

Revisiting Concept and Development of Sustainability Reporting in Banking Research: A bibliometric Approach

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The concept of sustainability has become one of the new business concerns for all industries, including the banking industry. Furthermore, the industry is under various internal and external pressures to adopt this concept in its business implementation. This concept emphasizes the balance of three aspects: environmental, social, and economic. In order to communicate sustainability aspects to stakeholders, the industry carries out sustainability reporting as one of the initiatives. Along with the implementation of sustainability reporting, related research began to develop by utilizing available reports. Therefore, this study aims to provide quantitative information on the development of sustainability reporting in the banking literature. There are 94 papers in journals, book chapters, conference papers indexed by the Scopus database from 2000-2021. We employed VOSViewer and Excel software to synthesize and analyze the data. This research is limited to the Scopus database and banking sector. In addition, we provide an extensive section to review some relevant papers that directly talk about sustainability reporting in the banking sector.

Keywords: Sustainability Reporting; Banking; Bibliometrics; VOSViewer

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INTRODUCTION

Linking reporting and the concept of sustainability is a research topic that becomes a continuing discussion and increases corporate awareness about social and environmental aspects. Considering that companies get some pressures from the government^[1,2], debtholders^[3], shareholders, and stakeholders^[4,5] to disclose their social and environmental aspects in their report, this factor requires companies to increase their transparency and accountability.^[4] In addition, the critics of traditional financial reporting were unable to provide a comprehensive framework containing the social and environmental aspects that have led to the emergence of sustainability reporting.^[5,6] Although corporate sustainability reporting is a voluntary activity,^[4] the trend has increased over the last decades.^[7] Companies' sustainability reporting has evidently increased from 75 percent in 2017 to 80 percent in 2020.^[8]

The concept of sustainability itself emphasizing on three specific sectors; environmental, social, and economic.^[9] However, there is no consensus on the definition of sustainability reporting, to this date. If we refer to Global Reporting Initiative (GRI) Guidelines, sustainability reporting defined as 'the practice of measuring, disclosing, and being accountable to internal and external stakeholders for organizational performance toward the goal of sustainable development.'^[10] In addition, sustainability reporting is also often associated with other related terms such as 'corporate social responsibility', 'integrated reporting' or 'triple bottom line reporting'.

Sustainability has become a new business concern. The concept of sustainability reporting is a tool for companies to achieve stakeholders' attention, trust, and confidence about their concerns,^[11] which can maximize their business in some aspects. Such as reputation and efficiency,^[12,13] and operating cost reduction.^[14] Moreover, firms that comply with the sustainability concept potentially have a good public image that will lead to a favorable financial performance.^[15] We can see that beside the pressures that demands company to prepare this report, there are a positive impact or benefits that can be obtained. Therefore, this concept is welcomed by all sectors, including banking industry.

However, the banking industry has several backgrounds that inflicted this sector to deal with sustainability concept. The public's portrayal of the financial industry had shown a bad image. This was partly due to trust issues between the market and banks that failed to sustain in the economic crises.^[15,16] Although the banking business is characterized as a non-polluting industry,^[17] it nevertheless has the potential to have

environmental consequences.^[18] To date, we witnessed many banks' reports are comply with sustainability reporting framework. Consequently, the development of sustainability reporting in banking research also evolved. There are two relevant previous studies that discuss sustainability reporting with bibliometric analysis. *Zainudin & Lui*^[19] conducted research using a bibliometric approach to examine the bibliographic data about CSR in the banking industry literature from the Scopus database. They found that the trend of CSR in the banking industry literature experienced an increasing trend from 2019-2019. Furthermore, they identified some top journals, authors, institutions, and countries that contributed most to this field. Using the same method, *Pasko et al.*^[20] also conducted research to provide quantitative information about sustainability reporting literature from the Scopus database. They employed CiteSpace software to generate bibliometric results from 928 articles in this field and identified some leading countries, top authors, journals, and articles. To the best of author's knowledge, we only find these two previous studies that applying bibliometric approach. Thus, this is a good time to synthesize and analyze deeper the sustainability reporting literature in the context of banking industry. The objective of this paper is twofold. First, we provide quantitative information about the development of sustainability reporting in banking literature, including general performance analysis, citation analysis, and keyword analysis that is useful for further research directions. Second, we observe the trend of sustainability reporting in banking literature by reviewing some papers in the content analysis section.

METHODOLOGY

This study uses data on publications of papers sourced from various journals from 1899 with research on the theme of green economy. For data collection, we search for green economy articles that indexed by Scopus. From the search results, there are 917 works of literature published from 2000-2021. We analyze the trend of publication development using VOSViewer software.

Bibliometric studies can reveal patterns of document use, development of literature, or sources of information in a subject area. Bibliometrics includes two types of studies, namely descriptive studies, and evaluative studies. Descriptive studies analyze the productivity of articles, books, and other formats by looking at authorship patterns such as the gender of the author, the type of work of the author, the level of collaboration, the productivity of the author, the institution where the author works, and the subject of the article. Evaluative studies analyze the use of literature made by counting references or citations in

research articles, books, or other formats. Table 1 provides details regarding the process and a description of each stage in this bibliometric research.

Table 1: Stage of Bibliometric Research.

No	Stage	Process
1	Selection of the object of analysis and scientific basis	a) Determining the scientific and theoretical fields of the work b) Limiting the research objectives c) Selecting the scientific basis on which the research of the article will be carried out
2	Search procedures	a) Defining the terms b) Select software for advanced searching c) Select filters
3	Data collection and organization	a) Defining the reference manager software b) Defining the bibliometric analysis software c) Download references from reference managers, bibliometric and electronic spreadsheet formats d) Import files to reference management software
4	Contextual analysis of scientific outputs related to samples	a) Analysis of the authorship b) Analysis of selected articles citations c) Analysis of the country of origin of the selected articles d) Keyword analysis of the selected articles e) Analysis of the scientific field of the selected articles
5	Citation network analysis performed by samples	a) Detailing (complete) keyword analysis b) Research analysis of future directions c) Methodological classification & nature of articles

Source: Adjusted from Costa *et al.* [21]

RESULT AND DISCUSSION

General performance analysis

Figure 1 depicts the information about the data collection used in this study. There are 94 research discussing sustainability reporting in the banking industry, including 80 journal articles, 8 conference papers, and 6 book chapters. The distribution of document types is

diverse, but journal articles are considered the most frequently used by authors.

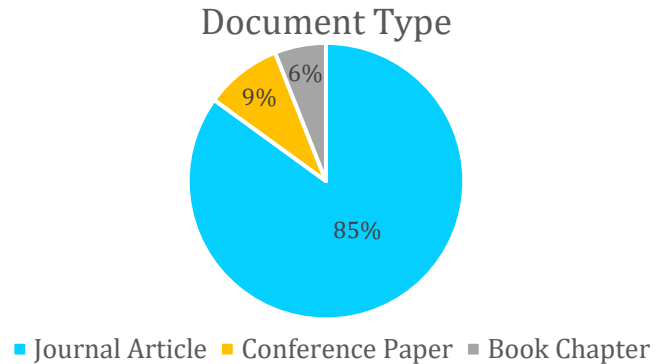


Figure 1: Document Type.

Figure 2 shows the development of sustainability in banking literature during 2000-2020. As we can see in Figure 2, there is a fluctuation of papers published on Scopus. The first study on sustainability reporting in the banking industry was published and found on Scopus in 2002. There was a significant upward trend in sustainability reporting research in the last four years, starting from 2017 to 2020. The minimum number of studies is 1 (2002, 2004, 2005, 2008, 2009, 2013), and the most published number is 23 (2020).

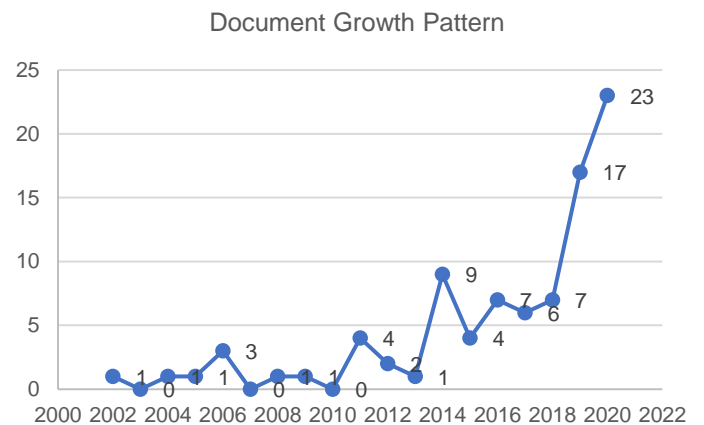


Figure 2: Document Growth Pattern.

We also found some authors that most contribute to this field. Regarding the result obtained, Buallay A (Amina Mohamed Buallay),^[22-27] is the most productive author of sustainability reporting in banking paper.

Citation Analysis

Figure 6 shows the general citation performance of sustainability reporting in banking articles. This result indicates the growth of the research in this field. Overall, the result describing a fluctuation trend of citation growth over the years. We identified there was an upward trend in citations, starting from 2015 to its peak in 2017.

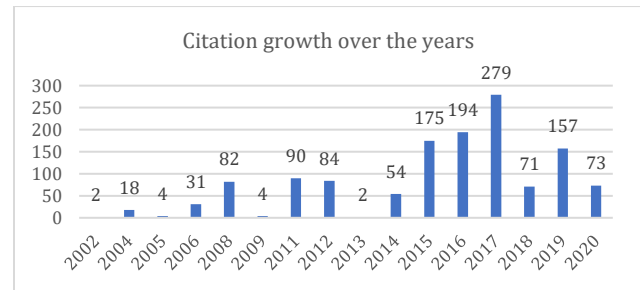


Figure 6: Citation Growth

Table 2: Most cited articles

Title	Cited	Rank
Determinants of Corporate Social Responsibility (CSR) Disclosure in Developed and Developing Countries: A Literature Review	220	1
Institutional sustainability indicators: An analysis of the institutions in Agenda 21 and a draft set of indicators for monitoring their effectivity	98	2
A methodology for CSR reporting: assuring a representative diversity of indicators across stakeholders, scales, sites and performance issues	82	3
Exploring the Transition to Integrated Reporting Through a Practice Lens: An Australian Customer Owned Bank Perspective	81	4
Environmental Credit Risk Management in Banks and Financial Service Institutions	78	5
Corporate sustainability reporting of major commercial banks in line with GRI: Bangladesh evidence	70	6
Corporate sustainability disclosure in annual reports: Evidence from UAE banks: Islamic versus conventional	68	7
Exploring the implications of integrated reporting for social investment (disclosures)	63	8
Is sustainability reporting (ESG) associated with performance? Evidence from the European banking sector	52	9
Ethical Reporting in Islami Bank Bangladesh Limited (1983–2010)	51	10

Authors	Documents	Citation	Total Link Strength
ali w.	2	227	6
frynas j.g.	1	220	2
spangenberg j.h	2	180	1
Buallay A.	5	93	7
o'connor m.	1	82	1
fatima J.K.	2	80	5
islam m.a.	2	80	5
ahmed k.	1	70	3
khan m.h.-u.-z	1	70	3
dudko	1	68	1
adams c.a.	1	63	3
potter b.	1	63	3
singh p.j.	1	63	3
york j.	1	63	3
abdelsalam o.	1	63	3

Table 3: Most Cited Authos and Their Link Strength

Table 3 and Figure 7 show the authors and their co-authors who contributed to publishing influential articles. Based on Table 2, Ali W. is categorized as the most cited author, while Buallay A. is the author with the highest link strength value. In addition, we present several co-authors associated with some of the original authors in Table 3. Figure 7 shows the collaboration network of authors and co-authors in publishing articles on sustainability reporting in banking.

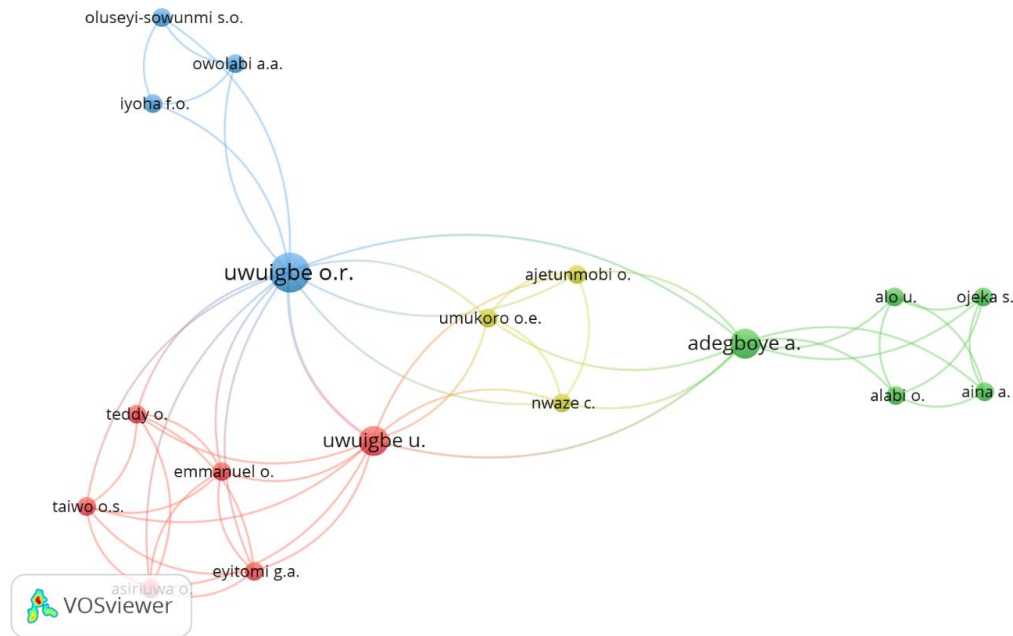


Figure 7: Co-authorship Network

Figure 8 demonstrates the citation trend based on the country of authors. As seen in figure 8, several authors' countries are connected. The large node size indicates the country with the highest citations and vice versa. Based on

Figure 7, we found that the United Kingdom has the highest number of citations and linked some countries in writing sustainable reporting in banking articles.

Table 4: Keyword list per cluster.

Cluster	Keywords
Cluster 1 (Red)	Africa, banking, banking sector, business, content analysis, Europe, European union, financial crisis, guideline, market conditions, performance assessment, south Africa, southern Africa, stakeholder, sub-saharan Africa, sustainability, sustainability reporting, and value relevance.
Cluster 2 (Green)	Annual reports, corporate social responsibility, corporate-sustainability, culture dimensions, financial markets, financial sector, global reporting initiative, Indonesia, integrated strategies, Islamic banks, legitimacy theory, Malaysia, social responsibility, and sustainability disclosure.
Cluster 3 (Blue)	Bangladesh, banking industry, banks, climate change, corporate governance, credit cooperatives, CSR, developing world, disclosure, GRI, and reports.
Cluster 4 (Yellow)	Bank, competition, corporate strategy, economic and social effects, environmental impact, finance, financial services, nongovernmental organization, reporting, risk assessment, risk management, and social aspects.
Cluster 5 (Purple)	Environmental management, environmental performance, firm performance, GCC countries, listed banks, panel data, sustainability report, sustainability reporting, and sustainable development.
Cluster 6 (Tosca)	Economic, environment, financial performance, GRI guidelines, integrated reporting, social, sustainability accounting, and sustainability disclosure.
Cluster 7 (Orange)	CSR Reporting, developed countries, developing countries, ESG disclosure, performance and sustainable banking.

Sustainability Reporting in Banking: A revisit from existing research

Aside from the bibliometric review, this paper expands the discussion by revisiting sustainability reporting in banking based on the existing research. In line with the bibliometric result, sustainability reporting in banking research also shows a developing trend. Starting from [Herzig et al.^{\[28\]}](#), they found that the German Banking industry did not utilize the internet's potential for disclosing sustainability reporting. They also found that there was a varied commitment level to sustainability for each bank. [Bolas-Araya et al.^{\[16\]}](#) conducted a study to identify the trend of sustainability reporting before and after the crisis of European cooperative banks. They found that from 2000 to 2013, only 8.62% of cooperative banks disclosed their sustainability reporting. The trend of sustainability reporting in European banks increased from 2000 to 2011, and in 2012, they found an influence of sustainability crisis on the intention of issuing sustainability reports. [Michael & Oluseye^{\[15\]}](#) identified the perspective of sustainability that Nigerian banks most pursued. The study found that Nigerian banks tended to focus on the social aspect. This is in line with [Kumar and](#)

[Prakash^{\[29\]}](#). Moreover, [Raut et al.^{\[30\]}](#) emphasized that in the context of Indian banks, the environmental aspect was the lowest priority in sustainability issues, compared to other aspects. [Amidjaya & Wigdado^{\[31\]}](#) found a positive association between corporate governance, foreign ownership, family ownership and sustainability reporting of Indonesian listed banks. However, they found that the trend of sustainability reporting in Indonesian listed banks was low. [Embuningtiyas^{\[32\]}](#) investigated whether the bank financial soundness influences the sustainability reporting of the Indonesian banking industry. They found that some financial ratios such as non-performing loans (NPL), loan to deposit ratio (LDR), and capital adequacy ratio (CAR) didn't affect the sustainability reporting disclosure. However, Good Corporate Governance (GCG) and return on asset (ROA) influence the sustainability disclosure. [Buallay et al.^{\[27\]}](#) conducted a study to investigate the relationship between sustainability reporting and banks' market and financial performance. They found that sustainability reporting did not affect the banks' market performance, but improved the accounting and market-based performance. In addition, [Buallay^{\[24\]} & Buallay et al.^{\[26\]}](#) also conducted similar studies. The findings showed that there was a negative relationship between

sustainability reporting and a bank's financial performance. This is in contrast with Buallay,^[25] Buallay *et al.*,^[26] and Tawfik *et al.*^[33] who revealed that there was a positive effect of sustainability reporting on the bank's financial performance. Islam^[34] revealed that few banks reporting their sustainability information and did not comply with the GRI guidelines. Lastly, Makarenko *et al.*^[35]

developed an assessment tool to measure the quality and compliance of sustainability reporting by using Ukrainian banks as the sample. They found that the Ukrainian banks showed a fairly high level of quality and compliance of sustainability reporting. Table 5 summarize the findings of this section.

Table 5: Sustainability Reporting in Banking Research: A revisit from several priort studies

No	Title	References	Findings
1	Sustainability reporting in the German banking sector during the financial crisis	Herzig <i>et al.</i> ^[28]	The German banking industry did not mobilized the use of media-specific features of the internet to communicate their sustainability reporting.
2	Sustainability reporting in European cooperative banks: An exploratory analysis	Bolas-Araya <i>et al.</i> ^[16]	The number of sustainability reporting by cooperative banks was low due to the weight in the European market. The cooperative banks tended to put social issues in the sustainability reporting.
3	Sustainable Development Reporting Practices by Nigerian Bank	Michael & Oluseye ^[15]	The sustainability perspective pursued by Nigerian banks more focused on social issues.
4	Sustainability in The Banking Industry: A Strategic Multi-Criterion Analysis	Raut <i>et al.</i> ^[30]	In the context of Indian banks, the environmental aspect was considered as the least criteria of sustainability reporting evaluation perspective.
5	Developing a framework for assessing sustainable banking performance of the Indian banking sector	Kumar and Prakash ^[29]	The main focus topic or issues of sustainability from the Indian banking sector was the social dimension.
6	Sustainability reporting in Indonesian listed banks: Do corporate governance, ownership structure and digital banking matter?	Amidjaya & Wigdado ^[31]	The findings revealed the sustainability reporting in Indonesian listed bank was still low.
7	Bank financial soundness and the disclosure of banking sustainability reporting in Indonesia	Embuningtiyas ^[32]	Bank financial soundness did not fully influence the sustainability reporting
8	Sustainability reporting and bank performance after financial crisis: Evidence from developed and developing countries	Buallay <i>et al.</i> ^[27]	The findings presented that environmental social governance [ESG] aspect was negatively influence banks' market performance. However, ESG improves banks' accounting and market-based performance in developed countries, supporting value creation theory.
9	Sustainability reporting and bank's performance: comparison between developed and developing countries	Buallay ^[24]	The findings showed that there was a positive influence of ESG to bank's market performance. However, the ESG negatively influenced the bank's financial performance.
10	Sustainability reporting and performance of MENA banks: is there a trade-off?	Buallay <i>et al.</i> , ^[26]	There was a negative association between ESG and bank financial performance.
11	Sustainability reporting assessment for quality and compliance: The case of Ukranian Banks' management reports	Makarenko <i>et al.</i> ^[35]	The research developed Quality and Compliance Bank Management Report Index.
12	Sustainability Reporting of Banking Companies in Bangladesh: A study on environmental aspect	Islam ^[34]	The research found that sustainability disclosure was low and the information provided did not comply with the GRI guidelines.
13	The effect of sustainable dimensions on the financial performance of commercial banks: A comparative study in emerging markets	Tawfik <i>et al.</i> ^[33]	The result showed there was a moderately positive connection between sustainability disclosure in financial report and bank financial performance.

CONCLUSION

This study aims to determine the extent of the development of the sustainability reporting in banking research. The results show an increasing number of papers published on this theme in recent years from 2000 to 2021. More than 70 studies have been published on this theme. Bibliometric mapping visualization shows that Amina Mohamed Buallay (Buallay A.) wrote the most about sustainability reporting in banking. The country that published with the highest literatures in this field is United Kingdom. The institution that publishes the most papers related is Ahlia University, Manama.

However, there are following limitation on this research: first, our data collection is only relying on one indexing database, i.e., Scopus. Second, we find some literature that are irrelevant and therefore our data selection is based on the wisdom of the authors. We discard some literature with non-direct relation in this study. We restrict only journal articles, book and book chapters, and conference papers, to be our data collection.

This study presents the current status of sustainability reporting in banking. Additionally, we present several prior studies that directly discussing about sustainability reporting. However, we identified only few studies discussing sustainability reporting. Therefore, further research can address this issue with a different level complexity. This study is useful for academics to continue to develop scientific research on the theme of sustainability reporting in banking sector, especially by utilizing bibliometric results. For example, using popular keywords, selecting references based on the most popular authors, institutions, countries, keywords, and indexes. In addition, future research can conduct sustainability reporting in banking research using a sample of countries that implement dual banking system (conventional and Islamic). Academics can also expand their review of sustainability reporting in banking literature with other reference, such as using Web of Science as database or use other software to produce more diverse bibliometric mappings, such as R Biblioshiny.

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