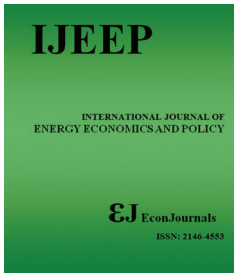


International Journal of Energy Economics and Policy

ISSN: 2146-4553

available at http: www.econjournals.com

International Journal of Energy Economics and Policy, 2024, 14(3), 684-693.

Exploring Carbon Disclosure Research for Future Research Agenda: A Bibliometric Analysis

Winwin Yadiati[1], Meiryani[2]*, A. S. L. Lindawati[2], Dianka Wahyuningtias[3], Zaidi Mat Daud[4], Lusianah[2]

[1]Department of Accounting, Faculty of Economics and Business, Padjadjaran University, Bandung, Indonesia, [2]Department of Accounting, School of Accounting, Bina Nusantara University, Jakarta, Indonesia, [3]Department of Hotel Management, Faculty of Economics and Communication, Bina Nusantara University, Jakarta, Indonesia, [4]School of Business and Economics, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia. *Email: meiryani@binus.edu

Received: 18 November 2023 **Accepted:** 02 April 2024 **DOI:** https://doi.org/10.32479/ijeep.15452

ABSTRACT

Globally, people are becoming more interested in the issue of climate change, particularly as it relates to carbon emissions. Stakeholders are putting pressure on firms to disclose more details about their ecological footprints and greenhouse gas emissions. Finding authors, publications, journals, and discoveries in the literature on emission carbon disclosure is the aim of this endeavor. To do this, we employ a review methodology that makes use of the bibliometric study technique to pinpoint a few pertinent elements found in the literature. Utilizing tools such as VOSviewer and biblioshiny from RStudio, we examine output by year, authors, articles, and publications that have received more citations. We outline the key developments in the field of carbon disclosure together with the most widely applied ideas. Furthermore, we formulate the notion of carbon disclosure as suggested by Borghei (2021), concentrating on six domains and primary patterns within the field: Provide answers to the following questions: strategic climate, carbon disclosure determinants, carbon disclosure guarantee, quality of carbon disclosure, and carbon disclosure consequences. The incorporation of sustainability dimensions into the reporting system has replaced the evaluation techniques of the disclosures as the research issue. It is discovered that a number of factors influence the corporation's choice to release its environmental accounting information. Based on its findings and analysis of current research trends and themes, this study offers suggestions for further investigation.

Keywords: Carbon Disclosure, Bibliometric Analysis, Sustainable Development Goals
JEL Classifications: D21, G2, G4, H32, L2

1. INTRODUCTION

Asia is the region with the largest global emission contribution. Climate change is the disease that the globe is suffering from, and it is global warming. Extreme weather variations are one of the factors contributing to global warming (Aluchna et al.,2022). This is a result of the earth's greenhouse gas concentration rising. One of them is the result of poorly managed industrial operations on the part of the organization (Sullivan and Gouldson, 2013; Aria M and Cuccurullo C, 2017; Gallego-Alvarez et al., 2015)). Although it originated as a corporate issue, global warming is now considered a political issue (Choi et al., 2013; Baraibar-Diez and E Odriozola.,2019; Ganda et al., 2018). The amount of government figures who have vehemently urged businesspeople to take the issue of global warming seriously is indicative of this (Hapsoro and Ambarwati, 2018; Campanella et al., 2021). Disclosure of the company's actions pertaining to carbon emissions resulting from its operations must be included in its business report. According to Cotter and Najjah (2011) and Andrew and Cortese (2011), this is optional. The exponential consumption of fossil fuels highlights efforts toward global net-zero emissions by 2050, according to our assessment of global compliance with environmental goals (Sadiq et al., 2022; Chakraborty et al.,2019). In order to cut carbon emissions by at least 50% until 2030, the European Climate Law

has proposed the 2030 Climate Target Plan and the 2050 Climate Neutrality Objective (Hussain et al., 2021, Talbi et al., 2022; Chiaramonte et al.,2022; Garzon-Jimenez and Zorio.,2021).

When carbon molecules like CO2, diesel, and other fuels burn, gases known as carbon emissions are emitted into the environment. According to Ecolife (2011), there is a clear correlation between the amount of carbon and carbon dioxide released into the atmosphere. China, the United States, and Indonesia are the nations that emit the most carbon dioxide (CO2) globally, according to Gullison et al. (2007). Around 37% of global emissions came from Asia and the Pacific, an area that requires greater attention due to its climate risk. As the main actors in climate challenges, the business sector has a duty to address these issues by offering sustainable business practices, upholding responsible environmental governance, and routinely reporting and disclosing their operations (Amran et al., 2014; De Silvia Lokuwaduge et al.,2022). Among the nations that have enacted emission trading schemes to regulate carbon emissions and impose mandatory carbon disclosure obligations are China and New Zealand. China alone has released 26,000 tons of carbon emissions in the last seven years (Bashir et al., 2020).

A division of S&P Global, Trucost (2019) investigated the management of climate-related risks and carbon emissions reports of 2500 international companies. The findings indicated that while reporting and standard practices related to climate change have improved, more transparency and a more resolute commitment to addressing environmental challenges in a meaningful way are still required. The organization must inform the public about the things it does for business that cause global warming because of carbon emissions (Choi et al., 2013; Delmas et al.,2015; Gualandris et al.,2021). Since businesses must track and report their carbon emissions, the Kyoto Protocol highlights the significance of carbon accounting (Irwhantoko and Basuki, 2016). According to Najah (2012), carbon disclosure is any information that a business discloses about its amount of carbon emissions, both subjectively and statistically. According to Alonso-Almeida et al. (2014), Asia produced the second-highest number of papers in 2011 for the Global Reporting Initiative (GRI), after Europe. Since many Asian firms are experiencing unanticipated growth, there will likely be an increase in the number of GRI reports released each year. Nevertheless, despite being the largest continent in the world, there are still not many GRI reports because corporate reporting is still relatively new on this continent (Laskar and Gopal Maji, 2018; Dunne and McBrayer.,2019; Hamrouni et al.,2020). Determining the level of environmental sustainability disclosure in Asian nations is therefore crucial.

The firm report must also include a disclosure of all measures made by the company to reduce carbon emissions(Jannah and Muid, 2014; Fahad and Busru, 2020). According to Ennis et al. (2012), choices on the company's performance in relation to carbon emissions will be made easier for stakeholders. Hopwood (2009) expresses suspicion that accounting will continue to play a significant part in environmental challenges in the future. Any actions that affect the environment will be reported by accounting. Its contribution to reaching the sustainable development goals (SDGs) includes this. The topic of accounting's response to climate change is covered in the report Carbon Accounting (KPMG, 2008; Hespenheide et al., 2010). Both carbon accounting and the environmental expenses derived from the calculation are included in accounting (Schaltegger and Burritt, 2000; Khan et al.,2022; Yu et al., 2020). Carbon disclosure is more specialized to carbon accounting, though. Environmental accounting is a subset of accounting that addresses how a factory or corporation affects the environment, according to Schaltegger and Burritt (2000). With governments, businesses, investors, and consumers paying increasing attention to environmental sustainability disclosures, stakeholders' understanding of corporate social responsibility has grown.

Furthermore, according to Burritt et al. (2002), environmental accounting covers both financial and non-financial factors, making it a more all-encompassing discipline. According to Stechemesser and Guenther (2012), Ng, A.W., Leung (2020), management accounting involves the identification and reporting of management activities pertaining to product lines, divisions, and systems utilized by the organization. The study of what motivates organizations to quantify, appraise, and make public their carbon-related data is known as carbon disclosure. According to one definition, carbon determinants are "the reasons why some organizations voluntarily disclose their climate actions, while others do not, exploring the "motivations", "drivers", and "barriers" to carbon disclosure." (Borgehei, 2021; Schiehll and Kolahgar, 2021).

2. RESEARCH METHODOLOGY

2.1. Method

The bibliometric method is employed in this work to map the body of research on carbon accounting. A summary of the author's mapping, source, influence, commonly used terms, affiliations, and other information will be provided by this way. Map development is typically accomplished by bibliometric study using visualization and a map representation. The creation of the map using various mapping techniques is the primary focus of this study. Despite the fact that bibliometric research has gotten less attention, a growing number of scholars (Firmansyah and Rusydiana, 2021; Nowlan et al., 2021) have turned their attention to bibliometric representations in the form of visuals, despite the fact that these representations are created using software. This study used both quantitative and qualitative methods to apply trend, bibliometric, and content analyses. Thus, the following analyses were carried out: (1) trend analysis, (2) citation analysis of bibliometric authors, (3) co-citation analysis of bibliometric papers, (4) co-citation analysis of bibliometric references, (5) co-citation analysis of bibliometric journals, (6) analyses of keywords and evolution, and (7) analysis of qualitative content. Wordstat was used for content analysis, whereas VOSviewer and Cite Space were used for bibliometric and evolution analyses, respectively (Reber et al.,2022).

2.2. Data

The Scopus database was chosen because to its status as the world's most extensive compilation of research outputs and as the largest library of acceptable-quality academic research documents. The terms "ESG disclosure" or "Environmental, Social, and Governance disclosure" are used in the journal title, abstract, and

keywords of this study. 234 documents in total came from this. The data underwent several screening phases, as depicted in Figure 1.

Following screening, the data were uploaded to VOSviewer for bibliometric analysis and saved to CSV Excel. Furthermore, CVS Excel was posted to CiteSapce after being converted to the Web of Sciences format. The procedures for data conversion and extraction.

2.3. Sample Size

This section uses several trend, bibliometric, evolution, and content analysis to provide an overview of the 578 ESG disclosure documents that were included in the study. As shown in Figure 1, the data went through several screening stages. Following screening, the data were saved to CSV Excel and uploaded to VOSviewer for bibliometric analysis. CVS Excel was also uploaded to CiteSapce after being converted to Web of Sciences format. Figure 2 depicts the stages of data extraction and conversion (Purnomo, Sari, et al., 2020; Sariannidis et al., 2015).

Figure 1: A PRISMA diagram that displays the number of documents at each screening stage

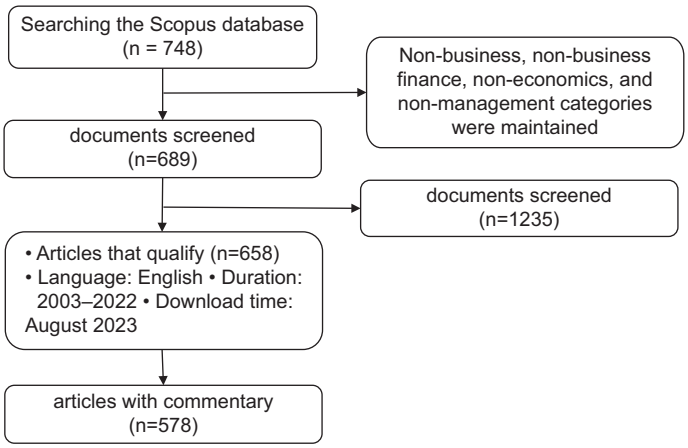


Figure 2: Paper publication by year

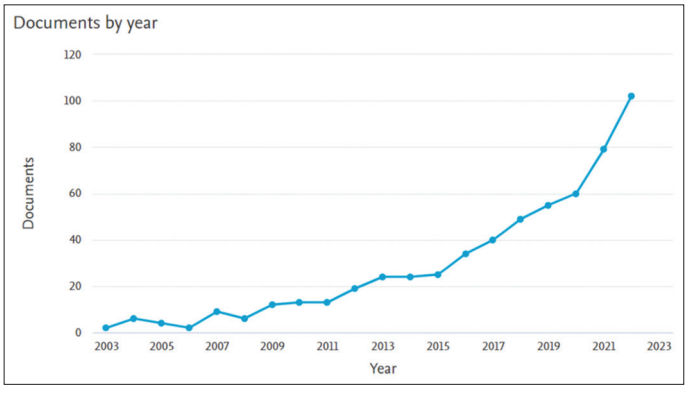


Table 1: Authors and citation of carbon disclosure research

Authors	Documents	Citations	Total Link Strength
Borghei et al.	3	61	0
Herold and Lee	3	76	0
Jendritzky et al.	5	1	0
Luo et al.	3	325	0

3. RESULTS AND DISCUSSION

3.1. Top Authors and Citation of Carbon Disclosure

The top cited papers on emission disclosure that were added to the Scopus database between 2003 and 2022 are examined in this section. According to Table 1, the majority of the most referenced studies' subjects dealt with how emission disclosure. Emission disclosure has been examined in other research as an integrated reporting strategy. The highest citations are Luo L; Tang Q with 325 citations, followed by Herold D. M., Lee K. H with 76 citations.

The most Keyword and Occurrences of Carbon Disclosure Research are climate change with 149 occurrences, followed by carbon emissions with 138 occurrences and the third is carbon with 114 occurrences. Table 2 show keyword and occurrences of carbon disclosure research as follows:

The most term, occurrences and relevance of Carbon Disclosure Research are internal control with 15 occurrences and 5.12 relevance, followed by green innovation with 14 occurrences. Table 3 show term, occurrences and relevance of carbon disclosure research as follows:

3.2. Trend in Publications on Emission Disclosure

The quantity of articles published in the field of emission disclosure research is depicted in Figure 3. In 2022 saw the publication of the first study on emission disclosures with 102 documents. Between 2015 and 2022, this topic developed relatively increased significantly with more than 40 papers published annually. In 2022, there were 102 published documents about emission disclosures. After thereafter, the number of published documents about emission disclosures continued to rise. The quantity of papers decreased in the subsequent year, to a total of more than 300 papers. The growing quantity of publications indicates that scholars are publishing their works in the Scopus database and are growing increasingly engaged in emission disclosure. According to this trend analysis, the growing number of publications in the field of emission disclosure is due to the growing integration of emission disclosure into corporate reporting practices and business strategies, as well as the growing recognition of the field's importance.

The journal having the most relevance to this, according to the data gathered, is the Journal of Cleaner Production, with 37 documents. Sustainability Switzerland with 36 documents, comes next with 34 publications is Business Strategy and the Environment is the third-most-published journal on carbon emissions topic.

3.3. The Most Significant Author

Figure 4 show the lists the top five referenced authors along with the corresponding organizations and nations. It demonstrates that the most productive author is Tang, Q with 18 document, followed by Lou, L with 17 document and the third author Zorio-Grima, A. with 6 paper publication in emission disclosure research.

Figure 3: Papers publication per year by source

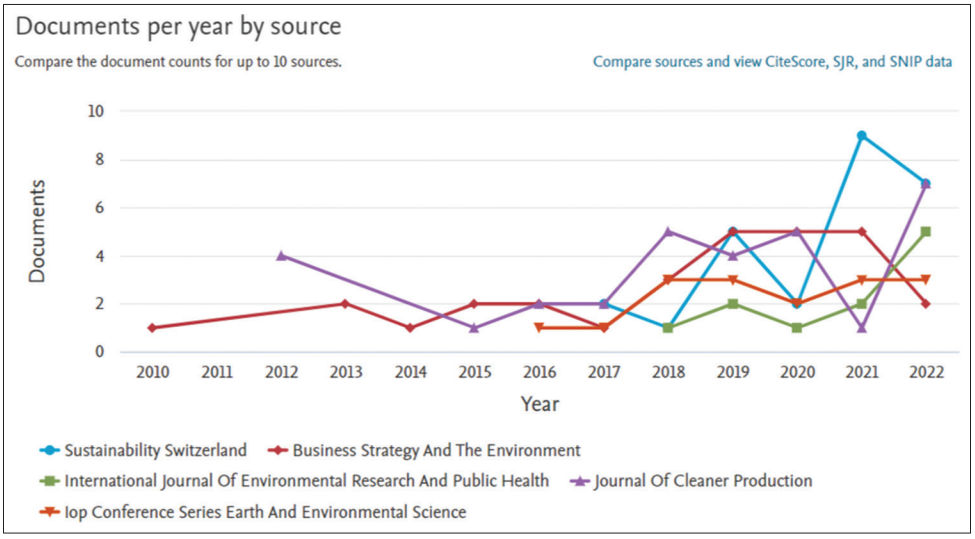


Figure 4: Paper publication per year by author

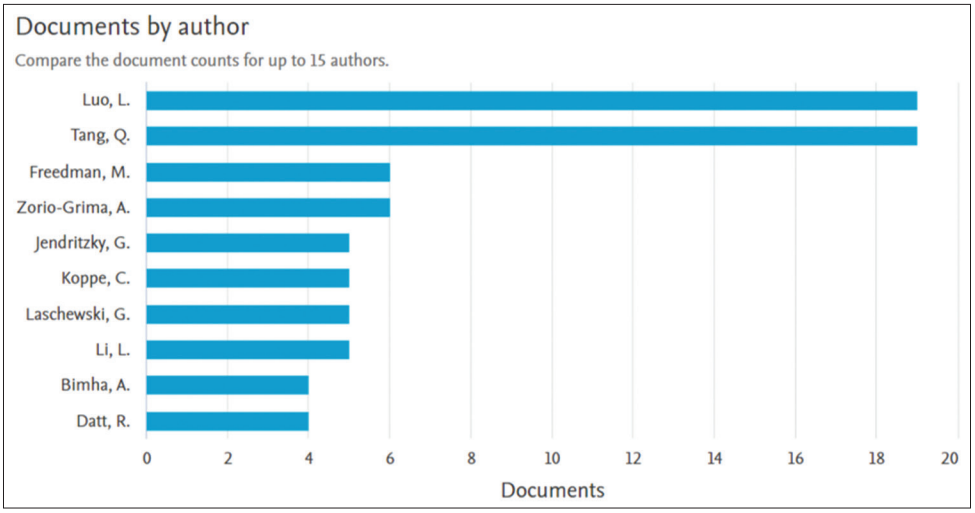


Figure 5: Documents by affiliation

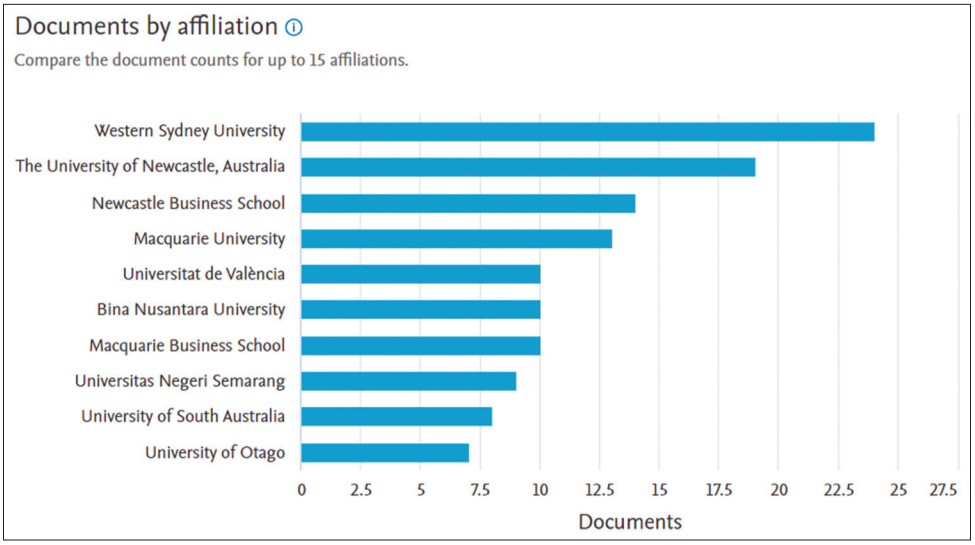


Figure 6: Documents by country

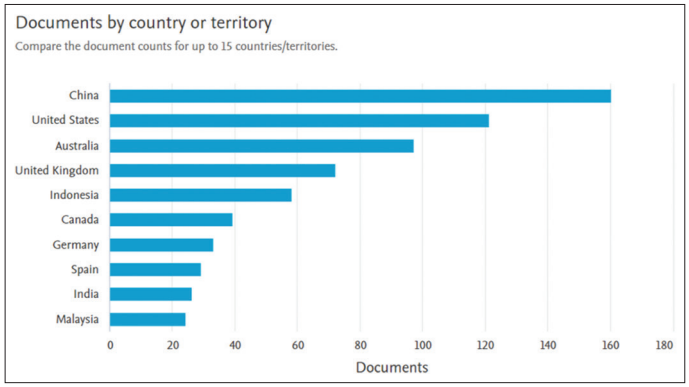


Figure 7: Documents by type

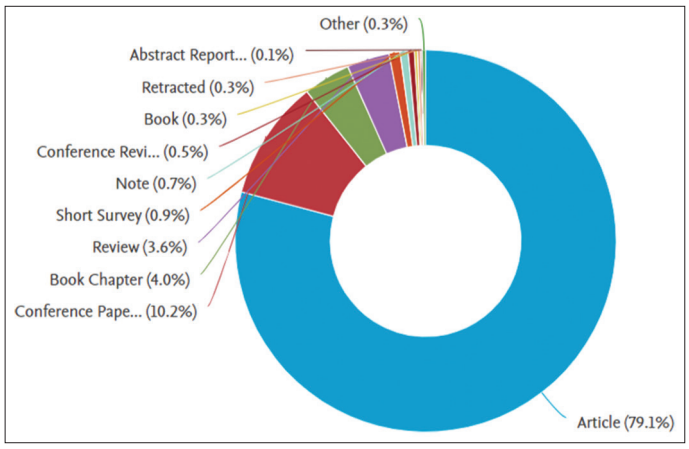
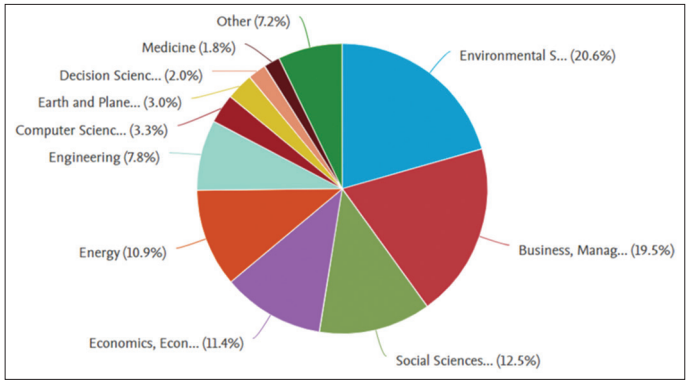


Figure 8: Documents by subject area



With 19 publications between them, Lou, L. and Tang, Q. are the most productive and pertinent writers on the topic of carbon emissions. Freedman, M. and Zorio-Grima, A., with six documents, came next. With 374 citations, Liao, L., Luo, L., and Tang, Q. are the writers who have had the biggest influence on carbon disclosure research in addition to being highly productive.

Figure 5 show the affiliate that publishes the most emission disclosore topics is from western Sydney university with 21 documents, the second most affiliated position is The university of Newcastle, Australia with 18 documents and the third most affiliate position that publishes carbon disclosure topics is Newcastle Busines School with 13 documents.

The country that publishes the most emision disclosure topics is the china with 101 documents, the second country that publishes the most emision disclosure topics is the united states with 99 documents and the third country that publishes the most emision disclosure topics is Australia with 85 documents.

Based on Figure 7 show that document by type, the most emision disclosure publications came from articles amounting of articles with 448 documents (77.5%), reviews 20 (documents (3.5%), book chapters totaling 23 documents (4%), Notes totaling 5 documents (0.9%), book as many as 14 documents (2.0%), conference paper as many as 65 documents (11.2%).

Based on Figure 8 show that document by subject area, the most emision disclosure publications came from the subject areas of environmental science with 258 documents (20.8%), business, management and accounting with 251 documents (20.2%), and social sciences with 159 documents (12.8%).

Based on Figure 9 show that documents by funding sponsor, most emision disclosure publications come from funding sponsor national natural science foundation of china, national office for philosophy and social sciences, national science foundation with each 29 paper publication, 15 papers publication, 11 paper publication.

3.4. The Most Frequent Keywords

The evolution of emission disclosure studies was conceptualized through the application of co-occurrence analysis across all terms. A minimum criterion of two for the occurrence of a specific term was necessary and filtered in order to get a relevant analysis. For 578, this produced 119 keywords. Figures 10 and 11 presents the results, which indicate that are Climate change, carbon emission, carbon, emission control, environmetnal economics, green house gas, carbon dioxide, carbon emissions, sustainable development the terms most commonly employed. The prevalence of these terms in research indicates a greater focus on the examination of the relationship between emission disclosure and financial performance, as well as the influence of corporate governance structures (such as the ownership structure and board of directors) on emission disclosure.

The terms “carbon” and “disclosure” predominate in the word distribution of articles having a carbon disclosure focus. According to research, the term “carbon” will grow significantly between 2003 and 2022. It is anticipated that the number of articles on the topic of carbon disclosure will rise in the years to come, particularly the themes of “emissions” and “Disclosure,” which have high development even though their relevance is fairly low. This is due to the trend of increasing publication of articles on the subject. However, as our research demonstrates, the subject is developing nicely. Figure 11 show Citation network of emission disclosure research research with year. Figure 12 show density Visualization of keyword of Emission Disclosure Research And Figure 13 show Authors Keyword of the emision disclosure research.

4. DISCUSSION

This study examined 578 articles from 2003 to 2022 in the dimensions.ai database that had the topic of carbon disclosure.

Figure 9: Papers by funding sponsor of emission disclosure research

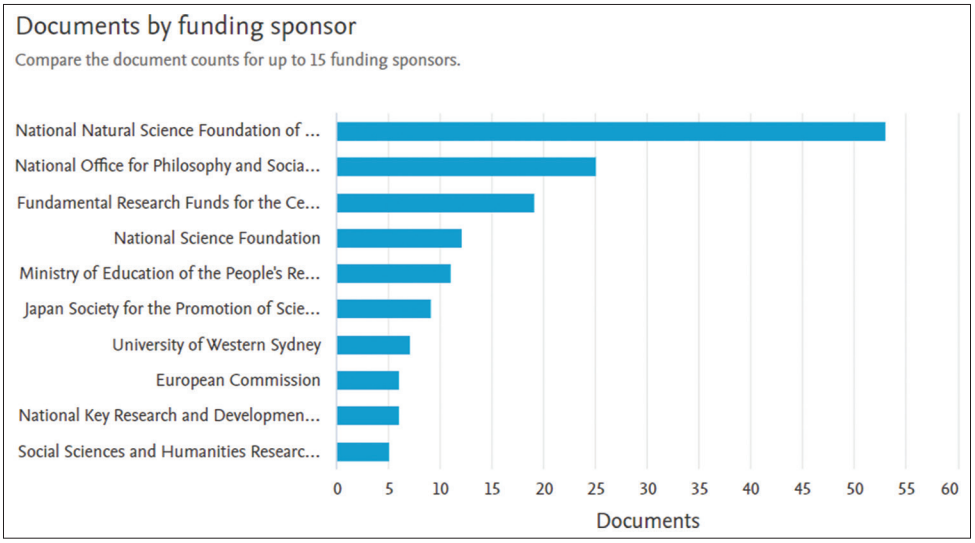


Figure 10: Citation network of emission disclosure research based on all keywords

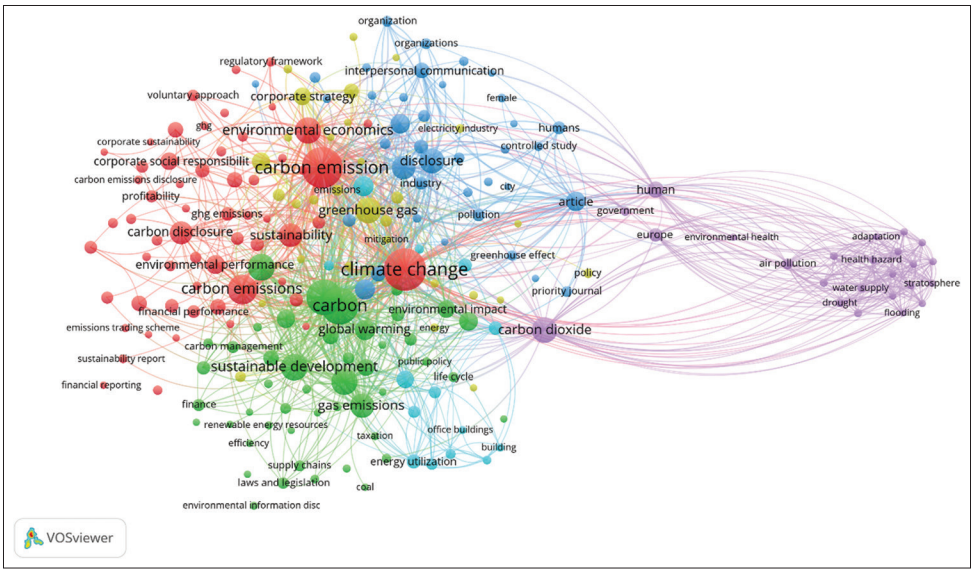


Figure 11: Citation network of emission disclosure research research with year

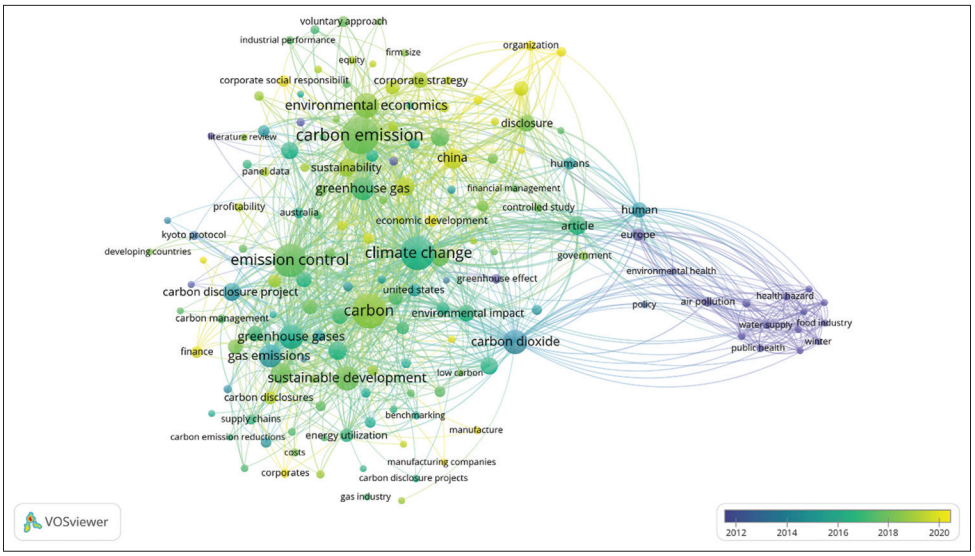


Figure 12: Density visualization of keyword of emission disclosure research

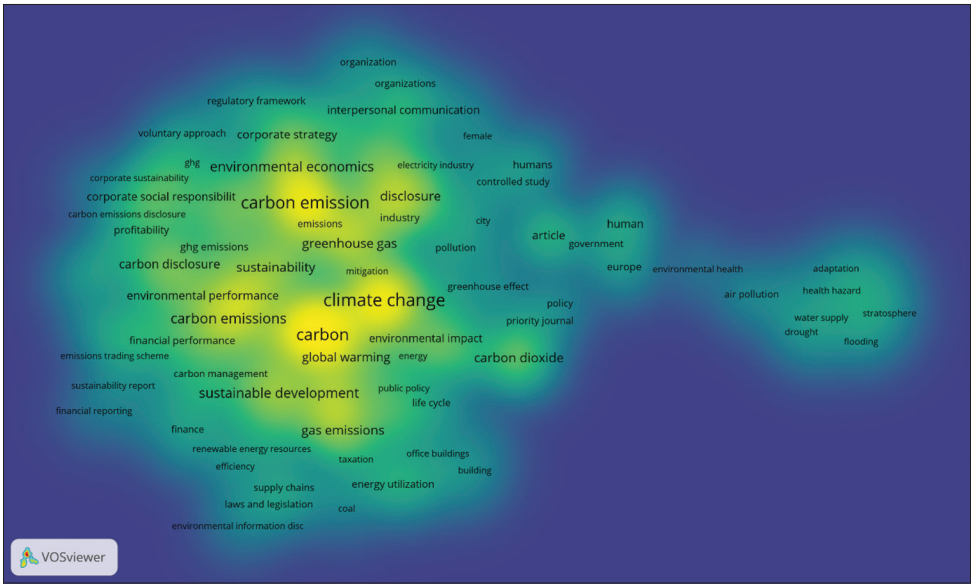
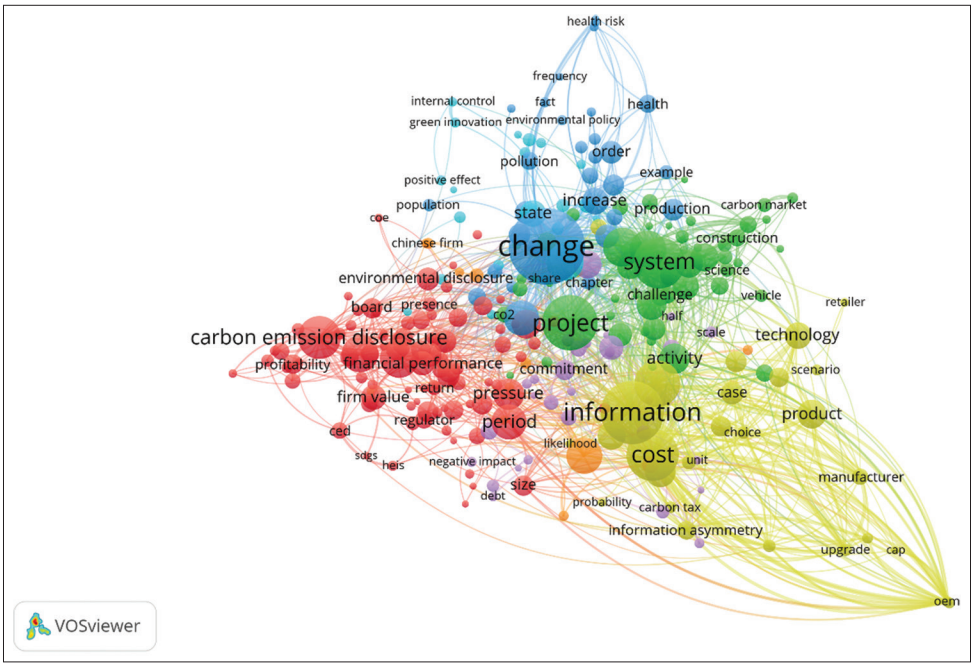


Figure 13: Authors keyword of the emision disclosure research



The journal having the most relevance to this, according to the data gathered, is the Journal of Cleaner Production, with 37 documents. "Sustainability Switzerland with 36 documents" comes next. With 34 publications, Business Strategy and the Environment is the third-most-published journal on carbon emissions. With 19 publications between them, Lou, L. and Tang, Q. are the most productive and pertinent writers on the topic of carbon emissions. Freedman, M. and Zorio-Grima, A., with six documents, came next. With 374 citations, Liao, L., Luo, L., and Tang, Q. are the writers who have had the biggest influence on carbon disclosure research in addition to being highly productive. Figure 10 show that citation network of emission disclosure research on all keywords. The terms "carbon" and "disclosure" predominate in the word distribution of articles having a carbon disclosure focus. According to research, the term "carbon" will grow significantly between 2003 and 2022. This development is extremely dissimilar to other terms that are frequently found in articles. In order to ascertain the contributions made by the published Emission disclosure papers in Scopus to the Emission literature, as well as to pinpoint the fundamental theories and concepts in this area, this study examines those papers and makes suggestions for further research. The most productive authors, organizations, and nations have been determined by utilizing various bibliometric, trend, and content studies. The findings also show that there are five main clusters: environmental, corporate social responsibility, sustainability, emission disclosure, and environmental disclosure.

Legitimacy theory served as the foundation for the disclosure of carbon emissions in this study. Legitimacy theory focuses on how

Table 2: Keyword and occurrences of carbon disclosure research

Keyword	Occurrences	Total link strength
Climate change	149	1143
Carbon emission	138	1128
Carbon	114	970
Emission control	103	819
Environmental economics	58	539
Greenhouse gas	56	522
Carbon dioxide	54	496
Carbon emissions	54	478
Sustainable development	73	461
Article	60	458
Disclosure	32	445
Gas emissions	51	444
China	49	434
Carbon disclosure project	45	399
Carbon footprint	61	361
Stakeholder	35	318
Sustainability	32	310
Environmental policy	47	305

Table 3: Term, occurrences and relevance of carbon disclosure research

Term	Occurrences	Relevance
Internal control	15	5.12
Green innovation	14	4.91
Media exposure	12	4.23
Heis	14	3.45
Manufacturing company	13	3.41
Pathogen	10	3.31
Asx	11	3.18
Health risk	15	3.14
Drought	12	3.08
Company size	11	2.98
Impression management	11	2.91
Beijing	11	2.78
Ecmt	10	2.77
Leverage	13	2.70
Institutional ownership	11	2.58
Remanufactured product	13	2.57
Equity financing	14	2.54
Oem	14	2.54

businesses interact with society through government rules. As highlighted by Gray et al. (1996), disclosure helps build a bridge between businesses and community organizations. According to Deegan and Unerman (2006), companies strive for societal legitimacy in order to guarantee that their operations align with established norms and bounds, as set forth by relevant rules. If the enterprise and the community achieve the same intended results, it will gain legitimacy and lessen the likelihood that the community would make demands in the future (Deegan et al., 2002). Apart from scrutinizing the titles and abstracts of prior Emission disclosure documents, a supplementary content analysis was carried out focusing on the contemporary subjects of the latest papers released up until July 25th, 2023. Ultimately, this study can demonstrate that carbon is a significant topic that scholars examine. This issue is currently receiving increasing attention from researchers studying the effects of carbon emissions emitted by industry. In order to demonstrate its concern for the environment, industry discloses carbon emissions in its business reports. Because of this circumstance, the topic of reporting carbon disclosures has drawn the attention of scholars, leading to the term "carbon emissions". We were able to observe some of the most recent developments in the field of carbon disclosure through a bibliometric analysis and a review of the literature. This analysis shows that, despite the fact that the word "carbon disclosure" has received minimal attention from researchers, there is agreement on its three definitions. In its purest form, carbon disclosure can be defined as a company's systematic data collection, measurement of its direct and indirect emissions (carbon performance), and evaluation of the financial implications of its carbon risk in order to communicate strategies and outlooks to stakeholders and offer guidance on the subject with the sole aim of assisting in the decarbonization of the economy. The sustainability and annual reports of specific businesses are the primary sources of information used to calculate the carbon disclosure score. To ascertain the extent and quality of the data on carbon emissions and climate change included in these freely accessible reports, a checklist is developed. Choi et al. (2013) examined the factors that influence carbon emission disclosure. The carbon emission measurement used is a check list obtained from the CDP (Carbon Disclosure Project).

5. CONCLUSION

Bibliometric, trend, and content studies have been used to identify the most productive authors, organizations, and countries. Additionally, the results indicate that there are five primary clusters: Environmental, sustainability, corporate social responsibility, emission disclosure, and environmental disclosure. There are theoretical and practical ramifications to this study. Its first goal is to give a thorough review of the literature on emission disclosure by highlighting the most important works and subjects in this area. In addition to the most cited publications and pertinent references, it gives scholars an indication of the most recent themes in emission disclosure. Third, researchers studying emission disclosure might utilize the results of this study to determine what areas to concentrate on in their upcoming investigations. Furthermore, a research vacuum has been identified in the literature about the relationships between earnings management techniques and emission disclosure. This area of study is still understudied. It's critical for researchers to continuously refine their theories in order to enhance their findings because the dynamics of the corporate environment are subject to change. Furthermore, the basic idea of emission disclosure theories has been accepted as a standard procedure; yet, its application can vary according on the features of institutional frameworks and corporate governance. The significance of maximizing emission disclosure to address crucial organizational choices is also highlighted by this study. There should be a lot more research done in this area because the majority of studies have been on how disclosure of emissions affects financial performance and how corporate governance, which includes the qualities of the board of directors, affects how much disclosure of emissions occurs. At every stage of a company's strategic and financial decision-making process, businesses should not just concentrate on attaining financial success but also on helping to achieve development goals. Future research will be very interested in this. In addition to maximizing financial success, organizations' internal ESG policies should

support sustainable development goals by reducing pollution, climate change, and social and gender injustice.

Other databases should be examined in future research to investigate trends in the field of emission disclosure. Only publications found in the Scopus database are the subject of this investigation. Notwithstanding these drawbacks, the report offers a helpful summary of the earlier and more recent research on emission disclosure. Furthermore, this study will serve as a reference for future researchers working on the most recent mapping of studies on carbon disclosure. Research on carbon disclosure is developing in close relation to environmental challenges that are being researched at the moment by a large number of researchers, particularly in order to meet goals for sustainable development. The research's implication is that it can be used to guide investment decisions, including investing in businesses that prioritize environmental conservation in order to protect the environment. The issue of climate change has made global warming more and more of a problem, drawing attention from around the world. Hence, prioritizing investments in eco-friendly businesses demonstrates concern for the environment. in order to improve efforts to repay debts by disregarding sustainability, people should be motivated to care more about environmental sustainability.

REFERENCES

Andrew, J., & Cortese, C. (2011). Carbon Disclosures: Comparability, the Carbon Disclosure Project and the Gr...: EBSCOhost. Australasian Accounting Business and Finance Journal, 5(4), 5–18.

Alonso-Almeida, M.M. Bagur-Femenias, L.; Llach, J. (2014). Is the adoption of environmental practice a strategic decision for small service companies? An empirical approach. Manag. Decis, 51, 41–62.

Aluchna M, Roszkowska-Menkes M, Kamiński B and Bosek-RakD2022 Do institutional investors encourage firm to social disclosure? The stakeholder salience perspective Journal of Business Research 142 674–82.

Amran, A., & Ooi, S. K. (2014). Sustainability reporting: Meeting stakeholder demands. Strategic Direction, 30(7), 38–41.

Aria, M., & Cuccurullo, C. (2017). bibliometrix: An R- tool for comprehensive science mapping analysis. Journal of Informetrics, 11(4), 959-975.

Baraibar-Diez E and OdriozolaMD2019 CSR committees and their effect on ESG performance in UK, France, Germany, and Spain Sustainability 11 5077.

Bashir N, Shereen MA, Khan S, Kazmi A, Siddique R. (2020).COVID-19 infection: Origin, transmission, and characteristics of human coronaviruses. J Adv Res. 24(April):91–98.

Borgehei, Abd-Ellatif, E. E., Anwar, M. M., AlJifri, A. A., & El Dalatony, M. M. (2021). Fear of COVID-19 and Its Impact on Job Satisfaction and Turnover Intention Among Egyptian Physicians. Safety and Health at Work, https://doi.org/10.1016/j.shaw.2021.07.007.

Borghei, Z., Leung, P., & Guthrie, J. (2018). Does voluntary greenhouse gas emissions disclosure reduce information asymmetry? Australian evidence. Afro- Asian Journal of Finance and Accounting, 8(2), 123- 147.

Burritt, R. L., T. Hahn and S. Schaltegger. (2002). Towards A Comprehensive Framework For Environmental Management Accounting — Links Between Business Actors And Environmental Management Accounting Tools, Australian Accounting Review 12(2): 39-50.

Campanella F, Serino L, CrisciA andD'AmbraA 2021 The role of corporate governance in environmental policy disclosure and sustainable development. Generalized estimating equations in longitudinal count data analysis Corporate Social Responsibility and Environmental Management 28 474–84.

Chakraborty A, Gao L and Sheikh S 2019 Corporate governance and risk in cross-listed and Canadian only companies Manage. Decis. 57 2740–57.

Chen, M.Y. and Chen, A.P. (2003), "Knowledge management performance evaluation: a decade review from 1995 to 2004", Journal of Information Science.

Chiaramonte L, Dreassi A, Girardone Cand Piserà S 2022 Do ESG strategies enhance bank stability during financial turmoil? Evidence from Europe European Journal of Finance (https://doi.org/10.1080/1351847X.2021.1964556).

Choi, B.B., Lee, D., Psaros, J. (2013), An analysis of Australian company carbon emissions' disclosures. Pacific Accounting Review, 25(1), 58-79.

Cotter, J., Najah, M., & Wang, S. (2011). Standardized Reporting Of Climate Change Information In Australia. Sustainability Accounting, Management and Policy Journal, 2(2), 294-321.

De Silva Lokuwaduge CS, SmarkCand MirM2022 The surge of environmental social and governance reporting and sustainable development goals: some normative thoughts Australasian Accounting, Business and Finance Journal 16 3–11.

Deegan, C. (2002). Introduction: the legitimising effect of social and environmental disclosures-a theoretical foundation. Accounting, auditing & accountability journal, 15(3), 282-311.

Deegan, C., & Unerman, J. (2006). Financial Accounting Theory, European Edition.

Delmas, M. A., Nairn-Birch, N., & Lim, J. (2015). Dynamics of Environmental and Financial Performance: The Case of Greenhouse Gas Emissions. Organization and Environment, 28(4), 374-393.

Dunne T Cand McBrayerGA 2019 In the interest of small business' cost of debt: a matter of CSR disclosure Journal of Small Business Strategy 29 58–71.

Ecolife. (2011), Definition of Carbon Emission. (n.d.). Available from: http://www.ecolife.com/define/carbon-emission.html.

Ennis, C., Kottwitz, J., Lin, S.X., Markusson, N. (2012), Exploring the Relationships between Carbon Disclosure and Performance in FTSE 350 Companies. Working Paper. Available from: http://www.geos.ed.ac.uk/homes/nmarkuss/WPMetrics.pdf.

Fahad P and Busru S A2020 CSR disclosure and firm performance: evidence from an emerging market Corporate Governance (Bingley) 21 553–68.

Firmansyah, Rusydiana, Amrie and Riska Septiana Estutik. (2021). Financial Accounting Study: The Role of Corporate Governance in Environmental Responsibility Performance, Disclosure of Social Responsibility, Tax Aggressiveness. Indramayu: CV Adanu Abimata.

Gallego-Álvarez, I., Segura, L., & Martínez-Ferrero, J. (2015). Carbon emission reduction: The impact on the financial and operational performance of international companies. Journal of Cleaner Production, 103, 149- 159.

Ganda, F., & Milondzo, K. (2018). The Impact of Carbon Emissions on Corporate Financial Performance: Evidence from the South African Firms. Sustainability, 10(7), 2398.

Garzón-Jiménez R and Zorio-Grima A 2021 Effects of carbon emissions, environmental disclosures and csr assurance on cost of equity in emerging markets Sustainability, 13 1–11.

Garzón-Jiménez R and Zorio-Grima A 2021 Effects of carbon emissions, environmental disclosures and csr assurance on cost of equity in emerging markets Sustainability, 13 1–11.

Gray, et al. 1996. Accounting and Accountability: Changes and Challenges

in Corporate Social and Environmental Reporting. Prentice Hall Europe, Hemel Hempstead.

Gualandris J, Longoni A, LuzziniDand PagellM2021 The association between supply chain structure and transparency: a large-scale empirical study J. Oper. Manage. 67 803–27.

Gullison, R. E., S. N. Panfil, J. J. Strose, and S. P. Hubbell. 2007. Ecology and management of mahogany (Swietenia rnacrophylla King) in the Chimanes Forest, Beni, Bolivia. Botanical Journal of the Linnean Society 122, 9-34.

Hamrouni A, Uyar A and Boussaada R 2020 Are corporate social responsibility disclosures relevant for lenders? Empirical evidence from France Manage. Decis. 58 267–79.

Hapsoro, D., & Ambarwati. (2018). Antecedents and Consequences Of Carbon Emissions' Disclosure: Case Study Of Oil, Gas and Coal Companies In Non Annex 1 Member Countries. Journal Of Indonesian Economy and Business, 33(2), 99-111.

Hespenheide, E., Pavlovsky, K., & McElroy, M. (2010). Accounting for sustainability performance. Financial Executive, 2010, 52-58.

Hopwood Williams and George H. Bodnar. (2009), Accounting Information Systems, adapted by Amirabad I Jusuf, Salemba Empat, Jakarta.

Hussain, S., & Hassan, M., Aslam, B., Hu, J., Shahab, S., Ahmad, A., Saleem, M., Shah, S. S. A., Javed, M. S., Aslam, M. K. (2021). The nexus of industrialization, GDP per capita and CO2 emission in China. Journal of Environmental Technology and Innovation, 23, 101674.

Irwhantoko, I., Basuki, B. (2016), Carbon emissions' disclosure: Study in Indonesian manufacturing companies. Journal of Accounting and Finance, 18(2), 92-104.

Jannah, Richatul and Dul Muid. 2014. Analysis of Factors That Influence Carbon Emission Disclosure in Companies in Indonesia (Empirical Study of Companies Listed on the Indonesian Stock Exchange for the 2010-2012 Period). Diponegoro Journal of Accounting Volume 3, Number 2, 2014.

Khan A, Goodell JW, HassanMKand Paltrinieri A 2022 Abibliometric review of finance bibliometric papers Finance Research Letters 47 102520.

Laskar, N., & Gopal Maji, S. (2018). Disclosure of corporate sustainability performance and firm performance in Asia. Asian Review of Accounting, 26(4), 0029.

Najah, M.M. (2012), Carbon Risk Management, Carbon Disclosure and Stock Market Effects: An International Perspective (Doctoral Dissertation, University of Southern Queensland). Available from: https://www.eprints.usq.edu.au/23522/1/Najah__2012_whole.pdf.

NgAWand Leung TCH2020 Relevance of SEA to a global financial centre under one country two systems: engaging stakeholders for sustainability and climate change Social and Environmental Accountability Journal 40 140–8.

Nowlan A, Fine J,O'connor T and Burget S 2021 Pollution accounting for corporate actions: quantifying the air emissions and impacts of transportation system choices case study: food freight and the grocery industry in Los Angeles Sustainability 13, 10194.

Purnomo, Agung, Usman Indrianawati, Asitah Nur. (2020). Entrepreneurship Research in Indonesia: Mapping Publications from a Scientometric Perspective (1972-2019). AdBispreneur, 4(3):207.

Reber B, Gold A and Gold S 2022 ESG disclosure and idiosyncratic risk in initial public offerings Journal of Business Ethics 179 867-886.

Sadiq, M., Singh, J., Raza, M., & Mohamad, S. (2022). The impact of environmental, social and governance index on firm value: Evidence from Malaysia. International Journal of Energy Economics and Policy, 10(5), 555–562.

Sariannidis N, KonteosGand GiannarakisG2015 The effects of greenhouse gas emissions and governance factors on corporate socially responsibility disclosure Corporate Ownership and Control 12 92–106.

Schaltegger, S., and Burritt (2000). Carbon Accounting for Sustainability and Management. Status Quo and Challenges. Journal of Cleaner Production, 1-16.

Schiehll E and Kolahgar S 2021 Financial materiality in the informativeness of sustainability reporting Business Strategy and the Environment 30 840–55.

Stechemesser, K. dan Guenther, E. (2012). Carbon Accounting: A Systematic Literature Review. Journal of Cleaner Production, 36, 17-38.

Sullivan, R., Gouldson, A. (2013), Ten years of corporate action on climate change: What do we have to show for it? Energy Policy, 60, 733-740.

Talbi, M and Lotfi, S., Elmoutaraji, I. (2022). Effect of Physical Exercise and Gender on Information Processing and Choice Reaction Time of University Students. International Journal of Human Movement and Sports Sciences, 8(1), 37–42.

Yu E P-Y, Luu BVand ChenCH2020 Greenwashing in environmental, social and governance disclosures Research in International Business and Finance 52 101192.