



Review

The Effect of Corporate Social Responsibility on Earnings Management: Bibliometric Review

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Abstract: This review aims to study the knowledge development and research dissemination on the influence of Corporate Social Responsibility (CSR) on earnings management through a social network approach using a bibliometric review. A systematic bibliometric review was carried out on 329 papers obtained from the Clarivate Analytics Web of Science (WoS) Core Collection database. The data were analyzed by year, journal, author, institution, country, affiliation, subject area and term analysis. The results reveal the growing interest of researchers in studying the impact of CSR. Although the USA and China dominate publication production, there are a large number of authors from more than 50 countries around the world. The results also show that being prolific does not imply being influential in this area. The keyword patterns showed some interesting potential areas of study on this topic. The findings of this paper provide insight to the research on the analysis of the influence of CSR on earnings management. The most important findings consist of a number of gaps in the literature, such as gender diversity, voluntary disclosure of information and existence of an audit committee, among others, that allow for future fields of research to improve the analysis of the influence of CSR in EM. This research should also prove helpful to managers, owners and auditors. This is the first bibliometric review developed on this topic and it can be extrapolated to any place in the world.

Keywords: Corporate Social Responsibility (CSR); earnings management; bibliometric review; Web of Science (WoS)



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1. Introduction

The flexibility of generally accepted accounting principles makes it easier for managers to have some discretion in estimating reported earnings that may not accurately reflect the underlying economic conditions of the company (Prior et al. 2008). This opportunistic behavior of using managerial discretion is known as Earnings Management (EM) (Habbash and Alghamdi 2017) and is defined as the process of taking deliberate steps within the constraints of generally accepted accounting principles to achieve the desired level of reported earnings (Davidson et al. 1987). EM is thus broadly interpreted as a latent and unwanted threat (Mohsen Al-Absy et al. 2018), which could result in devastating long-term effects if the relevant suspicions, highlighted and inflamed by various sources and events, become public (Dechow and Skinner 2000). It is therefore considered unethical and irresponsible behavior (Scholtens and Kang 2013).

Researchers have attempted to analyze the relationship between corporate EM practices and commitment to Corporate Social Responsibility (CSR) (Bozzolan et al. 2015; Choi et al. 2018; Maglio et al. 2020). Thus, socially committed companies are presumed to have less manipulation of profits as they are intrinsically more committed to creating value for their shareholders and transparent disclosure policies (Palacios-Manzano et al. 2019). However, although the importance and influence of EM practices on CSR is an area of significant value today, it requires further research (Kim et al. 2012).

Thus, an essential component of any research is to relate it to existing knowledge. In this situation, the literature review takes on great relevance, as it can promote knowledge, facilitate theory development, provide an overview of existing research areas and synthesize research findings to uncover areas in need of further research (Snyder 2019). This study aims to analyze current research trends on the influence of CSR on EM. To this end, a bibliometric study was carried out, starting with a group of more than 300 published articles selected from scientific journals in the Web of Science database, published in the period between 2002 and 2020, and filtering this group to find specialized works on the proposed topic. In recent years, a large number of articles have been published on the relationship between CSR and EM. These studies have identified a number of current issues that have been analyzed in the research published to date. Despite its current scope, the literature published to date has not assessed the performance of the scientific activity of this relationship. Thus, the main attraction of this work lies in the lack of similar previous studies on this important topic and in the fact that the sample used to conduct the research consists of articles published anywhere in the world. In short, we aim to answer the following research questions.

- What are the volume, growth trajectory and geographic distribution of papers on this topic?
- Which scholars have emerged as influential in the literature on this topic?
- How can researchers expand their knowledge in this stream of research?
- What gaps can be found in the literature on the topic addressed that could give rise to future lines of research?

Finally, this paper makes important contributions to the existing literature, broadening and strengthening knowledge about the impact of CSR on earnings management. Firstly, this article presents an analysis of various bibliometric indicators, including the number of publications, total citations, citations per article, top journals, most relevant universities and most influential countries on the subject, which will be of great relevance to researchers who want to broaden their knowledge about the origin, evolution and current state of the relationship studied. Secondly, this study uses an inductive approach through bibliometric analysis of scientific production to observe the evolution of the field of empirical knowledge analyzed in this research. Specifically, we used the bibliometric tool VOSviewer, which allowed us to analyze co-occurrence of terms and co-authorship networks and map density based on researcher networks. These analyses have provided us with an insight into current research trends on the topic under study.

Consequently, this study contributes to the theoretical development of research on the impact of CSR on EM because it helps researchers identify the main research topics, applicable techniques and the possibility of investigating underutilized problems. In short, the main contribution of this article is the identification of a number of gaps in the literature. The results demonstrate how certain aspects such as gender diversity on boards of directors, the family or non-family character of companies, the voluntary issuance of CSR reports or the presence of an audit committee in companies and the influence of these on the relationship between CSR and EM have not been sufficiently addressed, thus opening up important possibilities for future research.

The rest of the article is organized as follows: We review the conceptual framework of the relationship between EM and CSR in Section 2. In Section 3, we describe the research methodology. In Section 4, we conduct a bibliometric review and a network analysis. Finally, in Section 5, we report the empirical findings and present the conclusions drawn from our analyses.

2. Conceptual Framework

Earnings management is one of the most challenging, debated and controversial topics in finance and financial management. This method is performed by the company's management in the process of preparing the financial statements and can affect the level of earnings shown (Mahdaleta et al. 2016). Thus, EM occurs when managers use their

financial reporting decisions and prepare transactions to alter financial statements to either create a false picture for stakeholders about the company's economic performance or to influence contractual results that depend on accounting figures reported (Muda et al. 2018). Moreover, it has been demonstrated that the existence of CSR-contingent executive compensation contracts can serve, if the contingent remuneration is high, to persuade managers to manipulate performance (Li and Thibodeau 2019).

In this context, earnings management is seen as the use of accounting techniques to produce financial statements that present an overly positive view of corporate business activities and financial position (Ye 2007) and aims to achieve stable and predictable financial results (Healy 1985). Additionally, EM helps to achieve specific targets involving the manipulation of accruals through the discretionary choices of accrual accounting (McNichols and Wilson 1988).

CSR activity by companies is based on the agency theory. This theory claims that it is necessary to limit the opportunistic behavior of the administration (Jensen and Meckling 1976; Mahrani and Soewarno 2018). In addition, this theory is complemented by the theory of legitimacy and stakeholder theory. The first argues that a company's survival depends on the support of stakeholders (Gray et al. 1995), as they will be affected and influenced by the company's activities (Freeman 1984; Mahrani and Soewarno 2018). Furthermore, the theory of legitimacy adds that the company must operate according to the prevailing norms of the society or environment in which it is situated. The company seeks to ensure that its operational activities are accepted as "legitimate" (Mahrani and Soewarno 2018).

From a managerial point of view, this research can be used to raise managers' awareness of the inappropriateness of engaging in practices aimed at manipulating the outcome, which has been demonstrated by the worldwide interest in analyzing this malpractice. From a company owner's point of view, this research can serve to enhance the implementation of CSR practices as mechanisms to reduce managers' opportunistic behavior in relation to EM. Finally, it could be helpful for auditors as well. Auditors have to evaluate the quality of the EM and if the audited company has a developed CSR system, it could be considered by auditors as a positive factor to reduce the irregular audit risk.

Research on EM is an important constant concern within CSR. In this context, EM is perceived as an act that is irresponsible according to CSR principles (Choi et al. 2018), as CSR-oriented companies are more likely to act responsibly when reporting their financial statements (Wang and Choi 2013). This is because business organizations with strong social responsibility commitments are less likely to manage their profits, and do not hide unfavorable profit-making, and therefore do not engage in EM. In this context, EM is broadly interpreted as a latent threat and an unwanted practice, which could potentially result in devastating long-term effects if relevant suspicions, as signaled by various sources and events, are made public (Dechow and Skinner 2000).

Thus, it is widely accepted that EM and CSR are linked through two perspectives. The first of these corresponds to the long-term perspective hypothesis, which suggests that socially responsible companies generally focus on fostering future stakeholder relationships (Palacios-Manzano et al. 2019). Hence, business organizations committed to CSR tend to encourage long-term relationships with stakeholders rather than maximizing their profits in the short term (Choi et al. 2018). This results in companies' commitment to CSR being largely driven by the long-term perspective (Ehsan et al. 2021). Thus, companies use CSR practices to manage or manipulate the information needs of various powerful stakeholder groups in society (such as employees, shareholders, non-governmental agencies and the general public) in order to gain their support, which is necessary for the survival of the company and its stakeholders (Gray et al. 1995). As a result, business organizations committed to CSR tend to encourage long-term relationships with stakeholders rather than maximizing short-term profits (Wang and Choi 2013).

On the other hand, the second perspective is related to the managerial opportunism hypothesis, which suggests that managers who manage for profit can strategically use CSR information to disguise their opportunistic behavior (Palacios-Manzano et al. 2019). It is

important to note that economic cycles and financial performance play important roles in the relation between CSR and EM (Gonçalves et al. 2021). Thus, previous research has demonstrated the efforts made by managers to demonstrate better measures of profitability through EM practices in order to secure their personal financial incentives (Walker 2013). As a result, managers pursue their own self-interest by reporting earnings in financial statements that do not show an accurate picture of the true economic situation of the company (Scholtens and Kang 2013) because some of them are likely to take discretionary actions with respect to reported revenues in order to maximize their own profit (Sun et al. 2010). Therefore, EM activities are conceptualized as opportunistic practices through which managers inflate earnings to meet budget targets in order to increase their own compensation (Grougiou et al. 2014). In this way, managers can use CSR to reduce the likelihood of being scrutinized by unsatisfied stakeholders in the first place (Prior et al. 2008) and maximize their own private benefits (Choi et al. 2018). A similar conclusion was achieved by Lui et al. (Liu et al. 2017), who determined that companies with a deep CSR system show a more aggressive EM behavior. However, there is controversy about whether only the mandatory CSR impacts on the EM or the voluntary CSR affects EM (Gong and Ho 2021).

In conclusion, EM is perceived as irresponsible according to CSR principles, as CSR-oriented companies are more likely to act responsibly because they report on their financial statements (Wang and Choi 2013). Therefore, they are less likely to manage their profits, and they do not hide unfavorable profit-taking, so they do not engage in EM (Palacios-Manzano et al. 2019). Additionally, CSR can be used as a mechanism to distort earnings information to become a tool to achieve managers' self-interested objectives (Prior et al. 2008).

3. Research Methodology

This section describes the procedures used to assess the body of existing empirical literature to find possible research gaps and highlight boundaries of knowledge (Fahimnia et al. 2015; Tranfield et al. 2003). A wide range of methodologies can be implemented when developing a bibliometric review (Merigo et al. 2017). As established by Li et al. (2020), a bibliometric review uses quantitative methods to classify data and produces summaries. For this reason, it is recognized as a helpful approach to make an appropriate analysis of authors, journals, institutions and the main characteristics of a research topic. Accordingly, we have analyzed several bibliometric indicators such as the number of publications, the number of citations in each article, the main journals and the main countries and regions.

3.1. Identification of Sources

In this study, we use the Web of Science (WoS) as the database for collecting information. This database includes material from a wide range of research areas, with more than 15,000 journals and 50,000,000 papers classified in 251 subject categories and 151 subject areas (Merigó and Yang 2017). Moreover, the WoS is recognized as the most authoritative data source for studying publications of most subjects (Zhao 2017). Every item available on the WoS contains information such as journal, year of publication, citations, authors, title and keywords.

3.2. Initial Search Results

Search terms used for data collection were "social responsibility", "earnings management", "earnings quality" and "accruals quality". Although this research seeks to analyze the articles published in relation to the influence of corporate social responsibility on EM, we expanded the options to find articles by searching for the term "social responsibility" instead of "corporate social responsibility". These terms were combined to be searched for in the title, subject, abstract, keywords (supplied by authors) and keywords plus (provided by journals). The established time period was from January 1990 through February 2021. The search results showed a total of 664 papers (Table 1). However, many papers appeared

in more than one category. Thus, after eliminating these duplications, we obtained a total of 329 papers.

Table 1. The search results.

Search Keywords	N° of Papers
Social Responsibility AND Earnings Management	288
Social Responsibility AND Earnings Quality	67
Social Responsibility AND Accruals Quality	8
Total	363
Total papers after eliminating duplications	329

Source: WoS.

Regarding the different types of documents included in the search results, the majority are articles (89%). The rest are early access, reviews, proceedings and books. With respect to the research area, Table 2 shows the different areas of research in which these articles are found. It can be observed how business finance, business and management are the main areas of research in the topic object of this study. Likewise, the results show how this topic is the subject of research in a large number of areas.

Table 2. Research areas.

Research Areas	Records	% of 329
Business Finance	138	41.94
Business	114	34.65
Management	102	31.00
Environmental Studies	55	16.71
Economics	35	10.63
Ethics	29	8.81
Green Sustainable Science Technology	27	8.20
Environmental Sciences	26	7.90
Other Areas	35	10.63

Source: WoS.

3.3. Initial Data Statistics

The development trend of any academic research is often indicated by the quantity of published research (Low and Siegel 2019). Figure 1 indicates how the publications in this field began in the early 21st century. The first article that analyzed the relationship between CSR and EM was published by Elias (2002) called “Determinants of earnings management ethics among accountants” in the Journal of Business Ethics in September 2002. Since then, the number of articles has greatly increased from 21 to 84 in 2016–2020. As for 2021, 14 articles were published in the first two months of the year (4.6% of the total). Thus, this trend is expected to continue since a geometric growth in publications is occurring. The most productive year was 2020, with 84 articles.

To provide a general overview of the most influential journals, the initial statistics show that 148 journals have contributed to the publication of 329 articles. Generally, a high number of journals signifies a wide variety of research themes and the multi-disciplinary character of CSR-related EM research. Moreover, the findings indicate that 25 journals (see Table 3) have published 146 articles, 53.5% of all papers published.

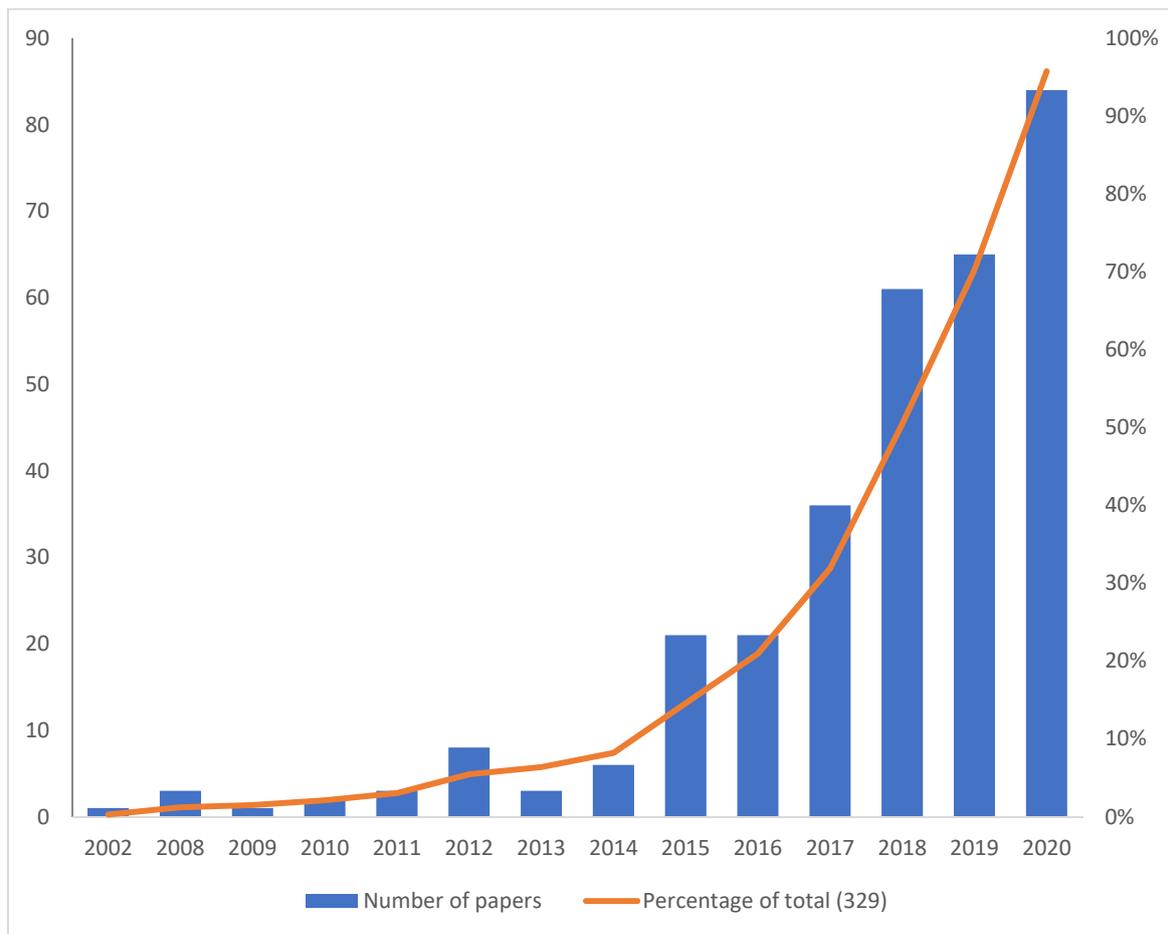


Figure 1. Articles published every year.

Table 3. The top 20 journals that contribute to investigate the influence of CSR on EM.

Titles	Publisher	N° Articles
Journal of Business Ethics	Springer	27
Corporate Social Responsibility and Environmental Management	Wiley	22
Sustainability	MDPI	21
Journal of Corporate Finance	Elsevier	12
Business Strategy and The Environment	Wiley	10
Social Responsibility Journal	Emerald	9
International Journal of Accounting and Information Management	Emerald	8
Emerging Markets Finance and Trade	Taylor and Francis	6
Cogent Business & Management	Taylor and Francis	5
Accounting and Finance	Wiley	4
Accounting Research Journal	Emerald	4
Journal of Multinational Financial Management	Elsevier	4
Journal of Applied Accounting Research	Elsevier	4
Corporate Governance-An International Review	Wiley	4
Australian Accounting Review	Wiley	4
Journal of Financial Reporting and Accounting	Emerald	4
Managerial Auditing Journal	Emerald	4
European Accounting Review	Taylor and Francis	3
Journal of Cleaner Production	Elsevier	3
Accounting Review	American Accounting Association (AAA)	3

Source: WoS.

Finally, Table 4 shows the number of articles published last year by the top 10 journals about CSR and EM. The findings show how these journals published 37.7% of all articles

from 2015 to early 2021. During the last year (2020), the work carried out by Sustainability, Corporate Social Responsibility and Environmental Management and the Social Responsibility Journal is noteworthy with 18 articles in this field between the three journals, representing 51% of the articles published that year.

Table 4. The top 10 publishing journals contributing to investigate the relationship between CSR and EM.

Source	2015	2016	2017	2018	2019	2020	2021 *	Total
Journal of Business Ethics	6	2		4	5	2		27
Corporate Social Responsibility and Environmental Management	2		2	2	4	6	4	22
Sustainability			1	8	5	7		21
Journal of Corporate Finance	2	3	2	1		4		12
Business Strategy and The Environment			1	1	1	3	4	10
Social Responsibility Journal				2	1	5	1	9
International Journal of Accounting and Information Management					4	4		8
Emerging Markets Finance and Trade			1	3	1			6
Cogent Business & Management				1	2	2		5
Accounting and Finance				1	1	2		4
TOTAL	10	5	7	23	24	35	9	124

* Data until the end of February. Source: WoS.

3.4. Data Analysis

To achieve the purpose of this study, we have combined inductive and deductive approaches through the data collection and applied a method called triangulation. This method incorporates various data sources and authors (Scheffler and Brunzel 2020). First, we used an inductive approach through a bibliometric review of the literature with the purpose of analyzing the evolution of the publications on the influence of CSR on EM (Serrano et al. 2019). Second, the literature classification portion of this research was completed using a deductive approach.

Data analysis was carried out in two parts: Bibliometric review and network analysis, which are presented in Section 4. Bibliometric review provides additional data statistics, including author, affiliation and keyword statistics. This analysis was performed using VOSviewer due to its ability to work efficiently with large data sets and to provide a range of visualization, analysis and innovative research (León-gómez et al. 2021). Another reason for choosing VOSviewer was its ability to perform scientific mapping analysis of journal publications. Moreover, this software has a powerful graphical user interface and maps display capabilities (Wang et al. 2020). Taking advantage of these benefits offered by VOSviewer, we have completed the bibliometric review with three analyses of network visualizations through a map density and two cluster maps. The first is based on the co-occurrence of keywords, the second is based on network data connected by co-authorship items and the third is through a co-citations network.

4. Bibliometric Review and Network Analysis

In order to analyze the investigation carried out on CSR and EM, this study was inspired by the methodology used previously on bibliometrics (Llanos-Herrera and Merigo 2019; Shah et al. 2019; Vošner et al. 2016). This methodology has been used to perform bibliometric reviews on the economy (Camón Luis and Celma 2020; Kraus et al. 2020), environment (Milfont et al. 2019; Nita 2019) or specific journals (Byington et al. 2019; Tang et al. 2018), for instance. Therefore, a systematic quantitative and qualitative evaluation of the literature of 329 WoS publications related to the analysis of the influence of CSR on EM was carried out. In this research, in line with León- Gómez et al. (León-gómez et al. 2021), we determine the interconnections between articles by analyzing the frequency with which other articles cite another given article related to a specific study domain. Later, VOSviewer was used to import the file created in Web of Science with information about authors, articles, citations, journals, research papers, institutions and countries. Furthermore, a mapping of citations related to CSR and EM was carried out. These results allowed us

to explore the research streams in this topic. Moreover, VOSviewer completed network analysis and graphical investigation of the selected sample. In this stage, we produced a map based on the co-occurrence of keywords, map density based on network data connected by co-authorship items and a map of co-citations.

4.1. Author Influence and Affiliation Statistics

From 2002 to February 2021, 786 authors made fundamental contributions to the development of the investigation of the relationship between CSR and EM. The results show that the two authors with the most contributions have each published a total of 14 articles, and the third has published seven articles.

Although all the authors have research experience in business and economics, there are two major subdivisions in terms of themes: Social sciences and environmental sciences and ecology. Overall, the breadth of methodologies and disciplines, even among the most prolific scholars, exemplifies the interdisciplinary nature of research on the influence of sustainable tourism development on economic growth.

As far as the geographical contribution is concerned, the authors of the papers represent 58 countries. Figure 2 shows the geographic locations of the organizations which have published articles in the field of this study. The intensity of the color is proportional to the degree of participation of each organization. Greater density of contributing organizations can be found in China with 65 articles (19.75%), followed by the USA (17.62%), United Kingdom (12.46%), Spain (10.03%), Australia (9.72%), South Korea (7.2%), Italy (6.38%) and Taiwan (6.38%). Note the case of Spain and the UK, because they are smaller countries than the others. Overall, the geographical dispersion indicates that the effect of CSR on EM has attracted organizations and research centers from all over the world.

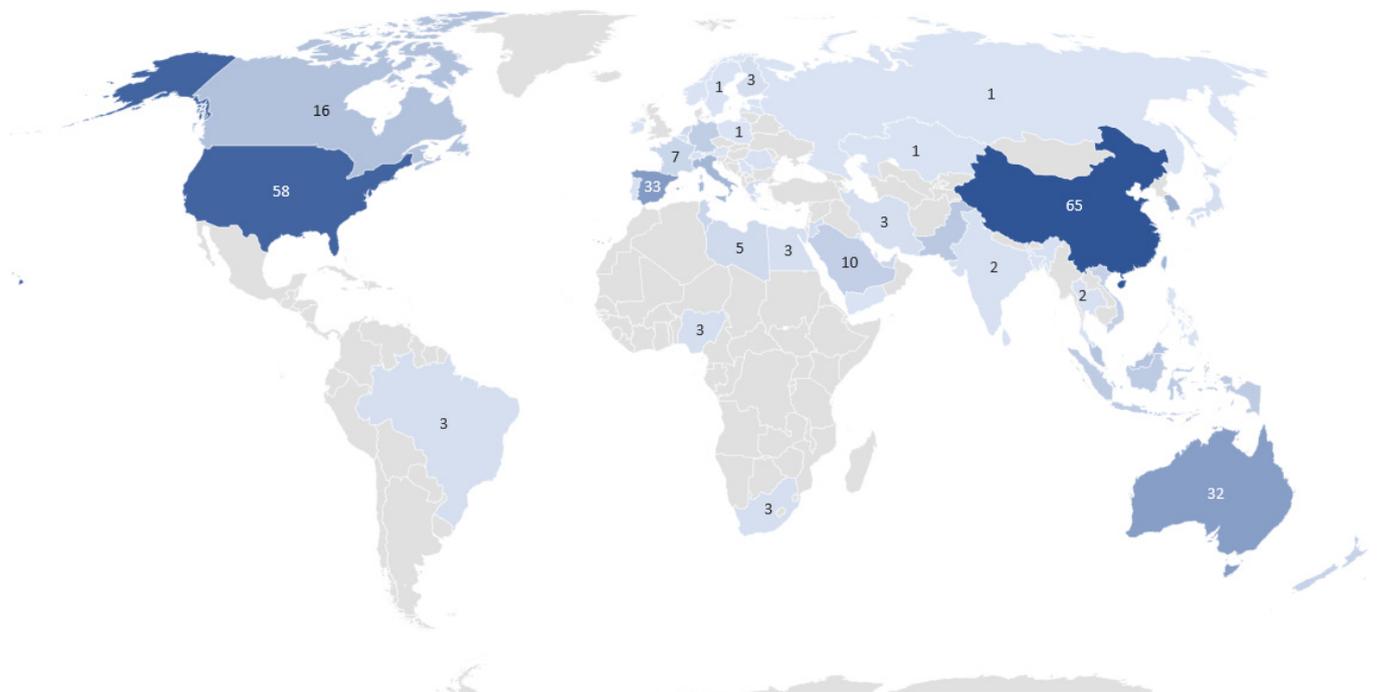


Figure 2. Geographical allocations of all contributing organizations.

A greater breakdown of these contributions can be carried out for different geographical regions. Table 5 shows the contribution of each region to the literature on the influence of CSR on EM (note that articles with authors from different organizations may have been assigned to multiple regions). Meridian Asia is the most productive region, followed by the European Union and North America. Developing regions do not publish much in this field.

Table 5. Contribution of organizations based on their geographical regions.

Geographical Region	N° of Papers	% Contribution
Europe	147	28.88%
European Union	99	19.45%
Rest of Europe	48	9.43%
America	102	20.04%
North America	74	14.54%
South America	28	5.50%
Asia	197	38.70%
Meridian Asia	131	25.74%
Middle East	26	5.11%
Southeast Asia	40	7.86%
Oceania	40	7.86%
Africa	23	4.52%
North Africa	15	2.95%
Rest of Africa	8	1.57%

Source: WoS.

Next, let us examine the productivity of the organizations. The top-performing organizations (based on the number of papers contributed), their geographical location, the number of papers and the percentage of contribution are shown in Table 6. It is observed that Salamanca University in Spain is the most prolific organization in the field studied, followed by the Chinese University of Hong Kong, the University of Korea and Santa Carla University.

Table 6. The top 20 contributing organizations.

Organization	Location	Papers	% Contribution
University of Salamanca	Spain	17	0.0051%
Chinese University of Hong Kong	China	8	0.0024%
University of Korea	Korea	7	0.0012%
Santa Clara University	United Stated	7	0.0021%
University of Pisa	Italy	6	0.0018%
University of Islamabad	Pakistan	5	0.0015%
De Montfort University	England	5	0.0015%
University of Hunan	China	5	0.0015%
University of Memphis	United States	5	0.0015%
University of Xiamen	China	5	0.0015%
Comsats University Islamabad Cui	Pakistan	4	0.0012%
University of Deakin	Australia	4	0.0012%
Huazhong University Science and Technology	China	4	0.0012%
University of Massey	New Zealand	4	0.0012%
Monash University	Australia	4	0.0012%
Natl Chung Cheng University	China	4	0.0012%
Renmin University China	China	4	0.0012%
Central Lancashire University	England	4	0.0012%
University of Groningen	Netherlands	4	0.0012%
University of Indonesia	Indonesia	4	0.0012%

Source: WoS.

Table 7 shows the list of the 10 most influential authors' organizations. It is observed that the University of Salamanca, the University of Islamabad, the University of Pisa, De Montfort University and Monash University are represented by the most prolific authors. Therefore, it may only take the work of one researcher for an organization to be classified as high performing.

Table 7. Universities of the top 10 contributing authors.

Author	Organization
Garcia-Sanchez, M.	University of Salamanca
Martinez-Ferrero, J.	University of Salamanca
Tsang, A.	Schulich School of Business York University
Sial, M.S.	University of Islamabad
Ferramosca, S.	University of Pisa
Garcia-Meca, E.	Polytechnical University of Cartagena
Gerged, A.M.	De Montfort University
Ghio, A.	Monash University
Gottardo, P.	University of Pavia
Jo, H.	Santa Clara University

Source: Wos.

4.2. Keywords Statistics and Analysis

The most popular keywords used in the papers are summarized in Table 8. This is from a pool of 1292 keywords drawn from 329 papers, once the terms used to compose the sample of this research were excluded from this search. It is observed how the most popular keywords are related to companies' performance or governance through a technique similar to that used by Ortiz-Martínez and Marín-Hernández (Ortiz-Martínez and Marín-Hernández 2021).

Table 8. The most popular keywords.

Keyword.	Frequency
Performance	108
Governance	94
Financial Performance	90
Corporate Governance	70
Ownership	67
Disclosure	59
Quality	54
Investor Protection	46
Firm Performance	42
Impact	41
Nonfinancial Disclosure	41
Firm	39
Cost	35
Firm Value	31
Stakeholder Theory	31
Management	30
Determinants	28
Board	26
Information	26
Ownership Structure	26

Source: WoS.

The keywords in the article refer to and reflect the research topic in question (Juhmani 2017). This part involved a graphical investigation of the most used keywords to obtain information on the most studied topics and concepts (Gümüüş et al. 2020). The most used keywords have been linked to describe the conceptual framework of the topic under investigation (Mas-Tur et al. 2020). For this purpose, a co-occurrence map of author keywords in the analysis of the influence of CSR on EM (minimum threshold of five keyword occurrences) has been created. As a result of this, 37 keywords were obtained.

Figure 3 allows the identification and visualization of eight thematic clusters based on the relatedness between the published papers (details in Table 9), which help to identify the streams in the field. The nodes represent the keywords, and the links represent how close a keyword is to others. Therefore, the figure displays how each keyword is connected to the other ones and the size of the circles is proportional to the number of papers published with

Table 9. Cluster and number of items identified.

Cluster	N° of Items	Details
Cluster 1	7	Board of directors, corporate social performance, corporate social responsibility, gender diversity, investor protection, m14, managerial discretion
Cluster 2	6	Discretionary accruals, earnings quality, financial reporting, firm value, stakeholder theory, sustainability reporting
Cluster 3	6	Disclosure, earnings management, ethics, financial performance, social responsibility, stakeholders
Cluster 4	6	Agency theory, China, corporate social responsibility, family firms, tax aggressiveness, tax avoidance
Cluster 5	5	Corporate governance, corporate social responsibility, firm performance, real earnings management, sustainable development
Cluster 6	4	Cost of capital, CSR, information asymmetry, voluntary disclosure
Cluster 7	2	Audit fees, CSR disclosure
Cluster 8	1	Sustainability

Source: WoS.

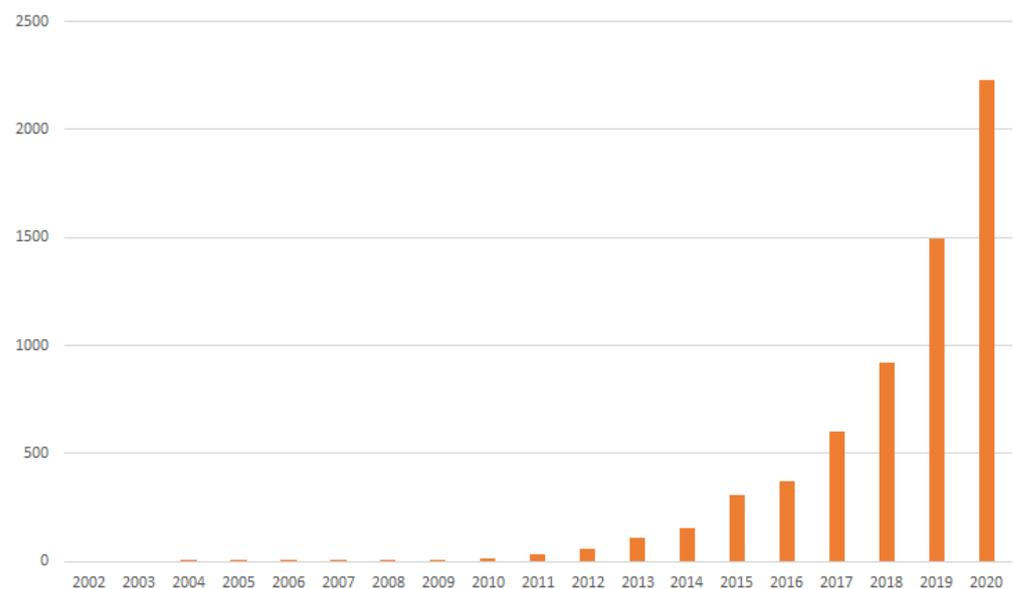
**Figure 4.** Citations per year.

Figure 5 shows that the articles published between 2010 and 2013 are the most cited articles. Currently, 2011 is the year when the papers published reached the highest impact, with more than 300 citations. Likewise, the average numbers of citations for each article are fewer in recent years because these articles are new in the literature and have not had time to obtain a significant citation rate. Obviously, these data are dynamic and once these articles reach maturity, they will receive more citations.

Another interesting issue concerning citations is to analyze the most cited articles published in the journals. The 10 main articles with the highest number of citations are shown in Table 10. Dhaliwai, Li, Tsang and Yang have the most cited article with 918 since 2011. The results also show that these authors also have the third most cited article, with 496 citations. However, it is important to note that both the first- and third-ranked articles do not aim to analyze the effects of CSR on EM. In both studies, EM is only a control variable, being neither the dependent variable nor the variable of interest. It can also be seen that another group of authors, Chih, Shen and Kang, have co-authored two of the highly cited papers, the sixth and the seventh. Another interesting issue is that the top four articles, in terms of the number of citations, are also the ones that receive the most citations on average per year. Finally, it can also be seen that the top five most cited articles have not been published by any of the 10 most prolific journals.

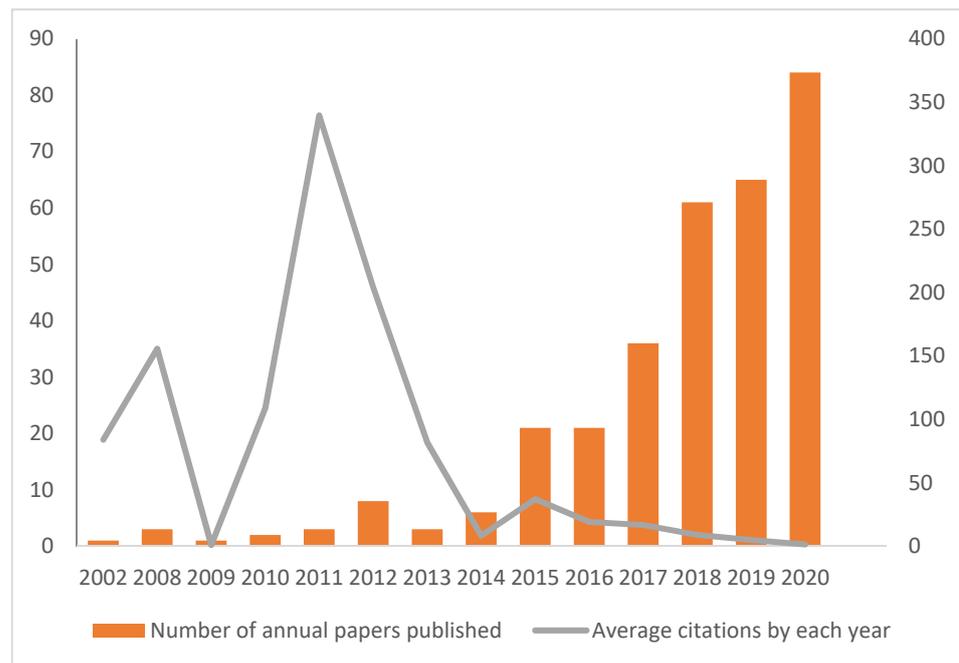


Figure 5. Number of annual papers published and average citations.

Table 10. The top 10 most cited articles investigating the influence of CSR on EM.

Title of the Paper	Authors	Journal	Year	Total Citations	Average per Year
Voluntary Nonfinancial Disclosure and the Cost of Equity Capital: The Initiation of Corporate Social Responsibility Reporting	(Dhaliwal et al. 2011)	Accounting Review	2011	918	83.45
Is Earnings Quality Associated with Corporate Social Responsibility?	(Kim et al. 2012)	Accounting Review	2012	496	49.60
Nonfinancial Disclosure and Analyst Forecast Accuracy: International Evidence on Corporate Social Responsibility Disclosure	(Dhaliwal et al. 2011)	Accounting Review	2012	475	47.50
What drives corporate social performance? The role of nation-level institutions	(Ioannou and Serafeim 2012)	Journal of International Business Studies	2012	349	34.90
Are socially responsible managers really ethical? Exploring the relationship between earnings management and corporate social responsibility	(Prior et al. 2008)	Corporate Governance and International Review	2008	253	18.07
Corporate social responsibility, investor protection, and earnings management: Some international evidence	(Chih et al. 2008)	Journal of Business Ethics	2008	180	12.86
On the Determinants of Corporate Social Responsibility: International Evidence on the Financial Industry	(Chih et al. 2010)	Journal of Business Ethics	2010	176	14.67
Value-Enhancing Capabilities of CSR: A Brief Review of Contemporary Literature	(Malik 2015)	Journal of Business Ethics	2015	135	19.29
The role of board gender and foreign ownership in the CSR performance of Chinese listed firms	(McGuinness et al. 2017)	Journal of Corporate Finance	2017	104	20.80
Does Ownership Type Matter for Corporate Social Responsibility?	(Dam and Scholtens 2012)	Corporate Governance and International Review	2012	100	10.00

Source: WoS.

Another interesting issue to consider is the work of the most influential authors. Table 11 presents the 10 most influential authors. Based on his published papers, Tsang has the highest influence, and Dhaliwal appears in the second position. This table also shows that only one of the 10 most prolific authors (Tsang, A.) is among the 10 most influential authors. However, other authors with few articles have received many citations. This evidences that being prolific in the field under study does not imply being influential. The most obvious case is Ionnou, I., who, with only one article, has received 349 citations. The total link strength can also be observed. This index measures collaboration among researchers. This collaboration pursues a mutual interest in a specific research area. Therefore, it could foster more beneficial research outcomes.

Table 11. The top 10 authors cited.

Author	N° of Papers	Citations	Average per Paper	Total Link Strength
Tsang, A.	7	1479	211.29	512
Dhaliwal, D.	2	1393	696.50	434
Yang, Y.	2	1393	696.50	434
Li, O.	1	918	918.00	261
Kim, Y.	3	579	193.00	452
Park, M.	1	496	496.00	438
Wier, B.	1	496	496.00	438
Radhakrishnan, S.	1	475	475.00	175
Chih, H.	2	356	178.00	334
Ioannou, I.	1	349	349.00	40

Source: WoS.

Next, let us examine the influence of countries. Figure 6 shows the geographical locations of the citations received by the articles in the field of this study. The intensity of the color is proportional to the number of citations received in each country. The results show how the two most prolific countries are also the two most influential, although with changed positions in the rankings. Thus, the greatest number of citations is found in the USA (3424), followed by China (1972), South Korea (1642), England (910) and Spain (731).

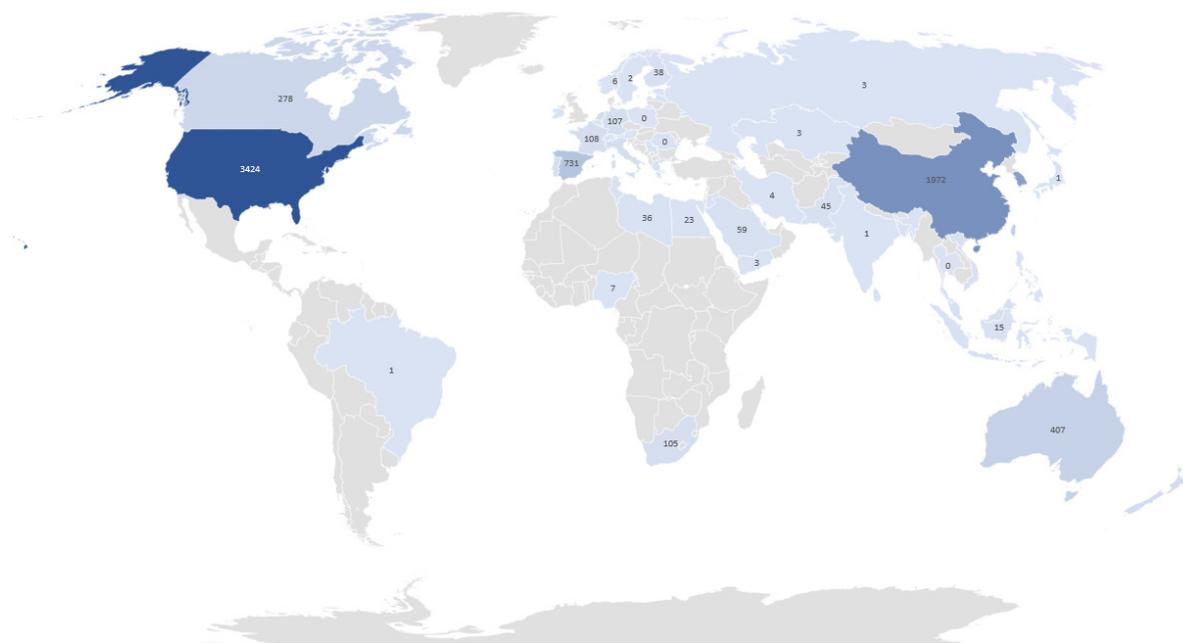


Figure 6. Geographical distribution of citations received.

4.4. Co-Author Analysis

In this stage, in line with van Eck and Waltman (van Eck and Waltman 2020), we present a map based on researcher networks. This allows us to identify the main authors who are doing scholarly work in this field so that potential researchers can know them (Alshater et al. 2020). The elements of these networks are connected through co-authorship links (León-gómez et al. 2021). We have used articles published jointly and, with them, we show map density based on network data connected by co-authorship items, which is shown in Figure 5. Each link has a strength in this map, indicating the number of papers published between a pair of authors (van Eck and Waltman 2020). Moreover, standard weight attributes are used to indicate the strength of each link with others (Al-Ashmori et al. 2020). As is seen in Figure 7, this map is composed of six different clusters, where the largest sets consist of five elements. Tsang has the highest total bond strength, followed by Jo, Kim, Dhaliwal and Qian. In turn, Dhaliwal and Kim are considered influential authors in the field studied. Likewise, Tsang and Jo are two of the most prolific authors.

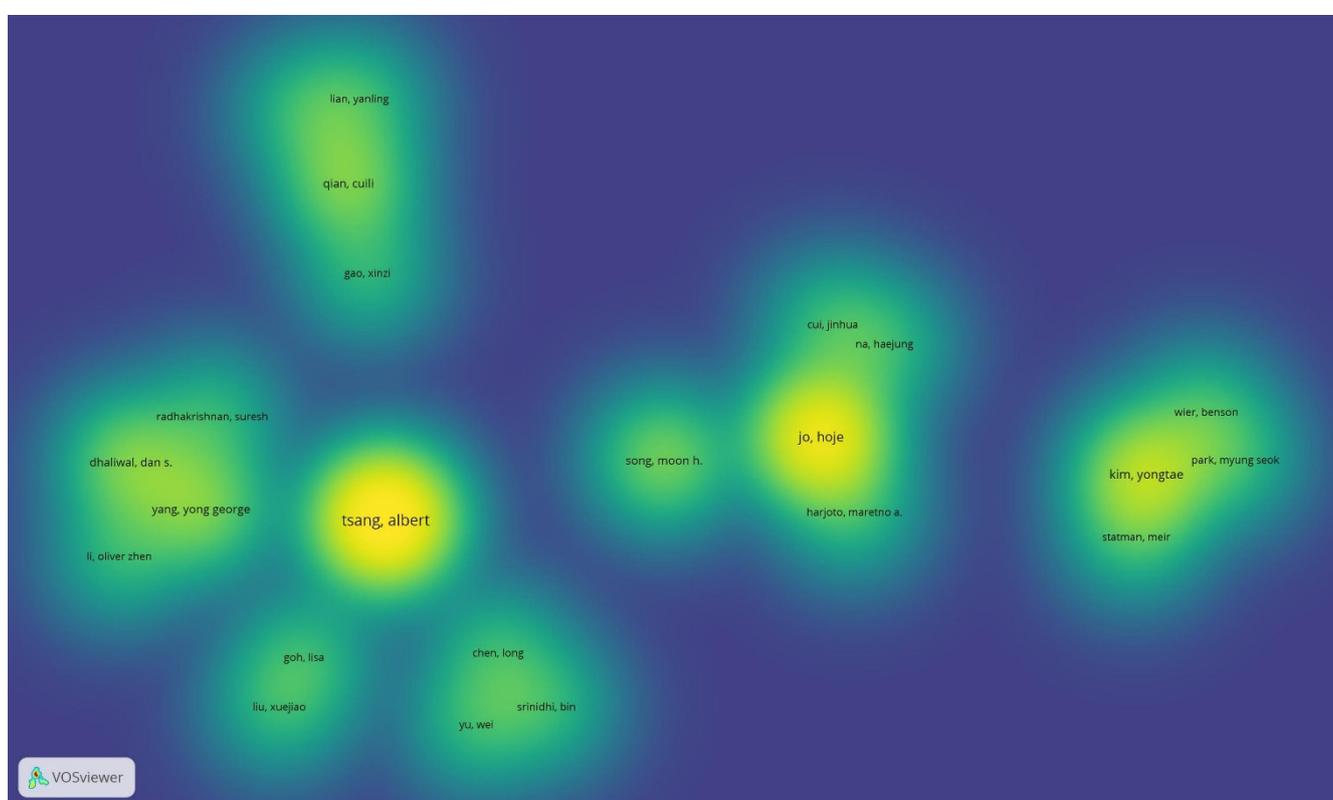


Figure 7. Map density based on network data connected by co-authorship items.

4.5. Co-Citation Analysis

Co-citation analysis seeks to examine how many times two documents are cited together by other documents and can thus be considered as a proximity measure of publications (Zhao et al. 2019). For this reason, in this analysis, it is interesting to consider the most cited papers and how they are connected with other papers. In this bibliometric review, an author co-citation analysis was performed, which examines how research communities evolve. For this purpose, we have used a co-citation map. The co-citation map visualization is a method of Exploratory Data Analysis (EDA) based on graph theory to explore the data structure (Lewis-Beck et al. 2004). This method is able to provide the best cluster labels representing the authors who quote each other.

With a total of 9974 citations among authors in the field analyzed in this paper, Figure 8 shows the existence of five clusters. It should be borne in mind that a single paper may

result in several citations among authors. The color represents the collaboration clusters, the size denotes the number of co-citations and the line between two authors represents their cooperation through co-citations. The sizes of the five clusters ranged from 51 to 29. It can also be noted that there are three clusters that are particularly isolated and detached from the rest (red, green and purple). This is evidence of the existence of groups of authors who quote each other, so forming research communities. Moreover, the figure shows how the red and green clusters include the most influential authors.

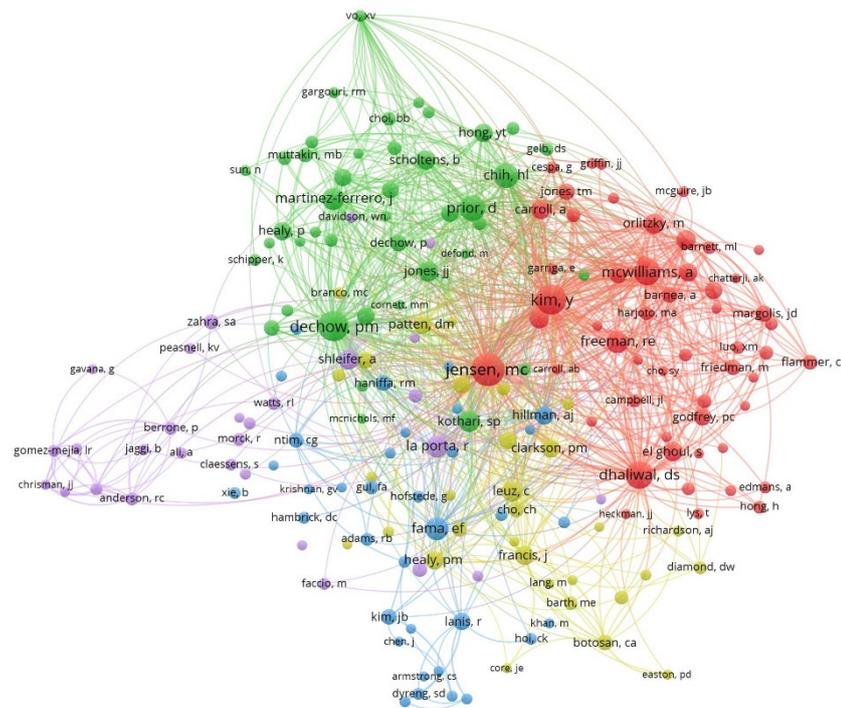


Figure 8. Co-citations network.

5. Discussion and Conclusions

This research presents a structured review of the literature studying the influence of CSR on EM. Bibliometric studies on EM and the impact of CSR on EM are found in previous literature (Velte 2020; Parvin et al. 2020; Benlemlih 2017). However, a bibliometric review linking CSR and EM that analytically and objectively identifies emerging works, authors and research groups has not been completed previously.

From the results of this study, it is possible to identify some of the most productive and influential research on the influence of CSR in EM in terms of journals, articles and authors. The results reveal that there are many journals (148) in which articles have been published in this field, with a total of 329 articles. This result differs from the bibliometric study published by Velte (2020), in which he claims that only 33 highly influential studies have been published on the topic analyzed. This difference is due to the fact that our article analyzes a longer period and also considers regions all over the world. Thus, our results show the publication of articles in this field by a large number of authors in more than 50 countries around the world. However, our analysis of geographical dispersion coincides with the previous study by Parvin et al. (2020), as it indicates that the most prolific current research is concentrated in a number of countries, such as China and the US, followed by the UK and Spain. In addition, this bibliometric review differs from others published to date, analyzing the productivity of organizations. Thus, our conclusions show that the University of Salamanca in Spain is the most prolific organization in this field, but its level of publications (0.005%) does not allow it to be considered as the leading organization in

this field. The lack of a leading organization is another indication of the attention from researchers and organizations around the world.

However, our study differs from previous studies by [Velte \(2020\)](#) and [Parvin et al. \(2020\)](#), indicating that, in 2015, there was a growing interest in the study of CSR's influence on EM. It has thus been confirmed that there has been a recent and successful period of related academic literature, specifically from 2015 to date.

On the other hand, the results of our bibliometric review on CSR and EM indicate that there is a relative concentration of the most influential papers among a certain number of researchers. Authors Garcia-Sanchez M., Martinez-Ferrero J. and Tsang A. have the highest number of publications. Other authors also have a high number of publications, such as Sial M.S., Ferramosca S., Garcia-Meca E. and Gerged A.M. However, the results reveal that, in this field, being a prolific author does not imply being an influential author because Tsang and Dhaliwal are the authors who have the most influence based on their published articles. Thus, as the field continues to mature, numerous authors are joining this line of research, expanding the work in a variety of areas (e.g., entrepreneurial finance, business and management) ([Benlemlih 2017](#)). As a consequence, the number of citations is progressing upwards, reaching a total of 300 citations in the last five years, which shows the current significance of the analyzed relationship.

On the basis of the results obtained from the analysis of the keywords co-occurrence network, we have been able to identify a number of gaps in the literature on CSR and EM. These are issues that have already been addressed but have not been addressed with sufficient intensity. First, it is very interesting to study the effect of voluntary CSR disclosure on EM. [Gong and Ho \(2018\)](#) concluded that CSR has a moderate effect on managerial short-termism. However, they did not find evidence of voluntary disclosure and a reduction in EM, but there was the limitation that the study was only focused on China and the variables used to measure the managerial short-termism were limited. Second, the literature has dealt extensively with the effects of CSR on firm performance by providing firms with the opportunity to gain a number of competitive advantages that set them apart from their competitors ([Palacios-Manzano et al. 2021](#); [Santos-Jaén et al. 2021](#)). However, it has not been extensively studied how reducing EM by implementing CSR practices can help improve firm performance. Third, it could also be very interesting to study the effects of CSR on EM in family businesses. Many authors have shown how family businesses have a greater awareness of sustainability and a greater commitment to the society around them ([Ruiz-Palomo et al. 2019](#)). This leads them to implement CSR practices to a greater extent, which is supposed to reduce the opportunistic behavior of managers and shareholders and thus EM. Fourth, the literature could also elaborate further on how the presence of an audit committee influences the CSR practices developed by companies and their effect on EM. Fifth, there is scarce literature about the influences of CSR and real EM, taking into account that real EM has a high level of real manipulation ([Oskouei and Sureshjani 2021](#)). A deep CSR should prevent and avoid all kinds of frauds and irregularities, and one of the main differences between EM and real EM is the intentionality, so CSR's mitigation effect should be different in both cases. Finally, the possible effect of gender diversity on boards on the relationship between CSR and EM is not to be overlooked. The composition of the board of directors is recognized as an important factor in defining the strategy of companies ([Reguera-Alvarado et al. 2017](#)). In recent years, there has been a growing interest among researchers to analyze the effect of the role played by women on boards ([Hossain et al. 2017](#)). As the gender socialization theory states, women's experience caring for children gives them a high degree of concern for others and makes them more sensitive to ethical and environmental issues than men. This leads women to be more reluctant to engage in result manipulation practices ([Ibrahim et al. 2009](#)). For this reason, it is very interesting to address the influence of gender diversity on the effects of CSR on EM.

In accordance with the citation statistics from the WoS database, the findings demonstrate that there is a relative dispersion of keywords. A great number of clusters have been found and, from their analysis, it cannot be concluded that thematic clusters exist.

Nevertheless, through co-citation analysis, the existence of clusters by authors who quote each other, forming research communities, is noted.

This research offers implications for the theory and research on CSR and its effect on EM through the growing global concern about the pernicious effects of manipulation of corporate performance. The results obtained in this topic suggest future lines of research, which will be of interest to researchers interested in developing their own studies on the influence of CSR on EM. We have found that research on the topic under analysis has mainly focused on the areas of corporate finance, business and management. Therefore, it would be interesting to approach new areas of studies that extend the results obtained. In this context, as indicated by our findings of the keywords co-occurrence network, there is a lack of research that seeks to determine the influence of the audit committee or the board of directors in this field, the influence of gender diversity or the family character of a company, etc., previously identified as gaps in the current literature. It would therefore be interesting to study further the influence of the characteristics of the audit committee or the board of directors, such as independence, gender or professionalization, on the direct or indirect impact of CSR on EM. Furthermore, given that the published studies focus on analyzing a number of countries, it would be necessary to extend the research to a wide range of regions in order to achieve a multicultural and globally relevant viewpoint.

Nevertheless, this study suffers from several limitations. First, the findings are only confined to the WoS database, retrieved on 28 February 2021. Although the WoS is the most important database, some articles are inevitably not stored in this database. Thus, we recommend conducting bibliometric analyses in the future by incorporating other databases such as Scopus or Google Scholar. Second, because the influence is a construct that depends on the passing of time, the age of the articles affects their influence, but only temporarily (Ramos-Rodríguez and Ruíz-Navarro 2004). It would be interesting for future bibliometric reviews to establish a minimum threshold of citations for the time elapsed since the publication of the article. Finally, this study has provided the context and justification for the research published to date. In this context, there is a need to use bibliometric tools that apply mathematical and statistical methods to contrast and extend the conclusions obtained in this study.

In conclusion, this review offers an in-depth understanding of the status quo, gaps and future agenda of the influence of CSR on EM research for researchers. As it evidences the need to promote research on responsible business practices in order to formulate policies that enable the implementation of CSR practices that favor EM, therefore, researchers should follow the recommended directions and fill the existing knowledge gaps, thus extending the body in this field, developing better and more precise hypotheses and research questions, and, therefore, increasing the quality of research on the influence of CSR on EM.

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