

Global Trends in Board Capital: A Bibliometric Analysis

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Abstract: This study aims to identify and highlight the research development on board capital and develop a quantitative synopsis of critical themes, contributions, and knowledge gaps to guide future researchers. A search string was created to extract data from the Scopus database and fulfill the study objective. The final dataset consisted of 148 articles after the inclusion and exclusion criteria. The study employed a bibliometric analysis technique to analyze the global development of board capital literature based on the study objectives. Moreover, the study used Microsoft Excel for the frequency analysis, VOSviewer to present the data visualization, and Harzing's Publish or Perish to analyze the citation metrics. The findings revealed the most active country and institution publishing research on board capital in the United States of America (USA) and the University of Technology, Sydney, Australia. The emerging and recent research themes on board capital were foreign experience, China, non-independent directors, directorship, and accounting expertise. The study contributes by providing a bibliometric analysis of board capital research streams and identifying emerging research themes for future research. Future research should broaden the database sources and the document types.

Keywords: board capital, bibliometric analysis, corporate governance, human capital, social capital.

董事会资本的全球趋势：文献计量分析

摘要：本研究旨在确定和突出董事会资本的研究发展，并制定关键主题、贡献和知识差距的定量概要，以指导未来的研究人员。创建了一个搜索字符串以从斯科普斯数据库中提取数据并实现研究目标。最终数据集由纳入和排除标准后的 148 篇文章组成。该研究采用文献计量分析技术，根据研究目标分析董事会资本文献的全球发展。此外，该研究使用微软 Excel 进行频率分析，使用相似性查看器的可视化来呈现数据可视化，并使用哈辛的发布或灭亡来分析引用指标。调查结果显示，美国（美国）和澳大利亚悉尼科技大学对董事会资本发表研究最活跃的国家机构和机构。关于董事会资本的新兴和最近的研究主题是外国经验、中国、非独立董事、董事和会计专业知识。该研究通过提供董事会资本研究流的文献计量分析并确定未来研究的新兴研究主题而做出贡献。未来的研究应该拓宽数据库来源和文件类型。

关键词：董事会资本、文献计量分析、公司治理、人力资本、社会资本。

1. Introduction

Corporate boards play a crucial role in regulating organizational resources in the new global economy. The idea of corporate boards is central to the corporate governance literature [1]. The 20th-century corporate

board phenomenon is based on two perspectives: the agency theory and the resource dependence theory. First, the first theory states that corporate boards are responsible for monitoring the performance of management on behalf of shareholders. The second

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perspective elaborates that corporate boards play a role in advising, counseling, and allocating essential organizational resources. Meanwhile, Hillman and Dalziel [2] effectively combined the resource dependence and agency theories at the beginning of the 21st century and introduced the concept of board capital [3].

In Hillman and Dalziel [2], board capital refers to the human and social capital of corporate boards. Corporate human capital denotes a set of skills and knowledge that board members collectively bring to the board. Human capital is based on the members' knowledge and experience within or beyond the firm [1]. Human capital in contemporary research is also known as soft capital [4]. Meanwhile, social capital is the sum of the potential and actual resources embedded within an organization [5]. Barroso-Castro et al. [6] stated that board capital describes human capital and relational capital, which are vital for the board to acquire in performing the monitoring and resource provision role. Human capital is the experience, expertise, and reputation the board brings into the boardroom and is vital to creating an informed board to justify views, counsel, and strategy decisions. Relational capital describes external linkages with other companies or critical resources, such as the government, banks, and industry experts [3].

Previous researchers have generally defined the board of directors as a monitoring and controlling agent for shareholders in a firm that provides extensive resources, such as legitimacy, firm reputation, and connections with authorities and industries. The extensive and multi-tasking roles demand that directors be equipped with broad knowledge and skills to function effectively [7]. Moreover, global corporate governance organizations, such as the Organization for Economic Cooperation and Development [8] advice and advocate for board appointments that weigh the relevance and level of members' knowledge, competencies, and expertise. Daniel P. Forbes and France J. Milliken [9] suggested that the presence and use of directors' knowledge and skills positively affect their performance. Two elements of knowledge and skills relevant to board tasks are functional and firm-specific. Functional knowledge and skills involve the directors' business fields (accounting, finance, marketing, or law) or the extended networks that facilitate the strategic decision-making [10], whereas firm-specific counterparts indicate an intimate understanding of a specific firm or industry. Nonetheless, knowledge and skills are only valuable if the board decides to apply them [11].

The concept of board capital has gained researchers' attention over the years. Previous studies have frequently examined the causal relationships between board capital and firm attributes, such as performance [12,13], acquisition [14, 15], innovation [16], financial reporting quality [17], and tax avoidance [18].

Additionally, the term board capital [19] has been used interchangeably with other terms, such as human capital [20,21], board expertise [22-24], and social capital [25-28]. Few studies have highlighted bibliometric analysis despite the study concept gaining considerable attention. The following section emphasizes the gap with supporting literature.

1.1. The Study Rationale

This section explains the reasoning underlying the application of bibliometric analysis on board capital research. Board capital is an increasing trend in human and social attributes, but numerous past studies analyzed human and social capital separately. For instance, Kim et al. [29] examined the social aspects of corporate boards and the relationship with firm value. Similarly, Malikov and Gaia [30] primarily focused on CEO social aspects but disregarded the human elements. Fang et al. [31] emphasized the corporate social elements in the USA.

Few studies have focused on assessing and elaborating scientific publications from an integrated international perspective [7]. Johnson's et al. [20] systematic literature review (SLR) explored the human and social aspects of corporate board composition with several shortcomings, such as the number of publications included was limited by time. Moreover, the search string was insufficiently developed given that the systematic literature review was based on eight journals. Wardhani et al. [5] SLR examined human and social capital and the relationship with innovation. The inclusion criteria were well defined regarding the time span (1986–2016) and database selection.

The Scopus database usually provides a broader range of journals than the Web of Science [32,33]. An issue arises if researchers exclude some of the most influential journals. For instance, Wardhani et al. [5] could not develop a string for article search. Recently, Ricci et al. [1] critically reviewed studies on board capital from 2003 to 2019 to analyze the relationship between board capital and firm performance and CSR disclosure. Similarly, the past literature reviews failed to create a search string for keyword search. Table 1 demonstrates the past literature review studies.

The literature review suggested that most past studies emphasized board capital and its relationship with other variables, hence dismissing in-depth reviews of board capital. Thus, the current review study is novel in numerous ways. The current research scope is limited to board capital, which will provide an in-depth understanding and state-of-the-art knowledge. Moreover, the research methods used a combination of SLR, bibliometric analysis, and cluster analysis, which provide a comprehensive overview and determine the intellectual structure of the field [34]. Additionally, previous literature review studies lack rigorous research methods. Thus, the current study is crucial to

fill the methodological gap, so it addresses the following questions.

RQ1: What is the current publication trend in board capital literature?

RQ2: Which scholars, institutions, and countries are the most productive in board capital studies?

RQ3: Which are the most influential articles on board capital studies?

RQ4: What is the current state of collaboration on board capital studies?

RQ5: What are the most recent prevalent research themes on board capital among scholars?

Table 1 Comparison between previous board capital research and the current study

Basis of Comparison	Johnson et al. [20]	Wardhani et al. [5]	Ricci et al. [1]	This study
Time period	1990 - 2011	1985 - 2016	2003 - 2019	No time limit
Keywords	Not properly specified	Not properly specified	Not specified	A string of keywords related to board capital
The study focus	Board composition	Human and social capital and the impact on innovation	Board capital and the impact on firm performance and CSR disclosure	All aspects of board capital
Methodology	Systematic Literature review	Systematic literature review	Literature review	Bibliometric analysis
Database	No database: the search was limited to eight journals	ProQuest, WOS, and ScienceDirect	Scopus	Scopus

This study performed a comprehensive bibliometric review to fulfill the study objectives by defining the search string and extracting the sample literature systematically with proper inclusion and exclusion criteria. Subsequently, descriptive analysis was performed in the first stage, followed by a rigorous bibliometric analysis in the second stage. Citation and co-citation analyses were performed using Vos Viewer to identify the intellectual structure of the research on board capital. The co-citation network was formed using Vos Viewer to view the thematic flow of knowledge and cluster formation. The primary research articles from the clusters were determined using weighted citation measures.

The remaining content of the study is structured as follows. The following section highlights the research methodology followed by a descriptive analysis of past studies on board capital. Subsequently, the bibliometric analysis is presented in detail, followed by a brief discussion and suggestions for further research. The last section concludes the study.

2. Methodology

Several methods were applied to develop the literature review for this article. For example, the scope of an SLR is specific, and the data comprises small studies. Moreover, the content of SLR can be reviewed manually [34–37]. The scope of the meta-analysis technique is broad, but the studies must be homogenous. The technique is only applicable if enough homogenous studies on a specific relationship are gathered [34]. Contrarily, the bibliometric analysis summarizes the large quantities of data to demonstrate the state of the intellectual knowledge and rising trends in a research topic or field [7]. Moreover, the review technique elaborates all related publications on a particular topic in leading countries, journals, authors, and citations, which

enhances knowledge of the development of the scientific topic from an integrated perspective [7].

The well-developed bibliometric studies can form the foundations to develop a field in novel and meaningful ways, such as providing a one-stop overview, gaining novel ideas for analysis, and determining knowledge gaps [34]. Past studies on bibliometric analysis implied that the technique had been extensively applied in several disciplines, including business and management [10,36]. Conversely, past review studies mainly highlighted a specific issue and the latest development in a particular topic or field. Accordingly, the current study strictly referred to Donthu et al. [34] bibliometric toolkit.

Donthu et al. [34] proposed the bibliometric analysis performing in four steps. The first step is to define the study aims and scope, while the second step entails the bibliometric selection technique. Subsequently, the data on the study topic are collected. The last step involves operating the bibliometric analysis and reporting the findings. Fig. 1 displays the complete bibliometric analysis process.

2.1. Defining Search Terms

Bibliometric studies should have a clear, reproducible, and transparent searching process [32]. The main research topic is board capital. The central theme search string was developed similar to past review studies and expert aid. The board capital comprises human and social aspects; hence, the central theme includes all journal papers covering the terms in the title, abstract, and keywords. The keyword selection was based on Hillman and Dalziel's [2] definition. Table 2 presents the search string used to identify relevant studies in the Scopus database.

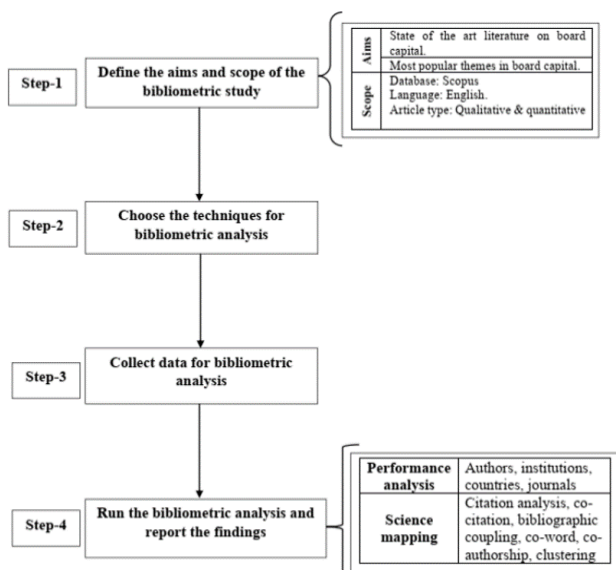


Fig. 1 The complete process of bibliometric analysis

Table 2 Search string used in the study

Search Strings
TITLE-ABS-KEY ("board of director*" OR "board member*" OR "director*") AND TITLE-ABS-KEY ("company-specific knowledge" OR "organisation-specific knowledge" OR "human capital" OR "board capital" OR "knowledge*" OR "firm-specific knowledge" OR "capacity" OR "skill*" OR "expert*" OR "expertise" OR "experience*" OR "proficiency" OR "capability*" OR "reputation*" OR "cognition*")

2.2. Inclusion and Exclusion Criteria

The Scopus database was used for data collection in December 2021. The initial search results were 611 articles addressing board capital. Khatib et al. [7] three-step inclusion and exclusion criteria were followed. Overall, 611 articles were identified in the subject area based on the initial research. The study included articles published in the English language. After a further record screening, 463 articles were excluded from the study. Additionally, the search topics were limited to business, management, finance, and economics. A final sample comprising 148 research articles was used to perform bibliometric analysis. Fig. 2 illustrates the three-step inclusion and exclusion criteria.

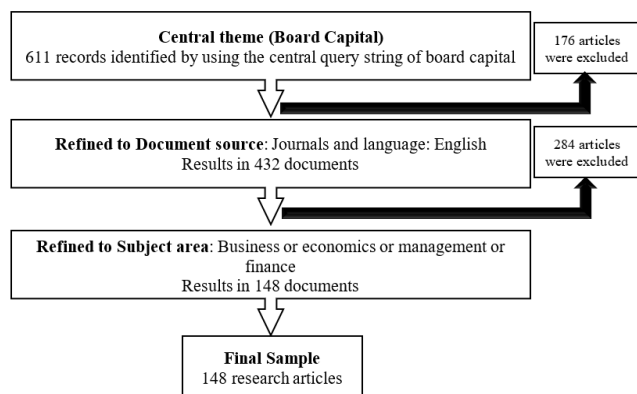


Fig. 2 Flowchart of searching strategy and data collection process

2.3. Software Selection

Microsoft Excel was employed to examine the descriptive statistics of the collected data and to fulfill the research objectives. Moreover, the author used freeware software programs, such as Harzing's Publish and Perish to calculate citation metrics. Meanwhile, VOSviewer was applied to construct the bibliometric analysis. The subsequent section elaborates on the analysis and findings. Fig. 3 depicts the analysis and outcomes of different software.

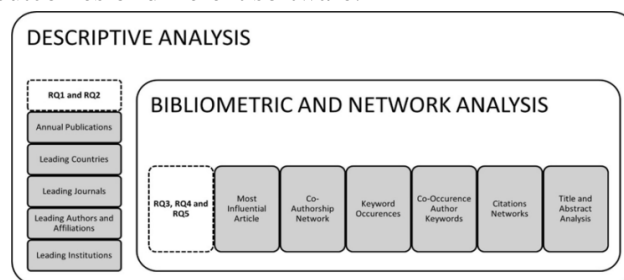


Fig. 3 Analysis outcomes using different software

3. Descriptive Analysis

A descriptive analysis of 148 research articles was completed to understand the basic ongoing publication trends on the study topic. The first and second research objectives were achieved by analyzing the publication trend of all publications based on years, country, region, and journal.

3.1. Publication Growth

The RQ1 and RQ2 are duly addressed. First, the author summarized the annual publications on board capital from 1999 to 2021. The Scopus database provided the earliest article on board capital, which is Cognition and corporate governance: Understanding boards of directors as strategic decision-making groups, published in 1999 by Forbes and Milliken. A significant rise in publications on board capital was observed in 2020 and 2021, with 17 publications per year. The most cited works were published in 2008 with 1,301 citations, where the average number of citations per publication was 130.10. Meanwhile, the lowest publication numbers were in 2011, 2003, 2000, and 1999. Although only one study was published in 1999, the year received a massive number of 1,043 citations, which demonstrated Forbes and Milliken's [9] essential masterpiece. Table 3 demonstrates the annual publications of board capital.

Table 3 Annual publications of board capital literature

Year	TP	NCP	TC	C/P	C/CP	h	g
1999	1	1	1043	1043.00	1043.00	1	1
2000	1	1	15	15.00	15.00	1	1
2001	3	3	427	142.33	142.33	3	3
2002	2	2	25	12.50	12.50	2	2
2003	1	1	26	26.00	26.00	1	1
2004	2	2	819	409.50	409.50	2	2
2005	3	2	477	159.00	238.50	2	3
2006	2	2	50	25.00	25.00	2	2
2007	2	2	358	179.00	179.00	2	2
2008	10	10	1301	130.10	130.10	8	10

Continuation of Table 3

2009	7	7	309	44.14	44.14	5	7
2010	2	1	23	11.50	23.00	1	2
2011	1	1	65	65.00	65.00	1	1
2012	4	4	37	9.25	9.25	2	4
2013	5	4	102	20.40	25.50	4	5
2014	6	6	230	38.33	38.33	5	6
2015	9	8	177	19.67	22.13	5	9
2016	13	9	176	13.54	19.56	6	13
2017	14	14	233	16.64	16.64	7	14
2018	15	14	146	9.73	10.43	8	11
2019	11	10	30	2.73	3.00	4	4
2020	17	9	25	1.47	2.78	3	4
2021	17	3	5	0.29	1.67	1	2

Notes: TP - total number of publications; NCP - number of cited publications; TC - total citations; C/P - average citations per publication; C/CP - average citations per cited publication; h - h-index; g - g-index

Fig. 4 presents that research on board capital has steadily increased starting from 2012. Nevertheless, the analysis only considered journal articles and review papers. Hence, the current study predicts that publications and total citations on board capital could be higher if the study considered the entire corpus of documents, including books, book chapters, and conference papers.

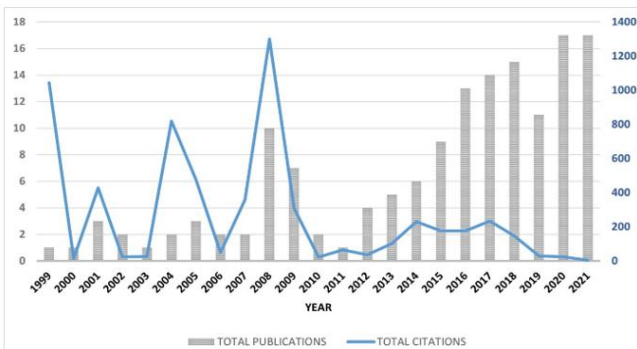


Fig. 4 Annual total publications and citations

3.2. Leading Countries

The literature on board capital has gained considerable interest from researchers globally, thus signifying a universal concern. Furthermore, 31 countries published articles and reviews between 1999 and 2021. The top five countries by the number of publications included the USA (60), Australia (21), China (16), the United Kingdom (UK) (13), and Canada (10), whereas the top publishing Asian countries (except China) were Taiwan (8), Malaysia (5), Singapore (5), and Vietnam (2). Table 4 lists the countries with at least two publications from 1999 to 2021. For total citations, the USA ranked first with 3,689 citations, followed by Hong Kong ranked second with 580 citations, Canada third with 310 citations, and Australia with the UK ranked the fourth and fifth with 194 and 159 citations, respectively. Although Hong Kong had fewer publications on board capital than the

mentioned top five countries, the country still received high citations.

Table 4 Countries with a minimum of two publications on board capital

Country	TP	NCP	TC	C/P	C/CP	h	g
United States	60	52	3,689	61.48	70.94	23	60
Australia	21	16	194	9.24	12.13	8	13
China	16	8	129	8.06	16.13	4	11
United Kingdom	13	12	159	12.23	13.25	6	12
Canada	10	8	310	31.00	38.75	7	10
Taiwan	8	6	41	5.13	6.83	4	6
France	7	6	156	22.29	26.00	4	7
Spain	7	5	69	9.86	13.80	3	7
Switzerland	6	6	114	19.00	19.00	6	6
Germany	5	4	40	8.00	10.00	3	5
Hong Kong	5	5	580	116.00	116.00	4	5
Malaysia	5	4	26	5.20	6.50	3	5
Singapore	5	3	143	28.60	47.67	3	5
Finland	4	4	102	25.50	25.50	2	4
Netherlands	4	3	57	14.25	19.00	3	4
New Zealand	4	3	80	20.00	26.67	3	4
Italy	3	3	3	1.00	1.00	1	1
Iran	2	0	0	0.00	0.00	0	0
Monaco	2	1	3	1.50	3.00	1	1
Norway	2	2	4	2.00	2.00	1	2
South Africa	2	2	4	2.00	2.00	1	2
Sweden	2	1	11	5.50	11.00	1	2
Vietnam	2	2	17	8.50	8.50	2	2

Notes: TP - total number of publications; NCP - number of cited publications; TC - total citations; C/P - average citations per publication; C/CP - average citations per cited publication; h - h-index; g - g-index

3.3. Leading Journals

This study examined the publishing activity in journals. All 148 articles on board capital were published in 91 journals. Table 5 illustrates the 24 journals with at least two publications on board capital from 1999 to 2021.

The leading journals with at least five publications, including the Journal of Management and Governance, Strategic Management Journal, Journal of Financial Economics, Academy of Management Journal, Corporate Governance: An International Review, and Journal of Business Finance and Accounting. Interestingly, the top journal in the list features specific coverage of corporate governance. Nonetheless, a high number of publications does not necessarily entail a high citation frequency when comparing the Journal of Management and Governance to the other four journals.

Although only one additional publication was found between the said journal and the Strategic Management Journal (the second most active one), the journals had a massive citation gap. For instance, the Strategic Management Journal had 885 more citations than the Journal of Management and Governance. Journals with fewer publications, such as the Journal of Management, Contemporary Accounting Research, and Review of Financial Studies, have been cited more than the Journal of Management and Governance.

Table 5 Most active publishing journals on board capital with at least two publications

Source Title	Publisher	TP	TC	Cite Score 2020	SJR 2020	SNIP 2020	CSH
Journal of Management & Governance	Springer Nature	7	83	2.6	0.473	0.973	86
Strategic Management Journal	Wiley	6	885	12.5	11.035	3.882	885
Journal of Financial Economics	Elsevier	6	676	9.6	11.673	5.656	676
Academy of Management Journal	Academy of Management	6	285	14.2	11.193	4.233	1323
Corporate Governance: An International Review	Wiley	5	213	3.7	0.866	1.241	213
Journal of Business Finance and Accounting	Wiley-Blackwell	5	37	3.3	1.282	1.738	32
Journal of Corporate Finance	Elsevier	4	38	4.9	1.894	2.665	38
Accounting and Finance	Wiley	4	17	3.3	0.645	1.517	16
Journal of Financial and Quantitative Analysis	Cambridge University Press	3	79	5.3	4.657	3.034	78
Journal of Business Research	Elsevier	3	49	9.2	2.049	0.852	49
Financial Management	Wiley	3	46	2.9	1.647	1.745	46
Journal of Banking and Finance	Elsevier	3	19	4.4	1.58	2.166	19
Corporate Board Role Duties and Composition	Virtus Interpress	3	2	0.1	0.129	0.429	2
China Journal of Accounting Studies	Taylor & Francis	3	0	0.2	0.11	0.12	2
Journal of Management	SAGE	2	311	21.4	7.491	5.756	311
Contemporary Accounting Research	Wiley	2	264	4.3	2.769	2.295	264
Review of Financial Studies	Oxford University Press	2	185	9.2	12.8	5.065	185
British Accounting Review	Elsevier	2	56	7	1.223	2.111	56
Gender in Management	Emerald	2	22	2.5	0.467	1.124	22
International Journal of Disclosure and Governance	Springer Nature	2	13	1.8	0.281	0.622	13
Corporate Ownership and Control	Virtus Interpress	2	8	0.2	0.148	0.301	8
Quarterly Review of Economics and Finance	Elsevier	2	5	3.2	0.628	1.397	4
Journal of Accounting Auditing and Finance	SAGE	2	0	2.4	0.629	1.127	0
Strategic Direction	Emerald	2	0	0.2	0.115	0.045	0

Notes: TP - total number of publications; TC - total citations; CSh - citation sum within h-core

Another significant finding were the 91 journals, two (Corporate Board Role Duties and Composition and Corporate Ownership and Control) were published by Virtus Interpress in Ukraine. The publisher was flagged as a possible predatory publisher [37] and reportedly fined EURO 490 and EURO 650 for entries to the respective journals (Virtus Interpress in 2021). Moreover, a crosscheck at Scopus revealed that coverage for Virtus Interpress ceased in 2017.

3.4. Leading Authors

The fourth attribute examined in answering the first two research questions were publishing activity by author and affiliation, while the fifth and final attribute was institution publishing activity. Table 6 presents 21 authors who contributed at least two publications from 1999 to 2021. The most active scholar on board capital (5) was Bugeja, M. of the University of Technology, Australia, followed by Bravo, F. of the University of Seville, Spain, and Westphal, J.D. of the University of Michigan, USA, with three articles each.

Table 6 Most productive authors of board capital study with at least two publications

Author Name	Affiliation	TP	NCP	TC	C/P	C/CP	h	g
Bugeja, M.	University of Technology	5	4	38	7.60	9.50	4	5
Bravo, F.	University of Seville	3	3	11	3.67	3.67	2	3
Westphal, J.D.	University of Michigan	3	3	547	182.33	182.33	3	3
Bilimoria, D.	Case Western Reserve University	2	2	42	21.00	21.00	2	2
Boivie, S.	Texas A&M University	2	2	107	53.50	53.50	2	2
Ghannam, S.	University of Technology	2	1	4	2.00	4.00	1	2
Jeganathan, D.		2	0	0	0.00	0.00	0	0
Kang, J.K.	Nanyang Technological University	2	1	6	3.00	6.00	1	2
Kor, Y.Y.	University of Cambridge	2	2	357	178.50	178.50	2	2
Krause, R.	Texas Christian University	2	2	64	32.00	32.00	2	2
Liu, G.	Ryerson University	2	0	0	0.00	0.00	0	0
Minnick, K.	Bentley University	2	1	13	6.50	13.00	1	2
Oesch, D.	University of Zurich	2	2	25	12.50	12.50	2	2
Reguera-Alvarado, N.	University of Seville	2	2	5	2.50	2.50	2	2
Schmid, M.	University of St. Gallen	2	2	25	12.50	12.50	2	2
Spiropoulos, H.	University of Technology	2	2	10	5.00	5.00	2	2
Sun, J.	University of Windsor	2	0	0	0.00	0.00	0	0
Torchia, M.	International University of Monaco	2	2	4	2.00	2.00	1	2

Subsequently, the study examined the co-occurrence of keywords used by scholars with at least three occurrences, which produced four clusters, as illustrated in Fig. 7. The colored networks denote each cluster: red for Cluster 1 with nine keywords, green for Cluster 2 with five keywords, blue for Cluster 3 with four keywords, and yellow for Cluster 4 with three keywords.

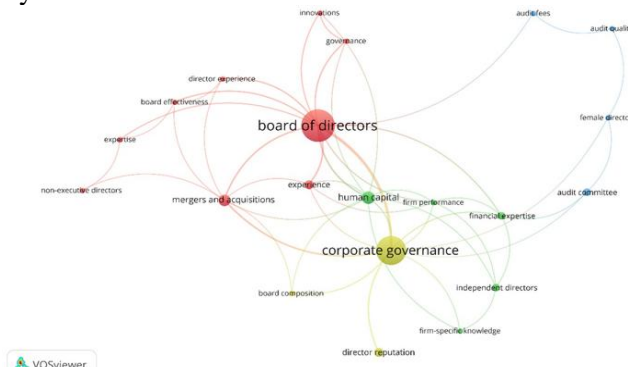


Fig. 7 VOSviewer keyword occurrences

This study explored the document citations. Out of 148 documents, only documents with a minimum of three citations were screened, hence resulting in 68 documents. The VOSviewer grouped documents automatically into six clusters, as illustrated in Fig. 8. Clusters 1 and 2 are represented by the red and green networks with 16 documents each. The blue network denotes Cluster 3 with 13 documents, while yellow Cluster 4 contains ten documents. Finally, Clusters 5 and 6 were purple and cyan with seven and six documents, respectively. The top-cited document in the list was *Cognition and corporate governance: understanding boards of directors as strategic decision-making groups* by D. P. Forbes and F. J. Milliken [9], which were the most cited authors. The second most cited article was *Board leadership, outside director's experience, and voluntary corporate disclosure* by Gul and Leung [38], with 479 citations averaging 28.18 citations per year. Meanwhile, *does the market value financial expertise on audit committees of the board of directors* by Defond et al. [39] was ranked third with 468 citations at 29.25 per year.

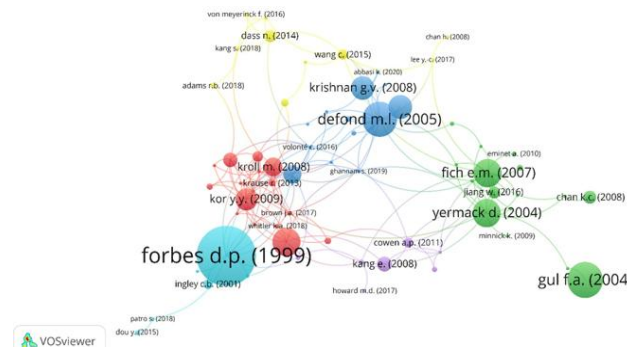


Fig. 8 VOSviewer citation networks

The study proceeded with a title and abstract analysis of the terms based on the number of occurrences and simultaneous occurrences. The parameters were set to enable the VOSviewer to extract the title and abstract fields, full counts, and a minimum of 10 occurrences. The results yielded 26 items and four clusters from the analysis. Fig. 9 depicts Cluster 1 in red with eight terms, Cluster 2 in green with six items, and Clusters 3 and 4 in blue and yellow, respectively, with six items each. Moreover, related terms were grouped in similar colors. The node sizes represent the substance of the item occurrence, while the line thickness expresses the connections between items.



Fig. 9 VOSviewer title and abstract analysis

Table 8 summarizes the study findings. First, the term independent director in Cluster 1 (green nodes) demonstrated the highest occurrence with 91 occurrences, 17 links, and a total link strength of 460. The yellow nodes depict that the item performance from Cluster 4 was ranked second with 68 occurrences, 19 links, and a total link strength of 318, while the CEO in the blue nodes was ranked third with 63 occurrences, 19 links, and a total link strength of 350. Finally, the term women director in Cluster 1, depicted by the red nodes, was ranked fourth with 45 occurrences, 11 links, and a total link strength of 254.

Table 8 Summary of study findings

Cluster	Colour	Items	Occurrences	Links	Total Link Strength	Average Publication Year (AVP)
1	Red	Women Director	45	11	254	2016.71
		Financial Expertise	43	18	266	2012.67
		Directorship	40	18	305	2017.08
		Reputation Effect	39	15	364	2014.49
		Board Member	31	16	103	2015.58
		Disclosure	20	12	119	2012.75
		Corporate Reputation	15	4	58	2014.93
		Sarbanes Oxley Act	14	9	253	2013.07
2	Green	Independent Director	91	17	460	2015.07

Continuation of Table 8

		Audit Committee	38	15	326	2012.42
		Foreign Experience	17	4	30	2020.00
		Firm Value	12	11	83	2012.92
		Accounting Expertise	10	6	91	2017.00
3	Blue	China	10	8	51	2018.30
		CEO	63	19	350	2015.97
		Human Capital	58	11	217	2016.48
		Appointment	36	19	307	2014.19
		Firm Performance	34	15	342	2014.94
		External Director	31	17	179	2011.42
		Compensation	28	15	241	2013.79
4	Yellow	Performance	68	19	318	2016.09
		Directors Experience	31	12	178	2013.74
		Acquisition	20	13	110	2012.35
		Dynamic Capability	11	4	55	2012.00
		Non-Executive Director	11	11	63	2014.18
		Non-Independent Director	10	7	77	2017.30

The study examined the emerging research areas displayed in yellow and light green over the past few years. The VOSviewer developed the nodes by ranking the recency and frequency of works. Fig. 10 and Table 8 illustrate that the board capital research themes that have recently earned substantial interest based on the average publication year (AVP) were foreign experience (2020.00), China (2018.30), non-independent director (2017.30), directorship (2017.08), and accounting expertise (2017.00). The findings offer scholars insight into the most prevalent themes in board capital research.

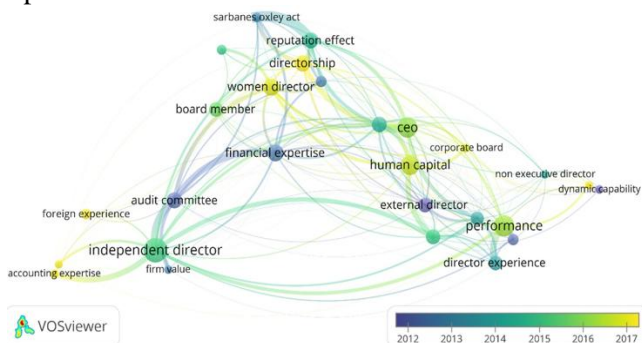


Fig. 10 VOSviewer overlay title and abstract

5. Discussion, Conclusion, and Future Research Agenda

The study performed and presented the bibliometric analysis results for board capital research. Furthermore, the study documented current publication trends, identified the most influential and productive scholars, institutions, and countries, examined the current state of collaboration and highlighted the most prevalent research themes recently. All relevant data were extracted from the Scopus database. Additionally, 148 English journal articles (95.95%) and review papers (4.05%) were selected based on the inclusion and exclusion criteria from three subject areas: Business, Management, and Accounting; Economics, Econometrics, and Finance; and Social Sciences.

The descriptive analysis of 148 articles determined the current publication trends of board capital. D. P. Forbes and F. J. Milliken [9] published the first work

on board capital. The highest number of publications between 1999 and 2021 was 17, specifically in 2020 and 2021. Meanwhile, the fewest publications were produced in 2011, 2003, 2000, and 1999. Furthermore, the analysis suggested that research on board capital has gained significant attention from developed countries and China.

Interestingly, although several journals have been published more frequently than others, the journals have received fewer citations. The findings highlight the significance of board capital research based on the source title. Bugeja, M. and the University of Technology, Sydney, remain the most productive authors and institutions, respectively, in publishing board capital research. Moreover, the scholar is the most active collaborator with other authors in the area. Finally, the most influential article on the topic is Forbes and Milliken's *Cognition and corporate governance: Understanding boards of directors as strategic decision-making groups*, with an average of 47.41 citations yearly.

Bibliometric analysis was used to answer the remaining research questions following a descriptive analysis. Observably, the usage of the keyword board capital is uncommon compared to the keyword human capital. Scholars prefer using specific terms, such as firm-specific knowledge, experience, expertise, and financial expertise. Furthermore, keywords such as corporate governance, board of directors, and independent directors were some of the most repeated keywords used in the research area. Nevertheless, recent scholars have emphasized emerging research themes, such as foreign experience, China, non-independent director, directorship, and accounting expertise. The keywords and research themes signal crucial emerging topics and imply a redirected focus on specific issues on board capital instead of a broad discussion. Meanwhile, the clustered keywords based on co-occurrences imply active discussion within the clustered research areas. The findings offer future research agendas for scholars in the clustered research areas or on the recent and active research themes.

The findings highlight several gaps for future studies. Although the past decades have demonstrated a considerable increase in board capital literature, lack of focus remains on all aspects of board capital. Although the central theme of the study is board capital, most previous literature emphasized the board of directors solely as a board capital indicator. Therefore, future studies should consider other board capital attributes and the relevant interactions. Similarly, few studies have demonstrated how human capital is translated into corporate strategies and practices that contribute to the overall organizational performance. Addressing the knowledge gap is vital because an original study could deliver critical managerial insight into the benefits and pitfalls of board capital attributes.

The findings highlight that most studies were conducted in developed countries, specifically the USA, UK, and China. Thus, future studies should consider the unique characteristics of rising economies in Asia, South America, and Africa. Nevertheless, future studies should not merely replicate prior research but instead take advantage of the regulation, markets, and cultural differences between developing and developed economies. Addressing the knowledge gap is critical as decisive board capital research can identify a cross-country difference in board capital aspects and contribute to society. Additionally, cross-industry and industry-specific research are needed. The results confirmed that most studies had highlighted public listed firms but disregarded the industrial differences. Thus, the study encourages researchers to examine the unique features of a specific industry or sector and compare it with other industries or sectors. Dynamic research has a significant prospect of enhancing the knowledge of policymakers, stakeholders, and management decisions.

5.1. Practical Implications

The bibliometric findings of the study assist managers and other stakeholders in many ways. First, the study provides managers and policymakers with a sketch of the board capital and information on the current and future trends, patterns, gaps, and weaknesses in chronological and geographical analysis. Second, identifying the existence of vast literature on board capital in corporate governance could be practically advantageous. Third, the cluster analysis could aid practitioners in applying board capital in a more advised and assured manner. Finally, the findings could facilitate managers to identify critical success factors, challenges, and difficulties, which is a critical aspect that raises awareness of the success factors and the obstacles that managers may encounter.

5.2. Conclusion, Limitations, and Future Directions

This study identifies the main research developments in the board capital field. Bibliometric analysis was used to study the patterns in board capital

and to achieve the study objectives. Data were retrieved from the Scopus database. The results suggested that the research publications on board capital have increased significantly. Board capital is a multidimensional concept. Interestingly, approximately 60% of the total global publications were contributed by the USA, Australia, and China. The cluster analysis also highlighted the rising trends in board capital, such as women directorship, independent directors, CEO, and performance.

Similar to other studies, this study also had a few limitations. The Scopus database provides the most peer-reviewed publications and a broad range of subject areas, but the database may not cover all publications of Ali and Johl [40]. Consequently, reliance on one exclusive database may have omitted several relevant studies on board capital. Second, future research should widen database sources to include databases such as Web of Science (WoS), Dimensions, and Google Scholar. The limited type of sources and documents could have reduced the number of relevant documents acquired. Finally, although the study attempted to include all relevant keywords in the search strings, the search may not have been exhaustive. Therefore, other papers that fit the inclusion criteria may have been omitted. Thus, the inclusion of omitted keywords in future works could result in different sets of documents, which would influence the findings and interpretations. Nonetheless, the analysis contributes to the literature by providing an overview of the research landscape on board capital despite the limitations.

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