most prolific authors, and most influential journal. The study also suggests the further scope of the study. We conclude by providing the five potential emerging research directions. The study identifies and discusses the main areas and current development in the field of corporate board diversity in terms of gender and suggests future research directions.

#### 1. INTRODUCTION

Board diversity aims to cultivate a broad spectrum of culture. In terms of age, gender, ethnic group, race, creed color, nationality, education, and experience in the boardroom to promote a diverse board with fair representation of all [1]. One of the simple and most common measure of boardroom diversity is measure in terms of gender diversity by including female representation in the boardroom [2, 3]. Diverse board brings a whole lot of benefits to the boardroom including range of outlooks in the decision making, variable suggestions in decision making problem solving [1, 4]. With the firms becoming multinational and operating in multiple countries the role of boardroom diversity has become increasingly important [5-7]. The company recognizes the need for and benefits of a diverse board to make easy and efficient decision to enhance the performance of the company [8-10].

Although the gender diversity in the boardroom has come a long way but still there is lot to be done in terms of increasing the women representation the boardroom [11-13]. It can be understood from the fact that the women representation the corporate boardroom is about only 25% in the major publicly traded companies in the European Union [12]. This gap can be attributed to the various factors such as, gender stereotype assumed by the large section of society, male domination of our society since ancient times, reluctant of women to take up the top job in the corporate, leadership style, and, to strike and balance between personal and professional life [3, 14-16].

Although there is no dearth of research in the field of corporate board diversity, there is a lack of credible

bibliometric and META analysis identifying the research gap and providing the summary of the articles published in the field. Some of the most notable studies providing the bibliometric analysis of boardroom gender diversity includes [11, 12, 16-19]. None of this study provides a comprehensive overview of the literature on corporate boardroom through the gender diversity. The study provides the state of art in the field of corporate gender diversity. The primary objective of the present study is to provide the thorough review of academic scientific literature on corporate boardroom gender diversity. More specifically, we aim to answer the following three questions.

- (1) What are the prominent attributes of literature on corporate boardroom gender diversity?
- (2) What are intellectual attributes of the corporate boardroom gender diversity literature
- (3) What are the research gaps and future research direction in the discipline of corporate boardroom gender diversity literature?

To achieve the mentioned objective, we conduct the bibliometric analysis complemented with the META analysis by incorporating the 1413 research papers obtained from Scopus website published during the year 2000 to 2021. A bibliometric analysis has emerged as the most preferred way of literature review in recent past in finance and related academic discipline [20]. To the best of our understanding the paper is the first of its kind looking into the corporate boardrooms through the lens of gender diversity. To the best of our knowledge there is no Bibliometric and META analysis done highlighting the mentioned issue and providing the noble

contribution as in our study.

The remaining chapter proceeds as follows; In the next section we provide an overview of the methodology used in the study. Section three provides the analysis of data and finding obtained. Section four provide an extensive discussion and future research direction. Finally in section five we provide the conclusion.

#### 2. LITERATURE REVIEW

#### 2.1 Description of the keywords

For searching the literature on gender diversity in corporate board room, Scopus data base was used with the following keywords syntax.

"corporate" OR "board" OR "board room" OR "corporate board room" OR "corporate board" OR "gender" OR "gender diversity" OR "women" OR "man" OR "female" OR "diversity".

("board gender diversity" OR "corporate diversity" OR "corporate performance" OR "demographics in board" OR "board diversity" OR "corporate board") AND ("diversity" OR "gender" OR "women" OR "man" OR "board diversity").

The above syntaxes are searched in the TIT-ABS-KEY field of the Scopus search engine.

## 2.2 Initial keywords search result

With the above keywords and considering time span of 2000-2021, 4127 publications containing research articles, review papers, book chapters, newspaper articles are found. We excluded commercial publications in magazine and other formats as they are not regarded as scientific production. The resulted data then exported in .CSV format to obtain all the important fields like tittle of the manuscript, author's name, affiliations, keywords, abstract and references. .CSV format is compatible with various statistical packages software applications for analysis. The data then further investigated and refined by the authors to check the related keywords, tittles etc. to match the scope of the study. We found that some of the studies are not very much related, their scope of studies is either psychological or clinical research, some of the studies are from pure technological modelling of board diversity and corporate performance etc. The authors made sure that the articles must be written in English language and core theme of the study shall be addressing the gender diversity in corporate boardroom. The application of exclusion criteria dramatically reduced the data set, and a sample of 1413 literature are selected for further study.

# 2.3 Sample characteristics

A total of 1413 articles are considered for analysis (Table 1), which has been collected from 617 sources (journals, book chapters, conference paper etc.). The average citations per document is 23.16 and average citations per year per doc is 3.958. These articles are authored by 3216 researchers, there are 2.28 authors per documents and 0.439 documents per authors. 1626 keywords plus and 2516 author's keywords found. The dataset contains 182 single-authored documents while 3034 documents are written by multiple authors. 70682 is the number of references that have been cited in 1413.

Articles on gender diversity in corporate boardroom.

Table 1. Main information about dataset

Timespan	2000:2021		
Sources (Journals, Books, etc)	617		
Documents	1413		
Average years from publication	3.29		
Average citations per documents	23.16		
Average citations per year per doc	3.958		
References	70682		
Document Types			
Article	1309		
Conference paper	54		
Review	50		
Document Contents			
Keywords Plus (ID)	1626		
Author's Keywords (DE)	2516		
AUTHORS			
Authors	3216		
Author Appearances	4088		
Authors of single-authored documents	182		
Authors of multi-authored documents	3034		
Authors Collaboration			
Single-authored documents	206		
Documents per Author	0.439		
Authors per Document	2.28		
Co-Authors per Documents	2.89		
Collaboration Index	2.51		

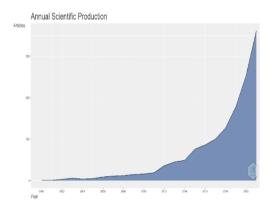


Figure 1. Annual publication trend

The annual production of scientific literature is shown in Figure 1, it is evident from the graph that there were very few publications on gender diversity in corporate board rooms in early 2000. From 2000 onwards there were few publications, the discipline was growing at a very slow pace as there were less than 50 annual publications till 2014. From 2014 onwards there has been exponential increase in the number of publications. The figure also depicts that this specific area of research is developing well from last one decade, there was very few articles available before 2010, Till 2017 only 40% of the paper was written and published, while the rest 60% has been published in a time span of just 3 years. So, we can see that it is one of the most promising areas of research because it is in its tremendous growth and expansion stage.

The most relevant sources publishing on boardrooms gender diversity is presented in Figure 2. We can notice that Journal of Business Ethics has contributed 59 articles and have been one of the important sources in determining the factors influencing gender diversity in corporate rooms, its effects, and the overall impact on corporate performance.

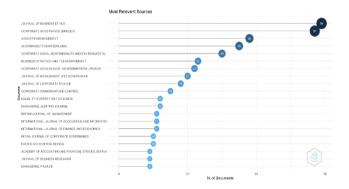
With 57 articles Corporate Governance journal is the second most contributor to the study of gender diversity in corporate boardroom. This journal has published research articles that caters to the importance of gender diversity on corporate governance.

The next journals in the list Gender management have published 38 articles and been publishing research articles on the importance of gender equality when it comes to corporate governance. The board structure, female directorship and overall performance of the corporate is the core theme of the journal articles published on gender diversity and board characters.

The journal Sustainability produced articles that investigated the influence of gender diversity in boardrooms on the sustainability of the corporate, their governance and performance. This journal has also investigated the impact of gender diversity in board room on corporate social responsibility and environmental sustainability.

**Table 2.** Top 20 journals publishing on gender diversity and corporate boardroom research

SO	Rank	Freq	cumFreq
Journal of Business Ethics	1	59	59
Corporate Governance (Bingley)	2	57	116
Gender in Management	3	38	154
Sustainability (Switzerland)	4	35	189
Corporate Social Responsibility and Environmental Management	5	30	219
Business Strategy and The Environment	6	23	242
Corporate Governance: An International Review	7	22	264
Journal of Management and Governance	8	20	284
Journal of Corporate Finance	9	18	302
Corporate Ownership and Control	10	15	317
Equality, Diversity and Inclusion	11	12	329
Managerial Auditing Journal	12	12	341
British Journal of Management International Journal of	13	11	352
Accounting and Information  Management	14	11	363
International Journal of Finance and Economics	15	11	374
Indian Journal of Corporate Governance	16	10	384
Pacific Accounting Review	17	10	394
Academy of Accounting and Financial Studies Journal	18	9	403
Journal of Business Research	19	9	412
Managerial Finance	20	9	421



**Figure 2.** Top journals publishing on gender diversity in corporate board rooms

Table 2 shows the ranking of the journals based on their

contributions of papers in the field of gender diversity and corporate board room. Most of these journals have considered the publication of research articles that investigated the role of women directorship on board performance and corporate governance. The result in Table 2 is consistent with the results in Figure 2, Journal of Business Ethics, Corporate Governance (Bingley), Gender in Management have been ranked first, second and third respectively.

# 3. RESEARCH METHODOLOGY AND DATA ANALYSIS

The analysis of data has been done in two separate parts, first we have done bibliometric analysis and then network analysis.

#### 3.1 Bibliometric analysis

We have analyzed the data using bibliometric analysis that is one of the most suitable tool for gaining insight about the literature [21, 22], it gives output in graphics as well as in tabular formats that can further analyzed to deduce logic and reach at inferences [23-28].

The biblioshiny application from R Studio package is used, which is launched at URL http://127.0.0.1:7811/. R studio is a sophisticated statistical package which allows comprehensive data preparations and analysis. Biblioshiny provides tremendous flexibility and possibility of viewing data from various aspects, it is a useful web interface which provides analytics on graphical plots for three levels of data author, source, and documents [20]. It also helps in the analysis of conceptual structures, intellectual and social structures [26, 28]. Biblioshiny is having limitation of only accepting data from Scopus, web of science, dimensions, Cochrane library and PubMed databases, for using biblioshiny the data must be either in one of these formats or prepared in acceptable format. We focused mainly on data fields for authors, tittles, abstract, affiliations, source journal, publication year, keywords, and references to be able to analyze the following.

# 3.1.1 Most prolific authors

The most prolific authors are shown in Table 3, the ranking of the authors is based on the number of papers, the table also explains about the h-index, g-index, m-index, total number of citations and the year of production started.

Note- The h-index is defined as the maximum value of h such that the given author/journal has published h papers that have each been cited at least h times; g-index is calculated based on the distribution of citations received by a given researcher's publications, such that given a set of articles ranked in decreasing order of the number of citations that they received; m-index is defined as h/n, where n is the number of years since the first published paper of the scientist; also called m-quotient. TC stands for total citations, NP: - Number of papers; PY\_Start: - Production year started.

From Table 3, it is evident that GARCÍA-SÁNCHEZ I-M is the top author about gender diversity in corporate boardroom research, he has published 12 papers and his work has been cited 390 times. His remarkable work includes the legal and cultural factors effecting gender diversity in board rooms, the women directorship and CSR (Corporate Social Responsibility) reporting etc. With h-index of 9 and 11 papers on the subject NTIM CG, is the second most contributing

author in the field of gender diversity and boardroom research. The influence of financial background of female directors, sustainability programs & practices, corporate governance have been studied by NTIM CG and their co-authors. TERJESEN S, with 10 papers listed third in the list and published papers with the theme of analyzing the various impact of gender diversity in the overall performance and governance of a firm. His scholarly work has been cited 1601 times. TERJESEN S is the most cited author in the list, his work has made impact on the gender diversity research in the context of board directors.

#### 3.1.2 Most influential documents

The most relevant documents are presented in Table 4, this table shows the number of local citations and global citations of a document. The local citation refers to the references that is being referred inside the current database of literature while global citations count all citations that a paper received over the period. The ratio of local citations to global citation is the indicator of the relevancy of the research in other allied

disciplines and subjects.

The paper titled "Women in the boardroom and their impact on governance and performance" written by RB Adams, D Ferreira and published by Journal of Financial Economics in the year 2009 is the top paper in the current dataset. It has been cited 2426 times (local citations – 645 and Global citations – 1781). This paper has investigated the impact of different factors on the corporate performance, such as attendance of the women directors are far good as compared to their male counterparts, the attrition rate of the chief executives directly affects the share price of the company etc.

The document written by K Campbell, A Mínguez-Vera, titles as "Gender diversity in the boardroom and firm financial performance" and published in the Journal of Business Ethics is second most important document on gender diversity in the board room. This paper has investigated the importance of gender diversity in the mechanism of monitoring role that is being performed by the board of directors. The paper argued that that gender affects the quality of monitoring and that further influence the overall firm financial performance.

**Table 3.** List of 20 most influential authors

Element	h index	g index	m index	TC	NP	PY_start
GARCÍA-SÁNCHEZ I-M	11	12	1.1	390	12	2012
NTIM CG	9	11	1	449	11	2013
TERJESEN S	9	10	0.6	1601	10	2007
NADEEM M	8	10	1.6	223	10	2017
SINGH V	8	9	0.42	1211	9	2003
PUCHETA-MARTÍNEZ MC	7	12	1.16	155	12	2016
AHMED A	6	10	0.85	121	12	2015
COOK A	6	6	0.85	298	6	2015
GLASS C	6	6	0.85	298	6	2015
MARTÍNEZ-FERRERO J	6	9	0.85	269	9	2015
VELTE P	6	6	0.75	159	6	2014
ELMAGRHI MH	5	5	1	189	5	2017
FRANCOEUR C	5	5	0.35	608	5	2008
GALBREATH J	5	5	0.45	317	5	2011
GALLEGO-ÁLVAREZ I	5	7	0.5	103	7	2012
GARCÍA-MECA E	5	5	0.71	215	5	2015
HASSAN R	5	7	0.71	54	7	2015
JEBRAN K	5	5	2.5	58	5	2020
MARIMUTHU M	5	6	0.71	50	6	2015

**Table 4.** List of 20 most influential documents

Document	Year	<b>Local Citations</b>	<b>Global Citations</b>	LC/GC Ratio (%)
ADAMS RB, 2009, J FINANC ECON	2009	645	1781	36.22
CAMPBELL K, 2008, J BUS ETHICS	2008	336	798	42.11
CARTER DA, 2010, CORP GOV	2010	306	689	44.41
TERJESEN S, 2009, CORP GOV	2009	257	642	40.03
BEAR S, 2010, J BUS ETHICS	2010	256	718	35.65
GUL FA, 2011, J ACCOUNT ECON	2011	223	499	44.69
FARRELL KA, 2005, J CORP FINANC	2005	218	487	44.76
NIELSEN S, 2010, CORP GOV	2010	180	435	41.38
FRANCOEUR C, 2008, J BUS ETHICS	2008	173	380	45.53
LIU Y, 2014, J CORP FINANC	2014	160	362	44.20
ADAMS RB, 2012, MANAGE SCI	2012	155	426	36.38
LIAO L, 2015, BR ACCOUNT REV	2015	116	386	30.05
SILA V, 2016, J CORP FINANC	2016	110	258	42.64
SINGH V, 2008, EUR MANAGE J	2008	99	233	42.49
LÜCKERATH-ROVERS M, 2013, J MANAGE GOV	2013	99	214	46.26
BOULOUTA I, 2013, J BUS ETHICS	2013	99	269	36.80
HAFSI T, 2013, J BUS ETHICS	2013	97	236	41.10
KANG H, 2007, CORP GOV	2007	94	309	30.42
TERJESEN S, 2016, J MANAGE GOV	2016	90	198	45.45
MILLER T, 2009, J MANAGE STUD	2009	89	528	16.86

The third ranked most important document is "The gender and ethnic diversity of US boards and board committees and firm financial performance", authored by Carter, D. A., D'Souza, F., Simkins, B. J., & Simpson, W. G and published in the journal of Corporate Governance: An International Review. This article evaluated the impact of number of women directors and ethnic minority directors on the decision making, monitoring, corporate governance, and financial performance.

#### 3.1.3 Most contributing countries

Table 5 shows the countries with their number of publications on gender diversity in corporate boardroom research. The table also shows the number of times these publications are cited and their average citations. The United States is the most contributing countries with 185 papers and 7289 citations, it shows the importance of gender diversity in overall corporate performance of an enterprise. Scholars from US universities have investigated the role of gender diversity from different angles to gain insight about its implications for

the enterprises and suggest strategies that can be adopted for a better board room combination.

The second in the list is Australia with 5378 citations that have been scored by 64 articles. The average article citation is 84.03 for Australia that is more than double of US average article citations. Most of the articles from Australian researchers investigated the importance of the board size, presence of women, decision making, corporate social responsibility and corporate governance from the angle of gender diversity. Other countries have also contributed to the field of research and suggested important implications for the enterprises to have a balance of gender in board combinations to achieve better governance and financial performance. The countries like United Kingdom, Spain, Malaysia, Italy, India have also contributed to the growth of the research and carried out studies in their own context to find out the important aspects of gender diversity in corporate boardrooms and their practical implications for the strategist. There are few crosscultural studies are also conducted to investigate the suitability of the outcomes in other economies.

**Table 5.** The most influential organizations

Country	Number of articles	Total Citations	Average Article Citations
USA	185	7289	39.40
AUSTRALIA	64	5378	84.03
UNITED KINGDOM	95	3409	35.88
SPAIN	89	2106	23.66
CANADA	33	1276	38.67
CHINA	71	795	11.20
NORWAY	13	671	51.62
NEW ZEALAND	31	651	21.00
HONG KONG	5	597	119.40
GERMANY	27	576	21.33
FRANCE	25	515	20.60
DENMARK	5	495	99.00
NETHERLANDS	14	473	33.79
ITALY	38	380	10.00
PAKISTAN	27	337	12.48
LEBANON	8	308	38.50
MALAYSIA	56	272	4.86
INDIA	37	246	6.65
PORTUGAL	8	193	24.12
MAURITIUS	2	189	94.50

**Table 6.** Word dynamics in gender diversity and corporate boardroom research

Year	FEMALE	MALE	HUMAN	LEADERSHIP	GENDER	GENDER DIVERSITY
2021	163	141	114	80	73	36
2020	116	107	80	54	50	24
2019	77	70	57	32	32	17
2018	55	49	44	20	26	15
2017	42	39	34	13	14	14
2016	39	36	30	13	12	9
2015	30	27	24	10	8	8
2014	22	21	18	7	8	6
2013	17	17	15	4	7	6
2012	16	16	12	4	4	4
2011	13	13	10	4	3	4
2010	11	11	9	4	3	3
2008	9	9	8	4	2	1
2009	9	9	8	4	3	2
2007	7	7	6	4	2	1
2004	6	6	6	4	1	0
2005	6	6	6	4	1	0
2006	6	6	6	4	1	0
2003	2	2	3	2	0	0
2001	0	0	0	0	0	0
2002	0	0	0	0	0	0

#### 3.1.4 Most relevant affiliations

Table 6 shows the affiliations that published papers on corporate boardroom and gender diversity. This list is for individual organizations and not for the countries. The Dongbei University of Finance and Economics from China is ranked first and has published 43 articles. The Universiti Utara Malaysia of Malaysia contributed 36 articles to the research stream of gender diversity and corporate boardroom. The University of Southampton, England, UK is the third in the list with 26 articles. The other organizations have also contributed to the understanding and growth of this discipline of research.

## 3.1.5 Word dynamics

The words which are used most frequently in the publications over the years are listed and shown in Figure 6 and Table 6. The table shows the adoption of the words in the research publications between 2000-2020. In early 2000s there were hardly any use of the words like gender diversity, gender, female, leadership etc. There were very few articles in the mid-2000s using the terms of gender diversity or gender or female etc. From 2010 onwards the scholars started researching in this area, which adopted the words which are of enormous importance in the gender diversity research. It is interesting to note that the word leadership is still has not got much attention as compared to human or female or male. From the year 2018 to 2021 the word female appeared more than the word male in the gender diversity research in the context of corporate boardroom formation. The trend is upward and will grow more in the time to come.

#### 3.2 Network analysis

Network analysis of academic literature can be referred to a set of techniques based on complex software programs that helps researchers to establish relationships and analyze the structures that formed as a result of co-occurrence of these relationship [29]. The network thus formed enables the researchers to conduct citations, co-citations, co-authorship, shared keywords, keyword occurrence etc. to establish relationship and suggest the streams for future expansion of research in a particular field [30]. For constructing the network map and visualization of data VOSviewer application is used, it is a comprehensive software package that is used for constructing and visualizing bibliometric maps [25, 26].

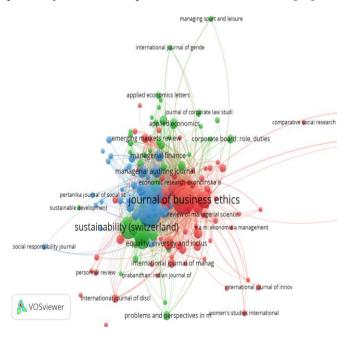
## 3.2.1 Citation analysis

Citation analysis refers to the examination of the linkage between documents to discover the underlying properties of the documents. It calculates the frequency, patterns, and graphs of citations in documents and present them in a visual network with link strengths to other documents [31]. Citation analysis of the sources is conducted (Refer Figure 3) with VOSviewer version 1.6.17. For creation of the map the minimum number of documents of source is kept at 2, and minimum number of citations of a source as 5. 172 sources out of 617 met the criteria.

The network is made of three clusters having 2095 link and with a link strength of 6638, the first cluster – the largest one consists of 72 items and represented by red color, the second largest cluster contains 46 journals and represented by green color, the last cluster is blue colored and having 40 sources.

The first cluster has combined the journals which are publishing in the area of corporate governance and gender diversity. The prominent journals in this cluster are "Journal of Business Ethics", "Review of Managerial Science", "International Journal of Management", "International Journal of Disclosure". Few of the most influential articles published in the journal of business ethics are "Not Just a Gender Numbers Game: How Board Gender Diversity Affects Corporate Risk Disclosure" [32], "Global Insights on TMT Gender Diversity in Controversial Industries: A Legitimacy Perspective" [33], "The Effects and the Mechanisms of Board Gender Diversity: Evidence from Financial Manipulation" [34]. These studies have investigated the role of women in corporate boards by looking at corporate reporting, corporate social responsibility, sustainability programs and overall corporate performance.

The second cluster is primarily containing the journals such as "Journal of Corporate Law Studies," "Applied Economic Letters", "International Journal of Gender", "Applied Economics", "Corporate Board: Role & Duties" and "Equality, Diversity and Inclusion". These journals are publishing articles which are focused on the theme of the role of the law and compliances to ensure the gender equality, inclusion, and diversity in corporate boards. The research on boardroom gender diversity is conducted using behavioral economic model i.e., behavioral economics of the boardroom gender diversity transaction (BGDT) to understand the transaction cost of economic framework [2]. One of the important studies is about the role of female directors on corporate boards and their impact on corporate social responsibility (CSR) is analyzed in the Chinese context and found that firm age, firm performance, corporate governance, family ownership, institutional ownership and managerial ownership are positively related to the presence of women directors [35].



**Figure 3.** Citation analysis of journals publishing on gender diversity in corporate board rooms

Third and last cluster of this network is containing journals which are publishing on the core theme of the reporting of the corporate outcomes such as CSR reporting, financial reporting, sustainability reporting etc. The most contributing journals in this cluster are "Managerial Auditing Journal," "Social Responsibility Journal", "Pertanika Journal of Social Sciences" etc. The important studies in these journals are on the role of women in corporate board and its impact on the firm

performance, most of the scholars found that there exist a positive direct [36], moderating [37] and mediating role [38] of gender diversity in auditing and reporting.

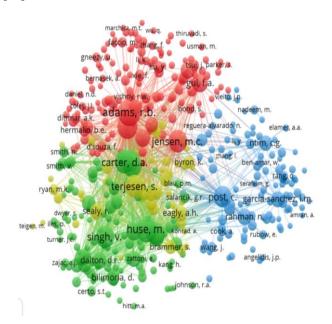
### 3.2.2 Co-citation analysis

It refers to the pair of papers which is cited together in a third document, it is based on the network theory framework that search and accumulate the frequency of documents which are cited together in source document [30].

Co-citation analysis of authors is conducted using VOSviewer application (refer Figure 4) for data visualization Figure 3. For better visibility of the co-citation of the authors the minimum number of citations of an author is kept at 20. Out of 48355 authors only 421 authors meet the threshold, and the network is created with four clusters having 87010 link and a link strength of 2083044.

First cluster of the network is made of 142 authors and presented with red color, the authors in this cluster has published on the importance of the role of gender diversity in corporate board room and its impact on the corporate image and performance. A cross cultural study conducted by Attah-Boakye et al. [39], to evaluate the impact of board gender diversity, national culture on corporate innovation, the authors found a positive association between innovation and corporate boardroom diversity.

The effect of board quotas on female labor market outcomes is conducted by Bertrand et al. [40], found that there is a positive association between the outcomes of the labor market and board female quota. The role of gender diversity in corporate image [41] and stock pricing [42] has also found positively associated. The role of female directors in earning management is highly correlated and result shows better performance as compared to their counterpart male directors [43].



**Figure 4.** Co-citation analysis of authors publishing on gender diversity in corporate board rooms

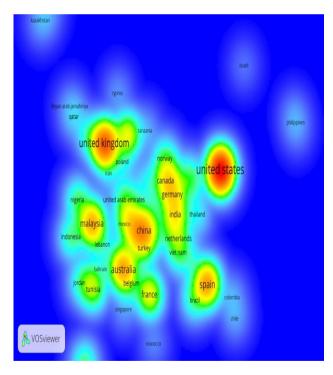
The second largest cluster in the co-citation network is made up of 123 authors and represented by green color, this cluster is based on the research outputs of the authors engaged in the research of gender diversity from the lens of equality at workplace and pay band. Some of the important studies in this cluster are based on the role of female directors in the monitoring management [44], the earning management [43], dividend pay out strategy [45], intellectual capital efficiency [46] etc.

The third cluster contains 109 authors and blue colored, this cluster is focusing on the decision aspects of the board and the impact of gender diversity in doing so. A group of scholars has carried out research studies to understand and evaluate the role of women on corporate boardroom such as credit risk [47], corporate risk taking capability [48], audit fees [49], financing decision [14] etc.

The last and fourth cluster is having forty-seven authors working in the field of gender diversity and corporate board room research, it is represented by yellow color in the network map. This cluster specifically focus on the role of gender diversity in stock pricing mechanism and risk disclosure. The scholars have determined the impact of female directorship on underpricing of stocks of a firm, does inclusion of women in the corporate boardroom influence the performance of listed stocks [50]. Few of the benchmark studies that found the positive role of the inclusion of the women in the corporate board and decision making are discussed. Research conducted by García-Sánchez et al. [10], found that there exist a positive association between women presence on board and firm performance.

#### 3.2.3 Co-authorship of countries

The co-authorship is a method to understand the scientific collaboration network globally, it can be conducted for authors, countries, organizations and presented by the nodes in the network [51].



**Figure 5.** Co-authorship analysis of countries publishing on gender diversity in corporate board rooms

For creating the co-authorship map VOSviewer software is employed. The criteria for the country to be included in the network is kept as minimum number of documents of a country at least be two and minimum number of citations of a country must be at least 5. Only seventy-four countries got included in the network out of 110 countries.

The network thus obtained is presented in Figure 5 as a

density map. The outcome of the analysis is consistent with the results of the most influential countries (refer Table 5). United States and United Kingdom is most prominent node in the network followed by China, Spain, Australia, Malaysia. These countries have been publishing in research of the gender diversity in corporate board rooms and corporate performance.

# 3.2.4 Keywords co-occurrences analysis

The keywords co-occurrences analysis is a technique to find the scientific knowledge structure by calculating the occurrence of a specific scientific keyword in a set of papers and presented in the form of network which is clustered together [52].

VOSviewer application is used for the creation of the network map. For better result and visibility, the minimum number of occurrences of a keyword is kept at 5, out of 3796 keywords only 292 meet the threshold criteria. The network obtained is based on three clusters having 7036 links and a link strength of 18343. The first cluster represented by red color and is made of 130 keywords, the second largest cluster is consisting of ninety-two keywords and represented by green colors, while the third cluster represented by blue color and consist of 70 keywords.

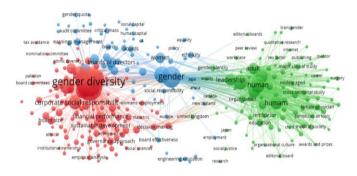


Figure 6. Keywords co-occurrence analysis

Figure 6 depicts the network map of keywords which is distributed over three clusters, the first cluster consist of keywords such as gender diversity, corporate social responsibility, women employment, women empowerment, governance approaches etc. which are based on the core theme of gender diversity in general. This cluster shows the work that has been done in the domain of diversity and equality research for the better board combination and corporate performance. Important aspects of gender diversity research such as board size [53], women decision making [54], intellectual intelligence, board effectiveness, sustainable development [14] etc.

The second cluster is based on the keywords on gender and related aspects. The prominent keywords in this cluster are corporate board effectiveness, gender quota, board of directors, equality, gender policy, audit committee, social capital etc. The cluster depicts the research works that have been done to understand the important aspects of gender diversity in corporate board rooms and their direct impact on the corporate performance from various perspectives of it. The influence of gender diversity on the stock liquidity has been found positive if there are quite a few women directors are in the board [47]. Gender diversity have also shown positive association with responsibility environmental [14] and sustainable performance [32].

The third cluster of keyword occurrence map is made up of humanitarian aspects of gender diversity in the corporate boardroom. The most occurring keywords in this cluster are leadership, organization, middle age, adult, sex factor, gender identity, organizational culture etc. The humanitarian aspects of the gender diversity are of enormous importance in promoting the adoption of diverse gender especially women in the corporate boardroom. It has also found that women show better leadership attributes [55-57], corporate monitoring and help in improving corporate performance [3].

# 4. DISCUSSION AND AVENUES FOR FUTURE RESEARCH

Bibliometric analysis is employed for the analysis and understanding of the current state of research on gender diversity in corporate boardrooms using Scopus database. This area has been researched from decades to find out the impact of gender diversity in board rooms on the firm performance. Most of this research have been conducted in solo, there should be more cross-cultural studies to generalize the findings of boardroom gender diversity research. It will also be interesting to find out the role of government policies on the social inclusion in corporate boardrooms. Studies can also explore the reporting performance of the corporates if women directors are more as compared to male directors. A comparative analysis of performance of directors from different races in the board will also add to the existing wealth of gender diversity research. The existing literature on the impact of age of the women directors on the firm performance are mostly qualitative, there should be quantitative studies that could be tested empirically. It may also be interesting to evaluate the religious aspects of the board room, does religious factor promote better and diverse boardroom? The environmental performance of the firm such as socially responsible investment, corporate social responsibility reporting and sustainable practices can be carried out to enumerate the importance of gender diversity. Future studies may also consider other factors such as social performance and non-financial disclosure from gender diversity context.

#### 5. CONCLUSIONS

The results provided by the present study are extremely useful for the academic as well industry point of view as it provides a state of art analysis of academic literature on corporate boardroom dynamics through the gender diversity and provides the future research directions that can be studied further to enhance the knowledge base in such an important issue. The study identifies and discusses the main areas and current development in the field of corporate board diversity in terms of gender and suggests future research directions. The study identifies the current themes in the literature of corporate boardroom diversity, find impediments to the growth in literature, find the most relevant paper over the years, most prolific authors, and most influential journal. The study identifies three clusters through the keywords co-occurrence analysis. The first cluster consists of keywords such as gender diversity, corporate social responsibility, women employment, women empowerment, governance approaches etc. which are based on the core theme of gender diversity in general. The second cluster is based on the keywords on gender and related aspects. The prominent keywords in this cluster are corporate board effectiveness, gender quota, board of directors, equality, gender policy, audit committee, social capital etc. The third cluster of keyword occurrence map is made up of humanitarian aspects of gender diversity in the corporate boardroom. The most occurring keywords in this cluster are leadership, organization, middle age, adult, sex factor, gender identity, organizational culture etc.

The study is expected to contribute massively to the existing strand of literature as it identifies the implications of different factors in the board diversity. It will help the corporate, government and regulators in bringing the gender diverse board to better represent the consumer population. The primary objective of the present chapter is that it is conducted by using only one database i.e., Scopus database. This also limits the interpretation of our results to a certain degree.

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