

Twitter Sentiment Analysis on Sustainable Finance

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This study aims to measure twitter sentiment related to sustainable finance on the social media platform Twitter. In addition, this study aims to see the development of research on the topic of "Sustainable Finance" and research plans that can be carried out based on journals published on the theme. This research uses qualitative methods with sentiment analysis and bibliometric approaches. The data used comes from social media twitter and secondary data with the theme "Sustainable Finance" which comes from the Scopus database with a total of 712 journal articles. Then, the data is processed and analyzed using the VosViewer application with the aim of knowing the bibliometric map of "Sustainable Finance" research development in the world. The results showed fluctuations and decreases in the number of tweets discussing sustainable finance. In addition, the results found that based on bibliometric keyword mapping, there are 3 clusters that can become research paths with topics related to Climate Change Governance and Sustainable Finance, Green Finance Innovation and Sustainable Finance, and Islamic Finance and Sustainable Finance. Furthermore, the most used words are sustainable finance, sustainable development, development, sustainability, green finance, impact, country, and SDGs.

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INTRODUCTION

Sustainable finance is a concept that involves integrating environmental, social and governance (ESG) factors into the financial decision-making process. It aims to align financial investments with sustainability goals, such as reducing carbon emissions and promoting social equity, while ensuring financial returns for investors. The concept is becoming increasingly important due to the UN Sustainable Development Agenda 2030 and the need to address the environmental and social challenges facing humanity. The sustainable finance landscape is diverse, with a variety of frameworks, definitions and labeling standards in place. These include industry-derived frameworks, operational and labeling standards, and voluntary process guidelines for issuing environmentally and socially friendly bonds. The International Capital Markets Association (ICMA) has played an important role in shaping the sustainable finance landscape with its Green Bond Principles and Social Bond Principles (Migliorelli, 2021).

Sustainable finance is also linked to the real economy through various transmission mechanisms, such as the cost of capital for sustainable activities, access to capital for sustainable activities, and encouragement of sustainable practices by firms. The real economic impact of sustainable finance should be evaluated against these criteria to ensure that financial products actually contribute to sustainability outcomes (Caldecott et al., 2022).

The development of sustainable finance has been shaped by various factors and events over the years. The concept of sustainable finance can be traced back to the 1990s, with early initiatives focusing on socially responsible investment (SRI) and ethical finance (Dimmelmeier, 2023). Sisodia & Maheshwari (2023) explained that the global financial crisis highlighted the need for a more sustainable financial system, thus increasing interest in sustainable finance, and the UN 2030 Sustainable Development Agenda, which includes the Sustainable Development Goals (SDGs), has also emphasized the importance of sustainable finance in achieving these goals. This has reinforced the importance of sustainable finance in recent years due to its potential to address environmental and social challenges while ensuring financial returns for investors.

Edmans & Kacperczyk (2022) explain the financial relevance of sustainable finance, where companies with a positive impact on society are more likely to attract customers, employees and business opportunities related to social trends such as climate

change and financial inclusion. In addition, sustainable finance can help achieve non-financial goals, such as reducing carbon emissions and promoting social justice, which are important for sustainable development (Sisodia & Maheshwari, 2023). This is because sustainability is not only an issue for socially responsible investors but has become a mainstream issue, influencing the way companies are viewed by policymakers, society, and other stakeholders (Edmans & Kacperczyk, 2022). Not surprisingly, the market for sustainable financial products, such as green bonds and sustainable investment funds, has grown rapidly, reflecting increased demand from investors (Singhania et al., 2023).

The importance of sustainable finance is because it has a significant impact on the economy, society, and the environment in various ways. Nenavath & Misra (2023) explain that sustainable finance can contribute to high-quality economic development by having a positive impact on the ecological environment and economic growth, for example, green financing, which is part of sustainable finance, has been shown to contribute to sustainable economic growth in countries such as India. In addition, sustainable finance can help attract investment in sustainable projects, which can generate economic benefits and create jobs (Nicholls, 2021). Sustainable finance can also promote equality and social inclusion by supporting projects that address social issues such as poverty, education, and healthcare (Nicholls, 2021). It can also encourage companies to adopt more inclusive business models and practices, which can have a positive impact on local communities (Sisodia & Maheshwari, 2023). Furthermore, sustainable finance also helps address environmental challenges by supporting projects that reduce carbon emissions, promote renewable energy and protect biodiversity. It can also encourage companies to adopt more sustainable business practices, such as reducing waste and improving resource efficiency (Nicholls, 2021; Sisodia & Maheshwari, 2023).

But besides that, the development of sustainable finance still encounters obstacles or problems. As stated by Schoenmaker (2017), the development of sustainable finance requires collective efforts from various stakeholders, including financial institutions, policymakers and investors. However, a lack of coordination and commitment from stakeholders can hinder the progress of sustainable finance. In addition, financial institutions often prioritize short-term financial gains over long-term sustainability goals. This bias can lead to underinvestment in sustainable projects and

practices, as they may not provide immediate financial returns (Schoenmaker, 2017). Singhania et al (2023) added that there is a need for standardized metrics to measure the sustainability performance of financial and investment institutions. The absence of such metrics can make it difficult for investors to compare the sustainability performance of different investments and financial institutions.

Furthermore, the field of sustainable finance is highly diverse, with various frameworks, definitions and labeling standards. This fragmentation can lead to confusion and hinder the development of a coherent and effective sustainable finance system (Dimmelmeier, 2023). The development of sustainable finance is influenced by political and policymaking factors. The lack of a consistent and supportive regulatory environment can hinder the progress of sustainable finance. So, it can be concluded that the development of sustainable finance faces several barriers and challenges, including insufficient collective efforts, bias towards the short term, lack of standardized metrics, fragmentation in the field, and political and regulatory challenges. Overcoming these challenges requires collaboration and commitment from various stakeholders, as well as the development of effective policy and regulatory frameworks.

Thus, it is important to see the extent of the current development of *Sustainable Finance* through research, and one method that can be used to see the development of research is bibliometrics using VosViewer. The method is able to create and display author journal maps and research paths based on co-citation data or keyword maps based on co-incidence data. A number of relevant studies include Purnomo et al (2021) mapping international level sustainable finance studies indexed by Scopus using a bibliometric review. The results show that the most productive countries, research institutions, and individual researchers in the publication of sustainable finance studies are the UK; Rheinisch-Westfälische Technische Hochschule Aachen; and Haigh, M. The most funding sponsor in international publications in sustainable finance studies is the National Natural Science Foundation of China. The most intensive fields of study and publication sources in sustainable finance studies are Business, Management and Accounting, and Journal of Sustainable Finance and Investment. There are five patterns of collaborative research groups. This research proposes a classification of convergence axes comprising sustainable finance studies to characterize the pool of knowledge generated from three decades of

studies: Banks, Countries, Finance, Sustainability and Policy, abbreviated as BCFSP theme.

Kashi & Shah (2023) investigated the trends of sustainable finance literature in the Scopus database and provided directions for potential future research. The study concludes that key research themes in this regard include sustainability performance and profitability associations of banks; risk profiles of sustainable banks; factors determining banks' willingness to incorporate sustainability criteria into their business strategies; depositor/customer responsiveness to banks' sustainability performance; and relevant macroprudential regulations, monetary policies, and supervisory guidelines towards sustainability transition.

Naeem et al analyzed the current state and future direction of green and sustainable finance through bibliometric analysis. The results found that there are three main areas of green and sustainable finance, most of which will be covered by current researchers. The key areas include socially responsible investment, green finance, and climate finance, which are in line with previous research and prevailing trends and practices in the business and corporate world.

Other relevant research includes Luo et al (2022) examining the global evolution of sustainable finance research from 2000 to 2021. Alshater et al (2023) examined the Journal of Sustainable Finance and Investment with bibliometric analysis. Bui et al (2020) discuss the challenges and trends of sustainable corporate finance. Elouidani & Outouzzalt (2022) analyzed artificial intelligence for sustainable finance. Yadav et al (2023) surveyed Bibliometrics on Sustainable Finance. Sacinaro et al (2020) reviewed social finance and banking research as drivers of sustainable development.

Based on a number of these studies, this research was conducted to complement existing research and fill the gaps of previous research and to expand the literature related to *Sustainable Finance* through the research path. Specifically, the purpose of this study is to see the development of "*Sustainable Finance*" research around the world published by journals on the theme and see future research opportunities by formulating a research agenda.

RESEARCH METHODOLOGY

The data was collected from January to December 2023, resulting in more than 100,000 tweets related to the topic of sustainable finance. A web scraping technique was also used to retrieve data from the Twitter website. The selection of Twitter as a social

media research platform is based on the availability of data that is relatively easy to access. Twitter has unique characteristics in the realm of social media with two main features: open public messaging and short message length limits. This limit on message length gives it an advantage in conducting faster analysis compared to other social media platforms. In addition, Twitter facilitates research that includes both individual and media analysis within one analytical framework (Vargo et al., 2014).

To complement the results, this study maps research related to the topic of sustainable finance using bibliometric methods. In this study, various scientific journal publications related to the theme of "*Sustainable Finance*" around the world were used as data sources. Data was collected by searching for journal publications indexed in the Scopus database using the keyword "*Sustainable Finance*". After that, scientific articles or journals that are relevant to the research theme will be selected based on the publication data that has been collected. Journals equipped with DOI are the criteria in the screening process and data processing using software. There were 712 journal articles published under the research theme "*Sustainable Finance*". The development of publication trends related to the research topic was analyzed using VOSviewer software, which can generate bibliometric maps and allow for more detailed analysis.

In order to build the map, VOSviewer uses the abbreviation VOS which refers to Visualizing Similarity. In previous studies, the VOS mapping technique has

been used to obtain bibliometric visualizations which are then analyzed. Furthermore, VOSviewer is able to create and display author journal maps based on co-citation data or keyword maps based on co-incidence data. Therefore, this study will analyze journal maps related to "*Sustainable Finance*", including author maps, and keywords which are then analyzed for research paths that can be carried out in the future through clusters in *keyword mapping*.

This research uses a descriptive qualitative approach with meta-analysis and descriptive statistical literature study based on 712 journal publications that discuss the theme of "*Sustainable Finance*". Meta-analysis is a method that integrates previous research related to a particular topic to evaluate the results of existing studies. Furthermore, the qualitative method used in this research is also referred to as a constructive method, where the data collected in the research process will be constructed into themes that are easier to understand and meaningful. The sampling technique used in this research is purposive non-probability sampling method, which aims to fulfill certain information in accordance with the desired research objectives. For example, bibliometric applications can be seen in studies conducted by Maulida (2023), Maliha & Devi (2023), and Herindar & Shikur (2023). While examples of sentiment analysis studies can be seen in Aziza (2023), Firmansyah (2022), Ikhwan (2023), and Riani (2023).

RESULT AND ANALYSIS

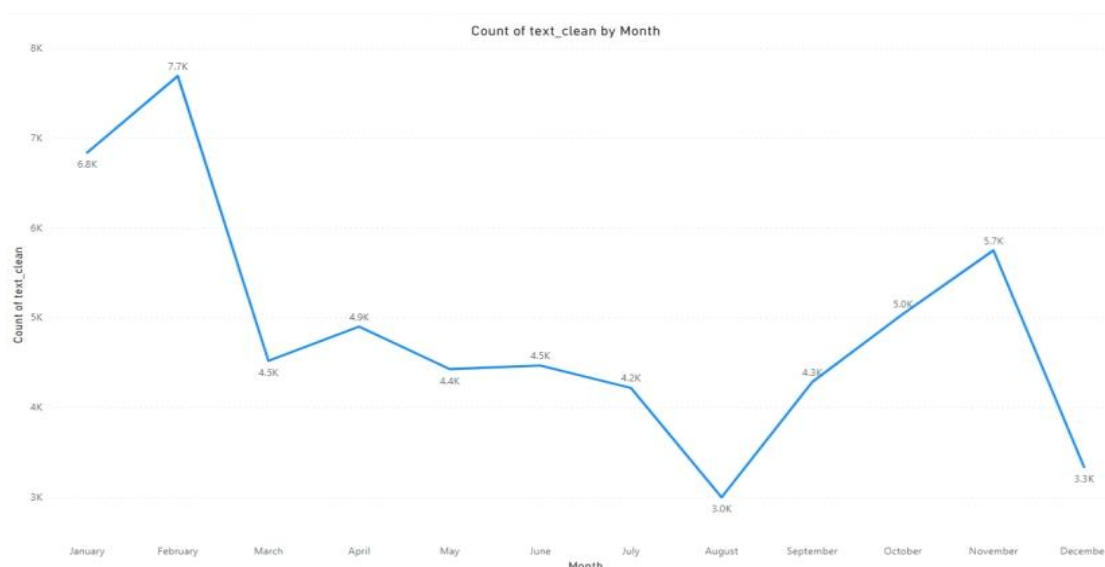


Figure 1. Tweets related to sustainable finance

The figure above shows a graph illustrating the development of the number of net tweets about

sustainable finance by month during the research period. From the graph, it can be seen that the number of net

tweets about sustainable finance fluctuates and tends to decrease. As can be seen, the peak number of tweets about sustainable agriculture occurred in February,

reaching a maximum of 7700 tweets. After that, there was a significant decline in the following months.

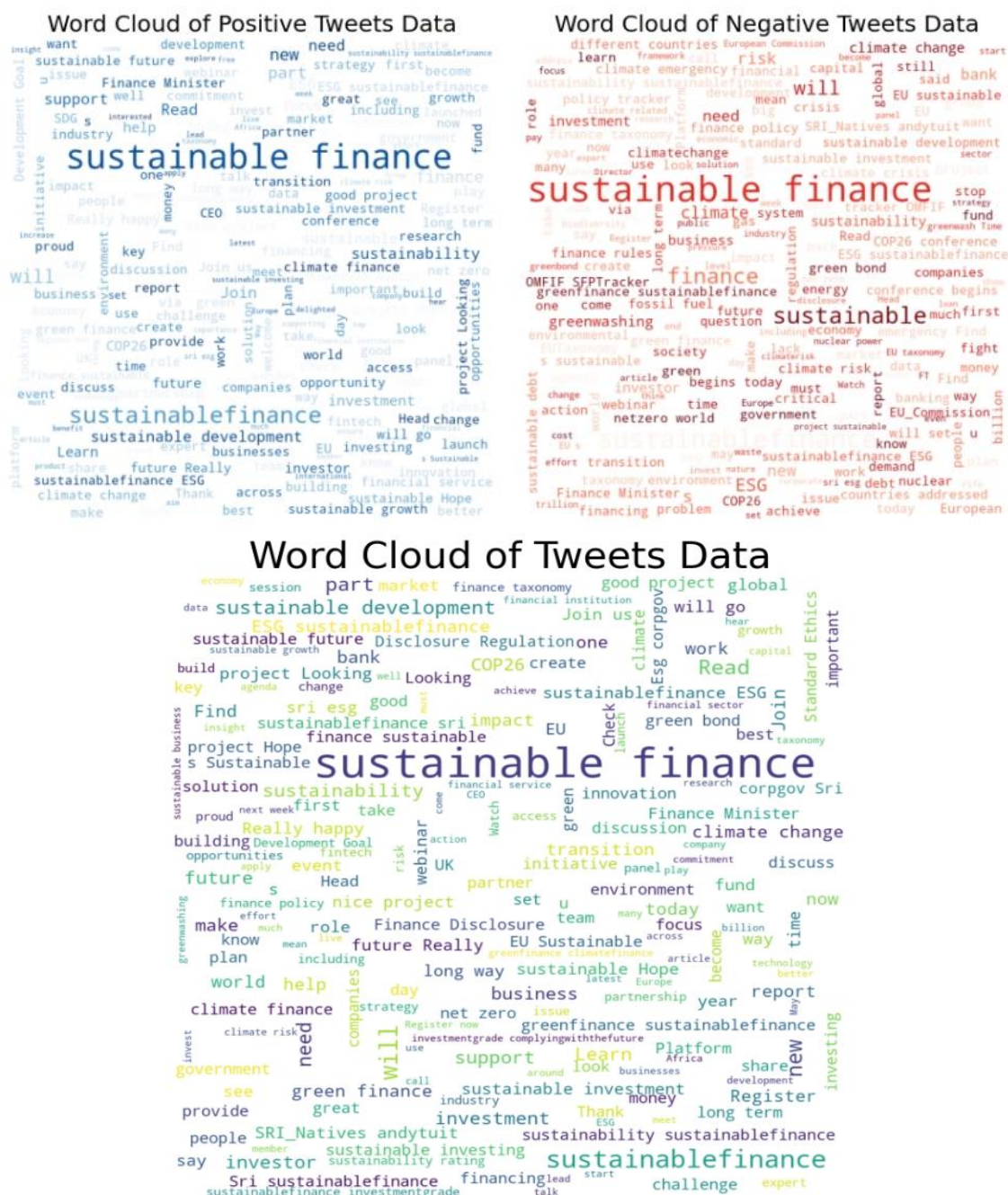


Figure 2. Wordcloud on sustainable finance

The word cloud provides a visual representation of the keywords that frequently appear in tweets related to sustainable finance, grouped into three categories: positive, negative and combined. Sustainable finance is the most prominent keyword in tweets overall, signaling the significance of this topic in online conversations. In the word cloud, larger word sizes reflect higher frequency of occurrence.

Furthermore, when looking at the word cloud of positive tweets, key words such as "sustainable

development" and "climate finance" dominate the visualization. This indicates that when users express positive views on sustainable finance, they tend to relate it to important issues such as the concept of SDGs and climate finance. This confirms that these aspects are considered positive and relevant in the context of sustainable finance.

On the other hand, in the word cloud of negative tweets, key words such as "climate change" and "climate risk" appeared more frequently. This illustrates that in a

negative context, attention is often focused on issues such as climate change and future climate-related risks.

Furthermore, to further explore studies related to sustainable finance, this research maps with bibliometrics utilizing 712 publications of journal articles indexed in Scopus. Bibliometrics is a method used to measure and evaluate scientific performance by taking into account factors such as citations, patents, publications, and other more complex indicators. Bibliometric analysis is conducted to evaluate research activities, laboratories, and scientists, as well as the performance of countries and scientific specializations. Some of the steps in bibliometric analysis include identifying the background of the research, collecting the databases to be used, and determining the main indicators to be used in the research.

This section will deepen the meta-analysis results by showing a visual mapping chart depicting 712 journals related to "*Sustainable Finance*". In this research,

mapping is done by analyzing keywords and important or unique terms contained in journal articles. Mapping is a process to identify knowledge elements, configurations, dynamics, dependencies, and interactions among these elements. The results of network visualization of 712 journals with the theme "*Sustainable Finance*" will be explained in more detail in the next section.

Bibliometric Author Mapping

Using bibliometric analysis using VOSviewer software, a mapping of authors contributing to the field of "*Sustainable Finance*" is obtained. The resulting image provides a visual representation of the mapping, the larger and brighter the point marked in yellow, the greater the number of journal publications related to the theme of "*Sustainable Finance*" that have been published by that author.

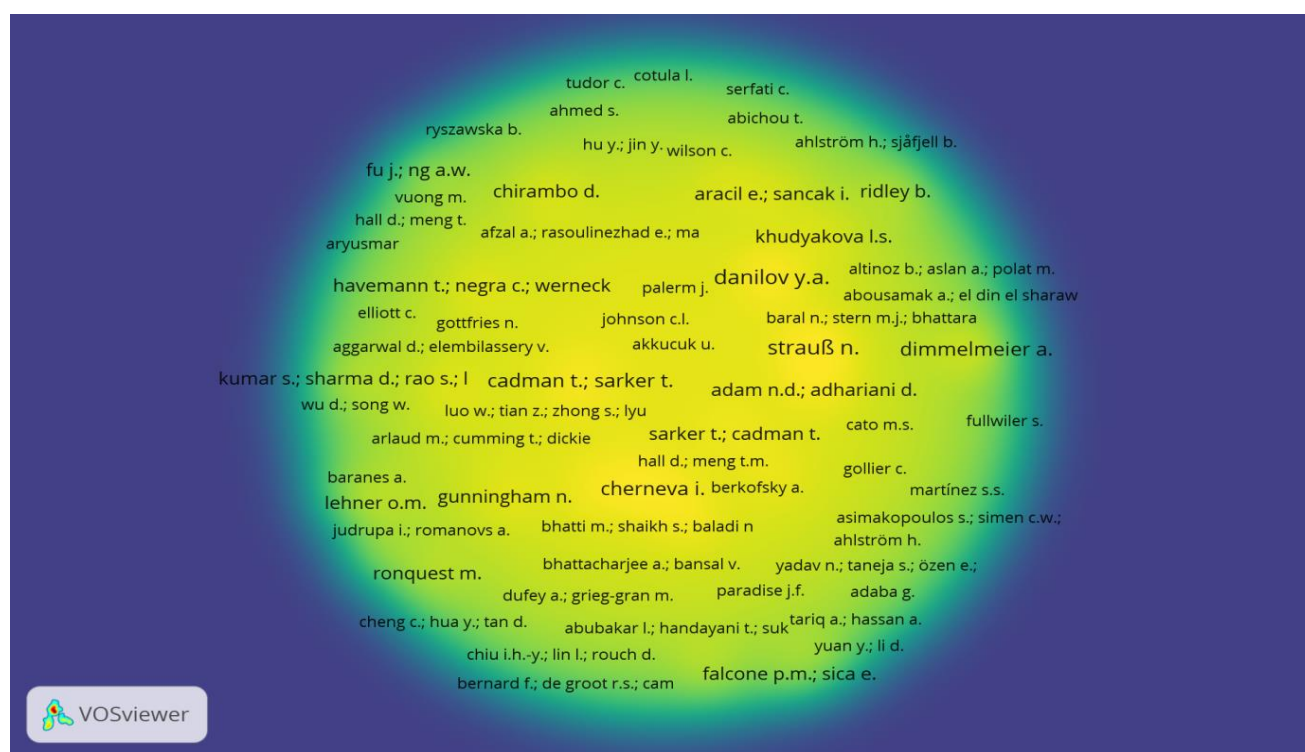


Figure 3. Author mapping

The figure above explains that the cluster density in the bibliometric map depends on the intensity of the yellow color shown. And the yellow color on the map depends on how many items are related to other items. For this reason, this section is very important to get an overview of the general structure of the bibliometric map that is considered important to analyze. From this, it is possible to identify the authors who publish the most works.

In general, each author or researcher has different tendencies in each publication of their work. On some occasions, an author appears as a single author, but on other occasions the author may co-author with other authors or researchers, so this will affect the cluster density and some clusters show different densities. However, authors who have a large enough cluster density identify that the author has published the most research on the theme of "*Sustainable Finance*", when

compared to authors whose cluster density is lower, so the results found can be a reference for other researchers in the future. From the analysis, it was found that the authors who published the most publications related to Social "*Sustainable Finance*" were Danilov Y.A; Fu J.; Ng A.W; Aracil E.; Sancak I; Havemann T.; Negra C.; Werneck F; Khudyakova L.S.; Strauß N.; Cadman T.; Sarker T.; Dimmelmeier A.; Adam N.D.; Adhariani D.; Sarker T.; Cadman T.; Gunningham N.; Cherneva I.; Lehner O.M.; Ronquest M.; and Falcone P.M.; Sica E.

Research Map

The figure below describes the trend of keywords appearing in research on the theme of "*Sustainable Finance*" and the larger shapes are the most used words in journal publications on the theme of "*Sustainable Finance*". There are at least three (3) clusters colored red, blue and green.

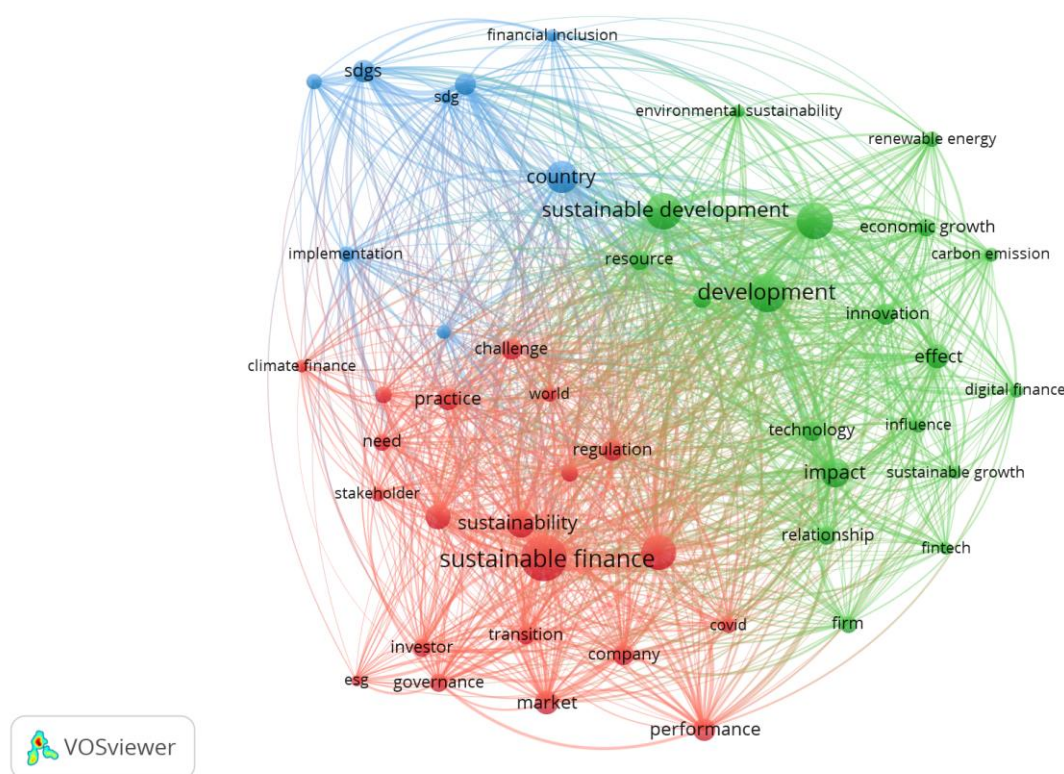


Figure 4. Research path based on keywords

As for the mapping, the keywords that appear most in the publication "*Sustainable Finance*" include sustainable finance, sustainable development,

development, sustainability, green finance, impact, country, and SDGs, which are then divided into 3 clusters, as follows:

Table 1. Research clusters on sustainable finance

Cluster	Keywords
Cluster 1 (21 items)	Bank, business, challenge, climate change, climate finance, company, covid, ESG, governance, investment, investor, market, need, performance, practice, regulation, stakeholder, sustainability, sustainable finance, transition, world
Cluster 2 (19 items)	Carbon emission, development, digital finance, economic growth, effect, environmental sustainability, fintech, firm, government, green finance, impact, influence, innovation, relationship, renewable energy, resource, sustainable development, sustainable growth, technology
Cluster 3 (8 items)	Country, financial inclusion, financial institution, implementation, islamic finance, SDG, SDGs, sustainable development goals

Research maps that can be created based on 3 *keyword mapping* clusters, namely:

Cluster 1: Climate Finance Governance and Sustainable Finance

Research topics in cluster 1 refer to sustainable governance and financial practices in the context of funding for climate change mitigation and adaptation. This includes how funds are allocated, invested and organized for projects that support climate-related sustainable development goals, as well as governance mechanisms that ensure transparency, accountability and compliance with international and national standards. A number of studies relevant to this topic include [Steenwerth et al \(2014\)](#) who discuss the concept of climate-smart agriculture (CSA) and its potential to address challenges in food production and sustainability. The study identifies key research themes and essentials for effective CSA implementation, including interdisciplinary collaboration, capacity building, risk reduction, and consideration of social and cultural factors. Background Climate-smart agriculture (CSA) addresses the challenge of meeting growing demand for food, fiber and fuel, despite climate change and fewer opportunities for agricultural expansion on additional land. CSA focuses on contributing to economic development, poverty alleviation and food security, maintaining and enhancing the productivity and resilience of natural and agricultural ecosystem functions, thereby building natural capital, and reducing the trade-offs involved in achieving these goals.

[Van den Hove \(2000\)](#) examines the use of participatory approaches in environmental policy-making, particularly in the context of sustainable development. The research presents a case study of a participatory process organized by the European Commission during the Kyoto negotiations, involving various stakeholders such as the research community, government representatives, and industry. It concludes that participatory approaches can help fulfill decision-making requirements on environmental issues. [Gomez-Echeverri \(2018\)](#) examines climate and development, namely increasing impact through stronger linkages in the implementation of the Paris Agreement and the Sustainable Development Goals (SDGs). The Paris Agreement and Sustainable Development Goals recognize the importance of addressing climate change and development together. This study highlights the need for stronger linkages and implementation challenges, including knowledge, finance and governance gaps.

Another relevant research is [Dikau & Volz \(2018\)](#) discussing the role of central banks in addressing climate change and promoting sustainable finance. This research highlights the importance of central banks in regulating financial institutions to mitigate environmental risks and support green finance models. [Winkler & Dubash \(2016\)](#) explored the tension between transformational change in climate finance and nationally driven sustainable development. The research highlights the challenges of balancing these priorities in the context of Green Climate Funds and suggests that a process-based approach may be a potential solution. The risk of transformational change becoming an imposed condition on development must be avoided. [Oberghassel et al \(2021\)](#) discuss how international climate governance can help align recovery packages with the climate agenda in response to the COVID-19 pandemic. This suggests that the upcoming COP 26 conference should urge countries to present sustainable stimulus packages and adopt specific principles for sustainable recovery. In addition, coalitions of governments should work together to push for swift action and review the consistency of recovery packages with the Paris Agreement. Developed countries and financial institutions should also renew their climate finance commitments.

[Liang & Renneboog \(2021\)](#) explore the concept of corporate social responsibility (CSR) and its incorporation into financial decision-making. [Calliari et al \(2022\)](#) review recent EU-supported research and policies and suggest ways for the EU to address these challenges and encourage the use of nature-based solutions (NBS). [Lee & Zusman \(2018\)](#) examine the potential of women in Southeast Asia in climate change mitigation, and argue that participatory climate governance at multiple levels is key to unlocking this potential. [Thistlethwaite \(2014\)](#) explores the use of private environmental governance (PEG) as a strategy to promote sustainable finance practices. The argument is that PEG helps generate political authority by leveraging technical knowledge and collaborating with influential constituencies. This addresses a gap in sustainable finance research regarding the relationship between technical practices and political authority. [Long \(2021\)](#) examines the trend of using private capital to fund climate projects in vulnerable cities, known as "resilience in crisis". [Schloesser & Schulz \(2022\)](#) explore the potential of Distributed Ledger Technology (DLT) in accelerating the transition to sustainable climate finance.

Cluster 2: Green Finance Innovation and Sustainable Finance

This topic refers to efforts to develop and implement financial innovations that support sustainability goals, particularly in an environmental context. This includes the development of new financial instruments, such as green bonds or sustainable loans, as well as the use of new technologies such as blockchain to increase transparency and efficiency in the allocation of funds that support green and sustainable projects. A number of relevant studies [Wu & Song \(2023\)](#) examined the impact of green finance and innovation on carbon emissions in China. The findings suggest that increased green finance and innovation can reduce carbon output, while trade openness and economic growth can increase carbon output. This highlights the importance of green finance in achieving sustainable development goals. [Xiao et al \(2023\)](#) examined the impact of green finance on the efficiency of green innovation in China's high-tech industry. The findings show that green finance significantly improves efficiency and reduces costs for firms, providing insights for policymakers and financial institutions to balance economic growth and sustainability goals.

[Irfan et al \(2022\)](#) examined the relationship between green finance and green innovation in China, using regional data from 2010 to 2019. Effective use of inclusive green finance is critical to generating green innovation, promoting sustainable economic transformation, and addressing climate change. The results found that green finance makes a significant contribution to green innovation, and its impact remains consistent across alternative assessors. Results from the impact of policy interventions confirm that Pilot Zones for green finance innovation and reform promote green innovation and sustainable performance more than other regions. Mediation effects suggest that industry structure, economic growth, and R&D investment are the core transmission channels through which green finance affects green innovation.

[Jiakui et al \(2023\)](#) examined the impact of green finance, financial development, and green technological innovation on green total factor productivity in China. The results show that green finance has a significant positive impact on green productivity, and the establishment of green finance laws can further accelerate its growth. [Wang & Wang \(2021\)](#) examined the impact of green finance on improving China's regional industrial structure from the perspective of sustainable development. The results concluded that the improvement of human resources, research and

development innovation, openness, government spending, and urbanization can promote the upgrading of industrial structure. Regional differences are also evident, with the eastern region showing the greatest impact of green finance.

Other relevant studies include [Tolliver et al \(2021\)](#) examining the role of innovation and green finance in promoting sustainable development in Asia. [Cui et al \(2020\)](#) analyze the impact of green finance development on sustainable and balanced economic growth. [Chen & Chen \(2021\)](#) examine the impact of green finance development on carbon emissions in 30 Chinese provinces from 2005 to 2018. [Umar & Safi \(2023\)](#) examined the impact of green finance and innovation on trade-adjusted CO₂ emissions in OECD countries. [Zhang et al \(2022\)](#) examined the relationship between green finance, technological innovation, and sustainable development goals. [Liu et al \(2021\)](#) examine the relationship between green finance, environmental regulation, and high-quality economic development in China.

Cluster 3: Islamic Finance and Sustainable Finance

This topic refers to Islamic financial practices that are geared towards achieving sustainable development goals. It includes principles such as the prohibition of usury, investment in projects that provide positive social and environmental benefits, and the principle of fairness in risk and profit sharing. In the context of sustainable finance, this approach combines Islamic values with sustainable finance principles, such as a focus on environmental, social, and good corporate governance (ESG). A number of relevant studies including [Jouti \(2019\)](#) proposed an integrated approach to building a sustainable Islamic social finance ecosystem, which can have a significant impact in addressing social problems. The results show the impact of building a social finance ecosystem in overcoming social problems. This emphasizes the idea that solving social problems is everyone's business, from governments to businesses, and that such initiatives require sufficient Shariah-compliant funding to achieve sustainability goals.

[Khan \(2019\)](#) discusses the need for reform of the Islamic financial system to align with sustainable development goals. The Islamic economic and financial paradigm is guided by the motivation of holistic human development (HD) and its preservation embodied in the goals of shari'ah (maqāṣid al-Shari'ah). However, the real-world free market economy is driven by a linear economic paradigm under the influence of Hotelling's famous 1931 work on the economics of natural resource

exploitation, in which the ecological environment is not recognized as a resource. The global financial architecture is designed to protect and preserve the linear economic paradigm. In practice, Islamic finance also remains a halal part of this system. The resulting social, environmental and governance imbalances have recently spawned various UN-sponsored initiatives including the Sustainable Development Goals (SDGs). Like *maqāṣid*, the SDGs also aim to achieve and preserve human development. In practice, for the first time, there is a real paradigm shift from a linear economy to an ecological/circular economy, which is also driving the transformation of the financial architecture.

Saleem et al (2021) examined the relationship between Islamic financial depth, financial intermediation, and asset quality with economic growth in Pakistan. Using ARDL and Granger causality, this study found that both Islamic and conventional finance have a positive impact on economic growth in the long run. Strong financial intermediation is essential for promoting economic growth in both sectors, and higher levels of Islamic finance assets contribute to short-term economic growth. Asset quality also plays an important role in the finance-growth relationship. Alhammadi (2022) examined the impact of COVID-19 on the Kuwaiti economy and the role of Islamic banking and finance in achieving sustainable economic development. The findings of this study suggest that Islamic finance can be used to mitigate the impact of the pandemic and support affected individuals and businesses. The paper also discusses how Islamic ethical objectives can guide management strategies in the post-COVID-19 pandemic era.

Other relevant research includes Nugroho et al (2019) examining the implementation of sustainable finance at Bank Mandiri Syariah and its development from 2017 to 2018. Tok et al (2022) explored the potential of Islamic social finance (ISF) instruments to contribute to achieving the Sustainable Development Goals (SDGs) and filling gaps in the humanitarian crisis. Harahap et al (2023) conducted a systematic literature review to investigate the intersection between Islamic finance, Islamic law, and the Sustainable Development Goals (SDGs). Gundogdu (2018) investigated Islamic finance from the perspective of sustainable development goals. Ahmed et al (2015) examined the sustainable development goals and the role of Islamic finance.

CONCLUSION

This study aims to measure twitter sentiment related to sustainable finance on the Twitter social media platform. In addition, this study aims to determine the extent of the development of research on the theme of "Sustainable Finance" in the world. The results show fluctuations and decreases in the number of tweets discussing sustainable finance. Word cloud analysis on keywords shows that in positive sentiments, words such as "sustainable development" and "climate finance" dominate the visualization.

The results of the bibliometric analysis show that the number of research publications related to "Sustainable Finance" is 712 Scopus indexed journal articles with restrictions on article titles. Furthermore, in the development of research related to "Sustainable Finance" based on bibliometric keyword mapping, it is divided into 3 clusters with the most used words are sustainable finance, sustainable development, development, sustainability, green finance, impact, country, and sdgs. Based on frequently used keywords, it can then be grouped into 3 *research map* clusters with topics that discuss *Climate Change Governance and Sustainable Finance*, *Green Finance Innovation and Sustainable Finance*, and *Islamic Finance and Sustainable Finance*.

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