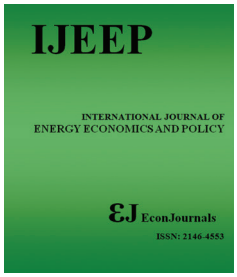

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# Islamic Finance and Energy Efficiency Investments: Mapping Trends via Bibliometrics

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**ABSTRACT**

This study examines the intersection of Islamic finance and energy efficiency investment within a bibliometric analysis, tracing trends and research tendencies from 1979 through early 2025. Utilizing a set of 125 articles, citation, co-authorship, and co-citation analyses were utilized in evaluating productive authors, journals, and topical trends. Results show greater emphasis on green sukuk, renewable energy, sukuk, and sustainability, with certain products like green sukuk being in the limelight in financing green projects. A-list journals like Energy Policy and Energy Economics dominate the productivity, reflecting Elsevier's dominance in developing this field of research. The fact that there is joint research comprising researchers from China, Malaysia, the USA, and Iran confirms the global outlook of the research. Practical implications are to include openness of trade, environmental pollution, and international investment in Islamic finance mechanism research with the aim of solving energy issues. The paper provides researchers with an overview of potential disciplines, methodologies, and collaborators and highlights the need for cross-disciplinary approaches. The discussion provides a foundation for synthesizing Islamic finance principles and global sustainability goals and charts an agenda for future research and policy development.

**Keywords:** Bibliometric Analysis, Islamic Finance, Energy Efficiency, Green Sukuk, VOSviewer Paper Type: Literature Review
**JEL Classifications:** G23, Q42, Q56

## 1. INTRODUCTION

Energy efficiency investments are the pillar of the Islamic finance regime and a pillar to good economic growth and optimal resource utilization. Energy is not only an asset but also a vital enabler of contemporary commodities and services to drive industries, cities, homes, and maintain standards of living (Jaelani et al., 2020; Saboohi, 2001). In Islamic banking, energy efficiency is compatible with the ethic of moral stewardship and sustainability aimed at resource equitable distribution and waste minimization. Energy drives economic development in two primary areas: First, as part of the economy, it produces employment and value in the form of energy product and service creation and distribution. Secondly, it also facilitates other sectors through the provision of energy infrastructure to them in order to enable them to perform operations and development (Gamoori et al., 2017; Shaari et al., 2020).

The role of the energy sector in contributing to the finances is most critical where Islamic finance is the dominant sector. Low and stable prices are required to stimulate economic activity since high or volatile energy prices can have the tendency to destroy purchasing power, especially for the poor (Ahmad and Rais, 2018; Chen et al., 2019). For instance, energy use subsidies have been used to moderate the adverse effect of price volatility while their reductions have been a test for the cost of living (Saboohi, 2001). Because of this, investment in energy use efficiency is an ideal solution by restraining overdependence on conventional sources of energy and imposing green practices consistent with Islamic doctrine. These investments enhance long-term economic resiliency, as well as energy security (Morea and Poggi, 2017; Yousaf et al., 2022).

Islamic finance and energy efficiency investment patterns require in-depth literature available mapping. The bibliometric approach

provides an organized approach to identification of pattern, gap, and novel theme in the interdisciplinary context. Researchers can navigate the path under the leadership of efficient analytical methods on how instruments of Islamic finance, i.e., green sukuk, have been utilized to mobilize funds for energy efficiency projects (Umar et al., 2023; Morea and Poggi, 2017). Furthermore, Islamic finance convergence and attempts at energy efficiency also deserve room for new products in addressing challenges of global energy with proper respect for proper ethical boundaries (Walkshäusl and Lobe, 2012; Karim and Naeem, 2022). The review strongly reinforces the need for such interfaces for sustainable development policy advice and formulation.

Islamic finance offers unique windows for funding energy efficiency projects as it emphasizes risk-sharing, asset-backed financing, and social responsibility (Mensi et al., 2017; Nazlioglu et al., 2015). Policymakers have the challenge of designing frameworks to make the investments feasible. They must learn Islamic finance dynamics and how such dynamics can be channeled towards the objective of achieving energy efficiency goals in an effort to construct strategies that enhance the synergy of both. This involves removing regulatory barriers, shaping market sentiment, and aligning financial institutions with energy players (Dubreuil et al., 2013; Dudlák, 2018). Lastly, the intersection of Islamic finance and energy efficiency investment is a potential path to sustainable economic development and the environment.

### 1.1. Justification for the Study

Scholarship in Islamic finance and energy efficiency investment has been at the forefront in recent s with growing demand for green financial products and sustainable resource manageyearment. There was only one groundbreaking study by Ahmad and Rais (2018) on Islamic finance clean energy equity implications analysis, which has motivated researchers to research the position of Islamic financial products in the financing of energy efficiency projects around the world. Trail-blazing studies, for example, by Jaelani et al. (2020), Morea and Poggi (2017), and Yousaf et al. (2022), have studied green sukuk and other Islamic financial instruments towards promotion of energy efficiency agreements. Studies have been done in focused geographies, i.e., Indonesia, Italy, and broader Islamic economies, with inconclusive outcomes towards environmental protection, economic growth, and social guardianship.

In order to examine Islamic finance and energy efficiency investment trends at the country or cross-region level, big studies have been conducted by Al-Yahyaee et al. (2020) for Islamic stock performance, Shaari et al. (2020) for OIC countries, and Umar et al. (2023) for interlink oil shock and green bonds. All of these studies report mixed results region-wise based on high-tech methods such as bounds testing, multivariate cointegration, and Granger causality tests. Modern research has tried to unveil Islamic finance values integration lines with energy efficiency goals, using ethical investment and sustainable development in their focus. For instance, Karim and Naeem (2022) investigated global forces driving interconnectivity between green, Islamic, and traditional financial markets, while Chen et al. (2019) analyzed the impact of global sanctions on energy efficiency in target nations.

Despite the growing amount of research, there remains a lack of visual illustration and systematic mapping of Islamic finance and energy efficiency investment trends. This lack necessitates filling the gap by answering crucial research questions:

RQ1. What are recent publishing trends, and the highest-impact journals in this field?

RQ2. What are the best-performing contributors like countries, institutions, authors, and topmost articles?

RQ3. Which are the most common keywords and themes that are researched by authors in this field?

RQ4. How can the trend of co-authorship be illustrated and analyzed?

RQ5. What does contextual co-occurrence between various publications on this topic teach us?

Though numerous research has been done in examining the overlap between energy efficiency and Islamic finance, no in-depth bibliometric analysis has been conducted to map these trends in a systematic way. In order to bridge this gap, this study aims to review literature published between 1979 and the early part of 2025 on Islamic finance and energy efficiency investments. Bibliometric analysis is applied to achieve the given objectives, supplemented with statistical and citation analyses to identify research inclinations, prominent contributors, leading journals, and methodologies. Theoretical models created by AlQudah et al. (2024), Masa'deh et al. (2024), and Samara et al. (2025) guide the research. Steps of analysis and the theoretical framework are illustrated in Figure 1.

The structure of the paper is such that Section 2 provides the definition of methodology and delimiting factors. Section 3 provides the descriptive analysis results, while Section 4 provides the bibliometric analysis. Finally, Sections 5 and 6 provide the summary of the key findings, conclusion, and policy implications.

**Figure 1:** Conceptual framework for bibliometric analysis

## 2. RESEARCH METHODOLOGY AND SCOPE DEFINITION

### 2.1. Data Collection and Analytical Framework

Bibliometric analysis as Prof. Olle Persson conceived is a robust and versatile method that has been widely utilized given its capacity to deal with big data effectively as argued by AlQudah et al. (2024). In line with Masa'deh et al. (2024), the study adopted bibliometric methods like citation analysis, co-authorship networks, co-citation mapping, and keyword co-occurrence patterns to examine the intellectual community of Islamic financing and investing in energy efficiency.

The data for this research were collected from the Scopus database, and the time period of this study is 1979 until the middle of 2025. The academic literature used bibliometric analysis for decades using many various systems of software. Since VOSviewer is customisable, easy-to-use and open source software that can easily import databases like Web of Science and Scopus, amongst others, it was used as the software for visualization within this study (Abu Orabi et al., 2024). Alqudah et al. (2024) and Samara et al. (2025) assert that authors', journals', countries', and institutions' contributions are calculated using the following formula:

$$C_i = \sum_{i=1}^{n} xi / N$$

Where Ci is the contributing institutions, authors, countries, and journals. xi is the count of contributing institutions, authors, countries, and journals for year i (e.g., for over 20 years), and N is the total publications in Islamic finance and energy efficiency investment-related research.

### 2.2. Search Query and Scope Definition

The research was based on an extensive review of literature on Islamic finance and energy-efficient investment methods which offered relevant search keywords. With the assistance of the Scopus database, an exhaustive list of keywords was downloaded by the search for "article titles, abstracts, and keywords." You can view the descriptions of the keywords in Table 1. The following is the final query that was compiled for the search: ("Energy consumption" INCLUDING "Electricity consumption" INCLUDING "Energy efficiency") AND ("Islamic finance" INCLUDING "Economic growth" INCLUDING "Economic development" INCLUDING "Sustainable development" INCLUDING "Green finance").

The database used in this research was downloaded from Scopus on January 20, 2021. Quickly view and compare papers with Scopus's powerful tools. A grand total of 547 papers were downloaded by the search strategy. We screened the downloaded results using the pre-fixed inclusion and exclusion criteria provided in later sections to determine the highest level of relevance and specificity.

By this systematic process, the data set was exhaustive and consistent with the objectives of the study and served as a basis for subsequent research.

**Table 1: Keywords and search string for islamic finance and energy efficiency investments**

| Category | Details |
|---|---|
| Core themes | Energy use, power usage, GDP growth, GDP development, Islamic financing, investments in energy efficiency |
| String for search | ("Energy consumption" OR "Electricity consumption" OR "Energy efficiency" AND "Islamic finance" OR "Economic growth" OR "Economic development" OR "Sustainable development" OR "Green finance") |
| Purpose | The goal of this study is to learn more about Islamic finance's role in encouraging investments in energy efficiency, particularly as it relates to sustainable practices and Sharia-compliant financing. |
| Key research areas | - The relationship between energy consumption and economic growth within Islamic economies.<br>- The potential of Islamic finance instruments (e.g., Sukuk, Takaful) to fund energy efficiency projects.<br>- The impact of energy efficiency investments on sustainable development and environmental conservation. |
| Relevance to islamic finance | - Islamic finance emphasizes ethical and sustainable investments, aligning with global goals for energy efficiency and environmental sustainability.<br>- Instruments like Green Sukuk have emerged as key tools for funding renewable energy and energy efficiency projects.<br>- Exploration of Maqasid al-Shariah (objectives of Islamic law) in achieving energy-efficient and socially responsible economic development. |
| Applications | - Mapping trends in energy efficiency investments funded by Islamic finance. Analyzing bibliometric data to identify gaps and opportunities in research.<br>- Providing policymakers and stakeholders with insights into leveraging Islamic finance for sustainable energy solutions. |

Figure 2 depicts the inclusion and exclusion criteria used in shortlisting articles for final evaluation. Studies published in accounting, business, management, economics, econometrics, and finance alone were considered in the preliminary list of 547. The chosen studies accounted for around 23.83% of the available papers from the massive amount of literature on Islamic financing and energy efficiency investment, which was made up of 263 publications. Only English-written journal articles were utilized for this study because of the deeper and more thorough depth of analysis and data on the authors and institutions these articles provide. Only 129 articles made it through this rigorous screening process and into the quantitative bibliometric analysis pool. To facilitate analysis, the final dataset was exported from Excel as CSV (comma-separated values).

## 3. OVERVIEW OF DESCRIPTIVE ANALYSIS

Figure 3 illustrates trends in research articles addressing Islamic financing and investments in energy efficiency. By comparing the distribution of publications per year and the top journals to the chosen search terms, the first research question, which focuses on establishing current publishing trends and top journals in the domain, can be answered. International interest is growing in

**Figure 2:** Document screening and refinement process

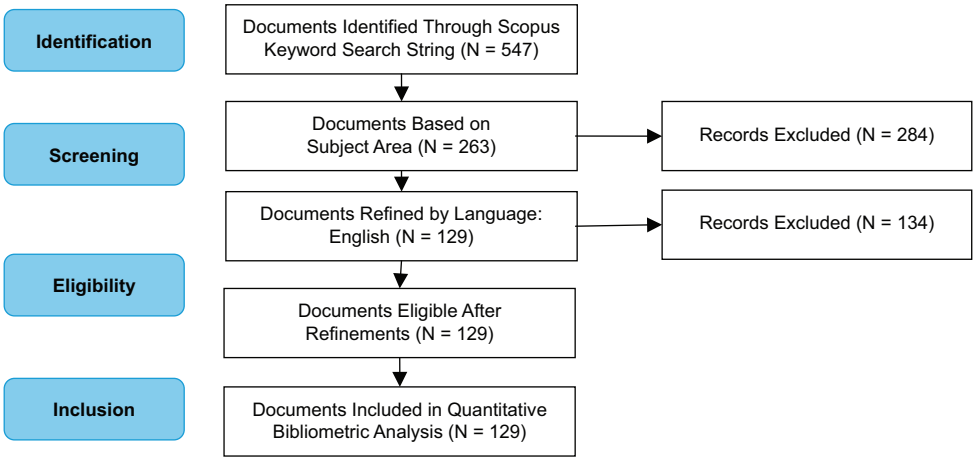
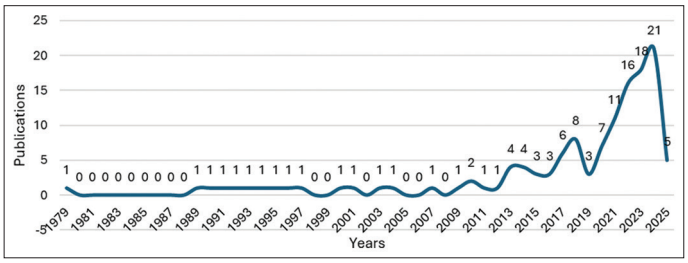



**Figure 3:** Annual publication trends on the energy-growth nexus




sustainable development and Islamic finance as a priority sector supporting the efforts at raising energy efficiency, and this study follows that trend. Academic research is becoming more popular with time.

The entire trend can be divided into two different phases: The first phase of incremental growth during 2001-2010 at the rate of 10.11%/year and the second phase of breathtaking acceleration during 2011-2020 at an unbelievable rate of 89.89%/year. This publication surge is evident in the 129 documents being considered and mirrors the increased interest in climate change mitigation and sustainable behavior over the last decade (Alqudah et al., 2024; Abu Orabi et al., 2024). It mirrors the growing popularity of Islamic finance as a major facilitator of green initiatives globally.

There are several respectable journals that publish articles on Islamic finance and energy efficiency investments. Table 2 lists these journals according to the number of articles each has published. The list of eleven journals accounts for a total of eighty-eight different journals, selected from a sample of one hundred thirty-nine articles. Eleven top-of-the-line journals publish 75 articles, or 58.14% of the total. Data like the title of the journal, publisher, articles, citations, average number of citations per article, and the H-index (Hirsch, 2005) are given for the years 2001-2025.

The top three most ranked journals in this regard are Energy Economics (4), Journal of Cleaner Production (5), and International Journal of Energy Economics and Policy (22 articles). Out of all the citation journals, the Journal of Cleaner Production has the maximum with 332. Energy Economics has the second maximum with 220, and Resources Policy has the third maximum with 212. The H-index value is maximum for Energy Economics with 4, and the average citations per document are maximum for the Journal of Cleaner Production at 44.00. The rest of the 177 journals together account for 41.86% of the publications.

Islamic finance products, green sukuk especially, and the ways they are being used for financing energy saving projects are under increasing academic studies, as is being pointed out by the descriptive analysis. In addition, it emphasizes the importance of having further research done so that gaps in our understanding are addressed about the ways in which sustainable energy projects might be funded using Islamic finance (Karim and Naeem, 2022; Morea and Poggi, 2017).

## 4. BIBLIOMETRIC ASSESSMENT

### 4.1. Citation Evaluation

In order to provide a response for the second question of the studies, aimed for the identification of the world's leading scholars on Islamic finance as well as energy efficient investing, VOSviewer was used in second-order citation analysis. scholarly contribution and scholarly achievement are assigned weight in this study, under the 1961 scientific citation index (AlQudah et al., 2024; Hirsch, 2005). Large players like Malaysia and Iran are also focused upon in the study. They have been leading the way in integrating Islamic finance with renewable energy solutions (Kouchaki-Penchah et al., 2016a; Kouchaki-Penchah et al., 2016b). Other notable players include Bank Indonesia and the Islamic Development Bank, which have also carried out studies and have practical experiences (Jaelani et al., 2020; Morea and Poggi, 2017). As far as the relationship between green, traditional, and Islamic financial markets is concerned, the early writers such as Karim and Naeem (2022) have been highly influential. These are developed on top of the foundational works of energy equity scholars Ahmad and Rais (2018) and Shaari et al. (2020) of the OIC countries' $CO_2$ emissions.

By outlining these works, the study highlights the need for research, institutional, and national cooperation to drive innovation of Sharia-compliant products such as Green Sukuk.

**Table 2: Bibliometric metrics of selected journals**

| No. | Source | Publisher web | Paper | Citation | Av. Citation | H Index |
|---|---|---|---|---|---|---|
| 1 | International Journal of Energy Economics and Policy | Econ Journals | 22 | 140 | 6.36 | 6 |
| 2 | Journal of Cleaner Production | Elsevier Ltd. | 5 | 220 | 44 | 5 |
| 3 | Energy Economics | Elsevier Ltd. | 4 | 332 | 83 | 4 |
| 4 | Energy Policy | Elsevier Ltd. | 4 | 125 | 31.25 | 4 |
| 5 | Resources Policy | Elsevier Ltd. | 4 | 212 | 53 | 4 |
| 6 | Sustainability (Switzerland) | MDPI | 6 | 134 | 22.33 | 4 |
| 7 | Journal of Islamic Monetary Economics and Finance | Bank Indonesia | 4 | 17 | 4.25 | 3 |
| 8 | Pacific Basin Finance Journal | Elsevier Ltd. | 3 | 62 | 20.67 | 3 |
| 9 | Renewable Energy | Elsevier Ltd. | 3 | 38 | 12.67 | 3 |
| 10 | Applied Economics | Taylor and Francis Ltd. | 2 | 73 | 36.5 | 2 |

Source: Author's using VOSviewer

These devices can potentially combat the global energy crisis, improve sustainability, and harmonize Islamic finance with the objectives of energy efficiency (Umar et al., 2023; Yousaf et al., 2022).

### *4.1.1. Countries/regions*

96 countries have institutions that have authored papers on Islamic financing and investments in energy efficiency, according to the citation analysis by country. The 33 top contributor countries are presented in Table 3, with at least 10 papers and ten citations per country. Among the top donors, Malaysia is ranked first, followed by Iran and the United States. Islamic finance and a shift towards renewable energy sources have helped propel Malaysia into the forefront (Kouchaki-Penchah et al., 2016a; Jaelani et al., 2020). Although China's economy is growing by leaps and bounds and the country is setting a priority on green sukuk, it does slightly less well in average citations per document than the United States in nominal GDP (1). Figure 4 illustrates the relationship between the co-authors of different countries, which is consistent with a cumulative research collaboration approach. The leading team holds the first position with 113.63 points, followed by Greece at 107.21 and South Korea at 94.27. According to Morea and Poggi (2017) and Umar et al. (2023), the United Arab Emirates possesses an extremely high aggregate link strength, i.e., it is the leading issuer of Green Sukuk and other Islamic financing instruments for energy-efficient schemes.

Malaysia and Iran are at the forefront of such research, as would be expected given their strategic investment in the combination of Islamic finance principles and green energy schemes. Iran, for instance, has taken the lead through lifecycle analyses of energy-based sectors (Kouchaki-Penchah et al., 2016b), while Malaysia has taken the lead as regards innovative finance practice for renewable energy projects on Sharia-compliant financial instruments (Karim and Naeem, 2022).

Turkey and the Republic of China are also among the leading ones, motivated by their need to tackle energy issues in Islamic economics platforms. Chinese economic growth at a high rate and investment in energy efficiency have positioned it as a major contributor, and Turkish involvement is a testament to its growing need to balance Maqasid al-Shariah with sustainable development goals (Shaari et al., 2020; Yousaf et al., 2022). This paper states the global disproportion in research work on Islamic finance and energy-efficient investment, and it underlines the importance of

**Table 3: Top contributing countries/regions**

| No. | Country | شحتق؛ | Citation | Av. Citation | GDP (2024) |
|---|---|---|---|---|---|
| 1 | Iran | 15 | 296 | 19.7 | 22 |
| 2 | Malaysia | 7 | 262 | 37.4 | 40 |
| 3 | USA | 9 | 242 | 26.9 | 1 |
| 4 | South Korea | 4 | 217 | 54.2 | 10 |
| 5 | France | 4 | 165 | 41.2 | 7 |
| 6 | Germany | 2 | 104 | 52 | 4 |
| 7 | United Arab Emirates | 1 | 84 | 84 | 35 |
| 8 | China | 3 | 64 | 21.3 | 2 |
| 9 | Indonesia | 11 | 61 | 5.5 | 15 |
| 10 | Bangladesh | 3 | 56 | 18.7 | N/A |
| 11 | Spain | 1 | 53 | 53 | 14 |
| 12 | Saudi Arabia | 7 | 48 | 6.9 | 19 |
| 13 | India | 2 | 42 | 21 | 6 |
| 14 | Qatar | 4 | 36 | 9 | N/A |
| 15 | Tunisia | 4 | 36 | 9 | 91 |
| 16 | Pakistan | 2 | 33 | 16.5 | 45 |
| 17 | Algeria | 1 | 27 | 27 | N/A |
| 18 | Portugal | 1 | 26 | 26 | 49 |
| 19 | Italy | 1 | 21 | 21 | 8 |
| 20 | New Zealand | 2 | 19 | 9.5 | N/A |
| 21 | United Kingdom | 2 | 11 | 5.5 | 5 |
| 22 | Kazakhstan | 2 | 6 | 3 | N/A |
| 23 | Bahrain | 1 | 4 | 4 | N/A |
| 24 | Brunei | 1 | 4 | 4 | N/A |
| 25 | Belarus | 1 | 2 | 2 | N/A |
| 26 | Sweden | 1 | 1 | 1 | 24 |
| 27 | Oman | 1 | 0 | 0 | N/A |
| 28 | Turkey | 1 | 0 | 0 | 20 |

Source: Author's using VOSviewer

global cooperation among countries to battle common issues within the provision of equitable and sustainable energy solutions.

### *4.1.2. Institutional contributions and research leadership*

The analysis of author affiliations was conducted to identify the leading institutions publishing research on Islamic finance and green energy investments. Among 1,870 institutions, the nine most prolific institutions with five or more published papers are listed in Table 4. Three of these institutions are Iranian, signifying the country's leading role in bringing research at the intersection of Islamic finance and sustainable energy solutions to fruition.

The most productive institution is the Sultan Qaboos University's Department of Economics and Finance, with three outputs. The second are the American University in the Emirates' Department

**Figure 4:** Top contributing countries/Regions

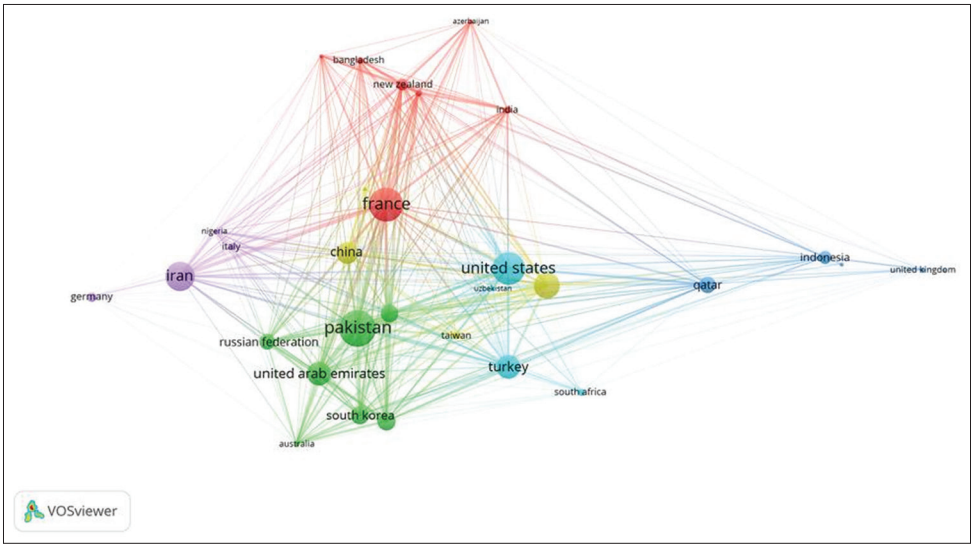



**Table 4: Top publishing universities/universities**

| No. | Institutions/universities | Region | Articles | Citations | Average citation per paper |
|---|---|---|---|---|---|
| 1 | Department of Economics and Finance, Sultan Qaboos University | Oman | 3 | 213 | 71 |
| 2 | Department of Accounting, Finance and Economics, American University in the Emirates | United Arab Emirates | 1 | 158 | 158 |
| 3 | Department of Business Administration, IQRA University | Pakistan | 1 | 158 | 158 |
| 4 | Department of Management Sciences, Shaheed Zulifqar Ali Bhutto Institute of Science and Technology | Pakistan | 1 | 158 | 158 |
| 5 | College of Business and Economics, Qatar University | Qatar | 1 | 156 | 156 |
| 6 | Department of Business Administration, Pusan National University | South Korea | 1 | 156 | 156 |
| 7 | Department of Finance and Accounting, University of Tunis El Manar | Tunisia | 1 | 156 | 156 |
| 8 | Energy and Sustainable Development (ESD), Montpellier Business School | France | 1 | 156 | 156 |
| 9 | Faculty of Business Administration, Bilkent University | Turkey | 1 | 156 | 156 |
| 10 | Department of Agricultural Machinery Engineering, University of Tehran | Iran | 2 | 140 | 70 |
| 11 | Department of Wood and Paper Sciences and Technology, University of Tehran | Iran | 2 | 140 | 70 |
| 12 | Centre for Applied Mathematics, Mines Paristech | France | 1 | 115 | 115 |
| 13 | Department of Accounting and Finance, University of Otago | New Zealand | 1 | 103 | 103 |
| 14 | Department of Business Studies, Namal University | Pakistan | 1 | 103 | 103 |
| 15 | Department of Economics and Finance, Southern Illinois University Edwardsville | United States | 1 | 103 | 103 |

Source: Author's using VOSviewer

of Accounting, Finance and Economics and the IQRA University's Department of Business Administration. These latter institutions have one publication each but have extremely high citation rates with an average of 158 citations/document.

The review also highlights some of the research achievements of the University of Tehran's departments, such as the Department of Agricultural Machinery Engineering and the Department of Wood and Paper Sciences and Technology. Both departments have made remarkable achievement in integrating lifecycle assessment into energy efficiency projects (Kouchaki-Penchah et al., 2016a; Kouchaki-Penchah et al., 2016b). Despite this, the Energy and Sustainable Development (ESD) Centre of Montpellier Business School did not waste any time carrying out research on models of sustainable development grounded in Islamic finance.

Apart from publishing an overview of grand schools, it also talks of the variety of intellectual research fuelling the innovation field. It points out to what extent cooperation and study labor is required for advancing sustainable development agendas considering challenges associated with applying Islamic finance.

Malaysian, Turkish, and Tunisian institutions also come to notice, as they are proactively involved in this area. For instance, Renewable energy projects must be financed via Green Sukuk, according to the Center for Sustainable and Inclusive Development Studies (SID) at Universiti Kebangsaan Malaysia (Morea and Poggi, 2017). In parallel, the University of Tunis El Manar and Bilkent University in Turkey have studied the interplay between green bonds, sukuk, and conventional financial instruments (Umar et al., 2023). The data is enlightening for scholars who are searching for possible collaborators or those interested in further

advancing their work in Islamic finance and energy efficient investment. By identifying key institutions and what they can offer, the study indicates potential for cross-institutional partnerships and knowledge exchange, leading to breakthrough solutions in this critical area.

#### *4.1.3. Authors/scholars*

From their publication record and academic standing, 25 of the 372 authors in the sample were prolific writers on Islamic finance and energy saving schemes. Retrieved from Scopus, Table 5 presents a summary of these prolific writers and their affiliations, country, articles published, total cites, mean cites per document, and H-index. These 25 writers wrote 53 articles in total, covering a significant chunk of the material under consideration.

The most prolific author is Ghaemi Asl M. from Tehran University, Iran, having four publications to his credit. Close behind is Rusydiana A.S. from Universitas Negeri Jakarta, Indonesia, with four publications to his credit as well. The other notable authors have three or two publications to their credit, respectively, which add to the body of work in the field through their research studies.

This review highlights the valuable work of these scholars in contributing to the body of knowledge in the field where Islamic finance and energy efficiency meet. Their publication output is not only an exhibition of personal knowledge but also a reflection of the sum effort needed to create solutions for the problems of sustainable development through innovative financial tools. By identifying these significant contributors, the research provides a takeoff point for subsequent researchers to build on and create new fronts in this discipline, which remains nascent.

From the perspective of average citations per document, Hammoudeh S. of Drexel University, USA, ranks highest with an impressive score of 84.67, followed by Kang S.H. of Seoul National University, South Korea (71), Mensi W. of the University of Sousse, Tunisia (71), and Kouchaki-Penchah H. of Sharif University of Technology, Iran (70). Notably, several authors share the same average citation score of 70, including Mousazadeh H. and Sharifi M., both also affiliated with Sharif University of Technology, Iran. The H-index, which reflects both productivity and research quality, shows that Ghaemi Asl M. leads among the authors with an H-index of 4. However, the majority of the authors have relatively lower H-index scores, reflecting the early-stage nature of research in this interdisciplinary field. For instance, Avazkhodjaev S. of Tashkent State University of Economics, Uzbekistan, and Mukhamedov F. of the United Arab Emirates University, UAE, have H-index scores of 2 despite contributing two articles each. This discrepancy between the number of publications and H-index scores is a reflection of the diverse academic background and varying levels of prominence in the field of Islamic finance and energy efficiency investments. This heterogeneity captures the scope and richness of the subject, and as such, ensuring homogeneity of measures of academic impact becomes challenging. The interdisciplinary nature of the work attracts scholars from various disciplines, further polarizing the debate but at the same time capturing disparities in citation and general academic impact.

#### *4.1.4. Top contributions and key insights*

Table 6 provides the top 10 most frequently cited articles, authors, total citations, and local citations per article. Topmost cited with 70 is “Volatility transmission between Islamic and conventional

**Table 5: Top prominent authors/scholars**

| No. | Author/scholar | Affiliation/universities | Region | Paper | Citation | Av. Citation | H-index |
|---|---|---|---|---|---|---|---|
| 1 | Ghaemi Asl M | University of Tehran | Iran | 4 | 25 | 6.25 | 4 |
| 2 | Adekoya Ob | Covenant University | Nigeria | 3 | 61 | 20.33 | 3 |
| 3 | Billah M | Universiti Sains Malaysia | Malaysia | 3 | 19 | 6.33 | 3 |
| 4 | Hadhri S | University of Tunis El Manar | Tunisia | 3 | 51 | 17 | 3 |
| 5 | Hammoudeh S | Drexel University | USA | 3 | 254 | 84.67 | 3 |
| 6 | Kang Sh | Seoul National University | South Korea | 3 | 213 | 71 | 3 |
| 7 | Mensi W | University of Sousse | Tunisia | 3 | 213 | 71 | 3 |
| 8 | Sharif A | University of Malaya | Malaysia | 3 | 203 | 67.67 | 3 |
| 9 | Aman A | International Islamic University Malaysia | Malaysia | 3 | 173 | 57.67 | 2 |
| 10 | Avazkhodjaev S | Tashkent State University of Economics | Uzbekistan | 3 | 6 | 2 | 2 |
| 11 | Balli F | University of Otago | New Zealand | 2 | 9 | 4.5 | 2 |
| 12 | Belakehal A | University of Oran | Algeria | 2 | 34 | 17 | 2 |
| 13 | Chebbi T | University of Sfax | Tunisia | 2 | 36 | 18 | 2 |
| 14 | Derbali A | University of Sfax | Tunisia | 2 | 36 | 18 | 2 |
| 15 | Jaelani A | Universitas Indonesia | Indonesia | 2 | 32 | 16 | 2 |
| 16 | Kouchaki-Penchah H | Sharif University of Technology | Iran | 2 | 140 | 70 | 2 |
| 17 | Laila N | Universitas Padjadjaran | Indonesia | 2 | 35 | 17.5 | 2 |
| 18 | Marlina L | Universitas Andalas | Indonesia | 2 | 15 | 7.5 | 2 |
| 19 | Morea D | University of Bari | Italy | 2 | 58 | 29 | 2 |
| 20 | Mousazadeh H | Sharif University of Technology | Iran | 2 | 140 | 70 | 2 |
| 21 | Mukhamedov F | United Arab Emirates University | UAE | 2 | 6 | 3 | 2 |
| 22 | Pratomo Wa | Universitas Gadjah Mada | Indonesia | 2 | 4 | 2 | 2 |
| 23 | Rashidi Mm | Yazd University | Iran | 2 | 15 | 7.5 | 2 |
| 24 | Rusydiana As | Universitas Negeri Jakarta | Indonesia | 4 | 39 | 9.75 | 2 |
| 25 | Sharifi M | Sharif University of Technology | Iran | 2 | 140 | 70 | 2 |

Source: Author’s Using VOSviewer

**Table 6: Top cited articles/publications**

| No. | Author/s (date) | Article title | Total citations | Local citations |
|---|---|---|---|---|
| 1 | Nazlioglu et al. (2015) | Volatility transmission between Islamic and conventional equity markets: Evidence from causality-in-variance test | 70 | 2 |
| 2 | Morea and Poggi (2017) | An innovative model for the sustainability of investments in the wind energy sector: The use of green Sukuk in an Italian case study | 37 | 1 |
| 3 | Rafiee et al. (2018) | The impact of various festivals and events on recycling potential of municipal solid waste in Tehran, Iran | 30 | 1 |
| 4 | Godil et al. (2022) | How the price dynamics of energy resources and precious metals interact with conventional and Islamic stocks: Fresh insight from dynamic ARDL approach | 30 | 1 |
| 5 | Do et al. (2018) | Terrorism, geopolitics, and oil security: Using remote sensing to estimate oil production of the Islamic State | 24 | 1 |
| 6 | Laila et al. (2021) | Energy economics in Islamic countries: A bibliometric review | 22 | 2 |
| 7 | Endri et al. (2022) | Corporate green Sukuk issuance for sustainable financing in Indonesia | 12 | 1 |
| 8 | Abuhussain et al. (2022) | Impact of courtyard concept on energy efficiency and home privacy in Saudi Arabia | 11 | 1 |
| 9 | Izatullayeva et al. (2023) | A comparison of the returns of oil and energy companies quoted in Kase and the returns of the Kase index, exchange rate, and selected international energy indices | 1 | 1 |
| 10 | Mukhtasor et al. (2023) | Scaling up renewable energy financing through Islamic blended finance: Case study in Indonesia | 1 | 1 |

Source: Author's using VOSviewer

equity markets: Evidence from causality-in-variance test" by Nazlioglu et al. (2015).

This article discusses global financial system interdependence and refers to growing significance of Islamic finance as an instrument of portfolio diversification. With 37 citations, the second one is "An innovative model for the sustainability of investments in the wind energy sector: The use of green sukuk in an Italian case study" by Morea and Poggi (2017). This is a trailblazer paper to introduce the application of green sukuk to funding renewable energy projects with focus on the potential for Islamic finance tools to improve energy efficiency opportunity access.

Other most commonly cited articles are Rafiee et al. (2018), "The impact of different events and festivals on recycling potential of municipal solid waste in Tehran, Iran" (30 citations), which deals with waste management practices from the perspective of Islamic economics. Similarly, Godil et al. (2022) examine the interactive dynamic relationship between precious metal and Islamic and traditional stock prices and prices of energy resources using a dynamic ARDL model, providing new evidence for the complex nexus (30 citations). Do et al. (2018) investigate the terrorist and geopolitical impacts on oil security, namely Islamic State oil production using remote sensing techniques (24 citations).

Laila et al. (2021) also present a comprehensive bibliometric overview of Islamic nation energy economics trends and thematic domains (22 citations). Endri et al. (2022) also discuss corporate green sukuk issuance to support sustainable finance in Indonesia (12 citations), and Abuhussain et al. (2022) study the influence of courtyard building architecture on residential privacy and energy efficiency in Saudi Arabia (11 citations). Among the most recent contributions, Izatullayeva et al. (2023) introduce Islamic blended finance as a tool to finance renewable energy projects, and Mukhtasor et al. (2023) compare oil and energy company yields in Kazakhstan, delivering pertinent data on future marketplaces.

The most widely cited local researchers are Nazlioglu et al. (2015), Laila et al. (2021), and Rafiee et al. (2018). Local citations demonstrate the frequency with which an article is cited in the sample of documents under consideration, indicating how valuable and effective it is within the considered domain of Islamic finance and energy efficiency investments. All these studies together represent a broad thematic range, which varies from green sukuk sustainability to energy saving from an Islamic economic perspective to digital technology adoption in enabling energy efficiency. The trend indicates that Islamic finance tools research and application towards investment for energy efficiency is a relatively nascent but quickly emerging field of research. For instance, Kouchaki-Penchah et al. (2016a; 2016b) have provided significant insights into life cycle analysis of Iranian manufacturing activities in the Islamic Republic of Iran, as clear from their publications in Journal of Cleaner Production. Their research emphasizes the importance of sustainable operations in industrial activity based on Islamic finance principles. Equally, Mensi et al. (2017) refer to dynamic risk spillovers among gold, oil prices, and Islamic equity aggregates, which are beneficial for portfolio management.

## 4.2. Keyword of Co-occurrence

Keywords are better descriptors to understanding the focus areas of a research field since they identify the encapsulation of research articles (Ahmad and Rais, 2018). Al-Yahyaee et al. (2020) also mention that authors' keywords are good indicators of the extent to which a paper succeeds in attaining its research objectives and quality. For the third research question on prevailing themes in Islamic finance and investments in energy efficiency, author keyword co-occurrence analysis was used. The technique identifies recurring thematic instances within documents, which gives insights into the dynamic nature of the research landscape (Chang et al., 2020).

The procedure began with the determination of author keywords from selected articles and subsequently the creation of a keyword network using the application of VOSviewer software. A cut-off point of a minimum of ten co-occurrences was applied to screen the outcomes. 1,712 keywords were derived from the Scopus

dataset, and 48 of these met the threshold requirement. Most prominently co-occurring with keywords are "investment" and "energy efficiency" appearing 62 and 15 times, respectively. The next highest keywords appear as "renewable energy" (30 times), "green bonds" (15 times), and "sukuk" (3 times).

"investment" is the central node of the co-occurrence network, and "energy efficiency" follows. The most common words are shown in Figure 5, with different colors indicating different clusters of themes. "Energy efficiency" occurs in almost all clusters and in multiple forms, such as energy conservation, energy planning, and energy policy. It indicates that related studies on investments and energy efficiency are extremely comprehensive in their topics.

Also, the term network indicates a few prominent results. Illustration: Within the energy economy, "energy efficiency" and "investment" are the jargon terms, while for the estimation of correlations, the terms in vogue are Granger causality, panel data, cointegration, and autoregressive distributed lag (ARDL). There are several clusters within the umbrella of sustainability, green bonds, sukuk, and renewable energy, which indicates how far these sectors have evolved to be included in energy studies. An interdependent set of terminology is a sign of the interdependence of climate change, $CO_2$ emissions, and oil prices.

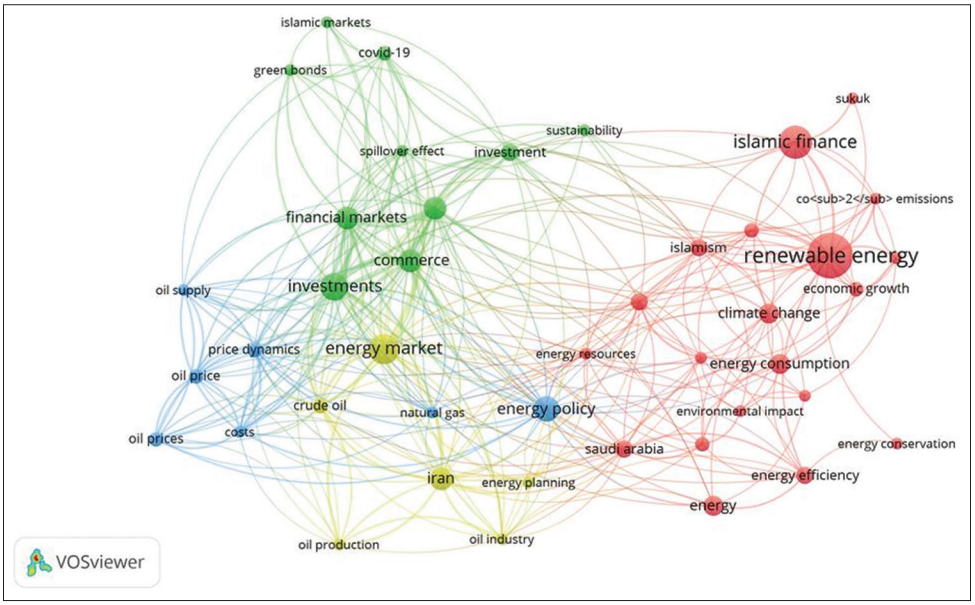
### 4.3. Co-authorship

Cooperation among scholars is one of the earliest forms of intellectual interactions in scientific investigation (Ahmad and Rais, 2018). Global networks of cooperation enable emerging and developing economies to generate knowledge to be utilized by developing and developed nations (Al-Yahyaee et al., 2020). Cooperation enables minds to converge and brings about more accumulated experience and insight. Where there are multiple writers to an article, each brings his or her specialist knowledge, which translates to richer content, more innovation, and less error (Chang et al., 2020).

To study the collaboration pattern of Islamic finance and energy efficiency investment, co-authorship analysis was used. The highest co-authorship networks presented in Table 7 reflect the most prominent contributors and their collaborative relationship. They recognize the extent of collaboration between scholars and institutions and offer an overview of global knowledge diffusion across the discipline. Through analysis of co-authorship relations, the study indicates prominent scientists and institutions that are accountable for scientific progress and defines the role undertaken by cross-border and inter-disciplinary collaboration in the quest for multi-transcending challenges of sustainable development.

The fourth research question, which was dealing with the trend of collaboration, had been addressed by the co-authorship analysis. The analysis compared researchers' collaborative work and identified the strongest contributors in the field. As indicated in Table 7, prominent researchers such as Hammoudeh S., Kang S.H., Mensi W., and Sharif A. emerged as key contributors in this field from nations including the USA, South Korea, and others. These researchers were selected based on a cut-off of a minimum of three publications each, coupled with high citation counts. The lines in the co-authorship network represent the strength of collaborative relationships among regions, with collaborative research work between South Korea and the USA being particularly salient. The co-authorship network for Islamic finance and energy efficiency investments demonstrates a global network of collaboration, with researchers located in Europe, Asia, and the Middle East collaborating quite intensively with one another. However, the structure of the network shows that co-authorship is often regionally concentrated with limited cross-regional links. Despite this geographical localization, there are certain researchers who act as key nodes in the network and take research forward by collaborative work. A majority of the nodes in the network are collaborative works of two or more researchers, reflecting the priority given to teamwork in performing quality research. The

**Figure 5:** Top frequent keyword




Source: Author's using VOSviewer

**Table 7: Top co-authorship**

| No. | Author | Papers | Co-authorship articles | No. | Author | Papers | Co- authorship articles |
|---|---|---|---|---|---|---|---|
| 1 | Ghaemi Asl M | 4 | 4 | 11 | Balli F | 2 | 2 |
| 2 | Adekoya Ob | 3 | 3 | 12 | Belakehal A | 2 | 2 |
| 3 | Billah M | 3 | 3 | 13 | Chebbi T | 2 | 2 |
| 4 | Hadhri S | 3 | 3 | 14 | Derbali A | 2 | 2 |
| 5 | Hammoudeh S | 3 | 3 | 15 | Jaelani A | 2 | 2 |
| 6 | Kang Sh | 3 | 3 | 16 | Kouchaki-Penchah H | 2 | 2 |
| 7 | Mensi W | 3 | 3 | 17 | Laila N | 2 | 2 |
| 8 | Sharif A | 3 | 3 | 18 | Marlina L | 2 | 2 |
| 9 | Aman A | 3 | 3 | 19 | Morea D | 2 | 2 |
| 10 | Avazkhodjaev S | 3 | 3 | 20 | Mousazadeh H | 2 | 2 |

Source: Author's using VOSviewer

co-authorship network does, however, have very dense clusters with limited linkage among them, which reflects the great untapped potential for increased international collaboration. This structural characteristic emphasizes the need for more interdisciplinary and cross-border collaboration in order to promote knowledge sharing and address complex problems in Islamic finance and energy efficiency investments.

## 4.4. Co-citation

Employing co-citation analysis, we were in a position to address the fifth research question, concerning the contextual relation between articles relating to Islamic financing and investing in energy efficiency. Co-citation, as per Ahmad and Rais (2018), is when two authors or sources are cited jointly in a single piece of work. According to Al-Yahyaee et al. (2020) and Chang et al. (2020), co-citations usually suggest content similarity or thematic coupling. Therefore, quantifying the qualitative relations among those papers sharing a common subject, methodology, or analytical point of view can be quantified by co-citation analysis.

Using VOSviewer, we can perform a co-citation analysis of cited authors, journals, and articles utilized in this study. To illustrate the capability of co-citation to track the overlap between sanctions, energy efficiency, and economic impact, see Chen et al. (2019) and Dudlák (2018). In the same vein, Jaelani et al. (2020) and Gamoori et al. (2017) employ Islamic finance principles to inform policy that will register a reduction in energy consumption. Umar et al. (2023) also compare sukuks, green bonds, and regular bonds, thus adding to the network of citations in the field. Along with AlQudah et al. (2024) and Samara et al. (2025), the two articles contribute to the overall body of knowledge related to Islamic finance and investment in energy efficiency. Co-citation relationships are organized in time order to display significant research and trends in the field.

### *4.4.1. Co-citation authors*

Table 8 lists the authors who have been most cited, or authors listed in the reference lists of 125 publications. The top 20 authors are all cited a minimum of 15 times. Apart from Mensi, W. (213), Kang, S.H. (254), and Sharif, A. (203) by co-citation frequency, the most cited author is Hammoudeh, S. Other indicators, including top-cited authors, top-cited articles, and co-authorship network, also show that the same authors are very dominant.

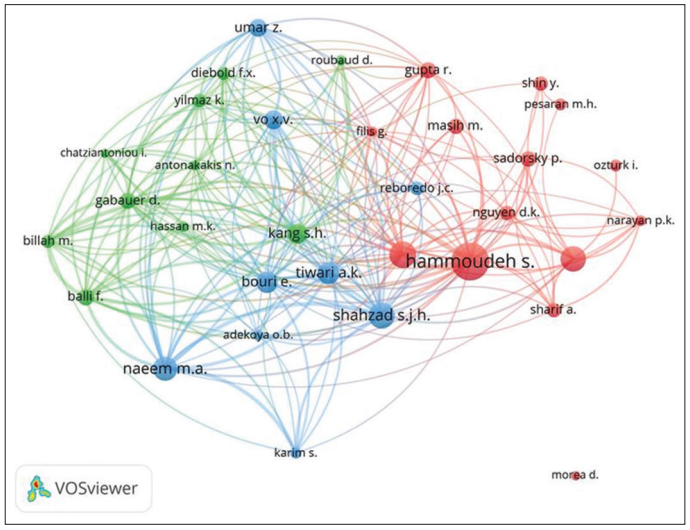
All the authors are encoded as nodes within Figure 6, the network visualization of co-citation. Relationship intensity is coded by

**Table 8: Top co-citation authors**

| No. | Author | TC |
|---|---|---|
| 1 | Hammoudeh S | 254 |
| 2 | Kang Sh | 213 |
| 3 | Mensi W | 213 |
| 4 | Sharif A | 203 |
| 5 | Aman A | 173 |
| 6 | Kouchaki-Penchah H | 140 |
| 7 | Mousazadeh H | 140 |
| 8 | Sharifi M | 140 |
| 9 | Adekoya Ob | 61 |
| 10 | Morea D | 58 |
| 11 | Hadhri S | 51 |
| 12 | Rusydiana As | 39 |
| 13 | Chebbi T | 36 |
| 14 | Derbali A | 36 |
| 15 | Laila N | 35 |
| 16 | Belakehal A | 34 |
| 17 | Jaelani A | 32 |
| 18 | Ghaemi Asl M | 25 |
| 19 | Billah M | 19 |
| 20 | Marlina L | 15 |

Source: Author's using VOSviewer

**Figure 6:** Top co-citation authors




Source: Author's using VOSviewer

links color between authors, and nodes' size are sized by citations. A larger co-citation connection between two nodes is where two nodes have stronger co-citation if positioned adjacent to each other. This study sheds light on influential contributions and intersection

points among energy-efficient investments and Islamic finance disciplines, and offers implications for researchers, policymakers, and practitioners.

Hammoudeh, S., the distinguished writer on interconnectivity of financial markets (Nazlioglu et al., 2015), is closely connected with Kang, S.H. and Mensi, W., authors of vast amounts of research on risk spillovers and portfolio impacts in Islamic stock markets and stock markets (Mensi et al., 2017). Equally, Sharif, A. and Aman, A. have worked significantly on the asymmetric impact of oil prices on Islamic stocks (Chang et al., 2020). Kouchaki-Penchah, H., Mousazadeh, H., and Sharifi, M. have worked together on life cycle assessment and sustainability research in the Islamic Republic of Iran (Kouchaki-Penchah et al., 2016a; Kouchaki-Penchah et al., 2016b). Moreover, researchers such as Morea, D. and Hadhri, S. have investigated emerging models of sustainable investments, including green sukuk on renewable energy projects (Morea and Poggi, 2017; Umar et al., 2023). Jaelani, A. and Marlina, L.'s work forms the Islamic economics literature on energy saving (Jaelani et al., 2020). Co-citation employs a systematic examination of these relationships to identify seminal papers and likely directions in Islamic finance and investing in energy efficiency.

### *4.4.2. Co-citation journals/sources*

Table 9 presents the co-cited journals in the data set of 969 sample papers. The 20 most highly co-cited journals with a minimum of 24 citations are presented in the table. Figure 7 illustrates these journals as nodes and edges, with their interrelation and significance in the research landscape.

At the head is Energy Policy with 149 citations, hence the most co-cited journal among the top 20. This is followed by closely by Energy Economics (134 citations), the International Journal of Energy Economics and Policy (90 citations), the International Journal of Managerial Finance (84 citations), and Sustainability (Switzerland) (67 citations). Also included are the mention of Journal of Cleaner Production (48 citations), Economic Modelling (44 citations), Emerging Markets Finance and Trade (42 citations), Energies (41 citations), Renewable Energy (37 citations), and Applied Energy (25 citations).

Based on H-index, the top is Energy Policy with an H-index of 4, followed by Energy Economics and Resources Policy (4) and Journal of Cleaner Production (5). The application of these figures indicates the most academic impact of the journals in the field of energy efficiency investments and Islamic finance.

Deserving of note is the prevalence of some publishers in this category. Up to 70% of the journals (14 out of 20) are published by Elsevier, in appreciation of its pre-eminence in fostering research on this subject. The remaining publishers are MDPI (10%), Emerald Publishing (5%), EconJournals (5%), and Taylor and Francis (5%). The trend identifies the middle ground that Elsevier takes in leading intellectual debate on investments in energy efficiency and Islamic finance. Publishers' and journals' legibility shows the prioritization of foremost platforms for the release of exceptional scholarship. This information can possibly alert researchers and practitioners to exceptional sources and unity of collective work in the field.

**Table 9: Most co-citation journals/sources**

| No. | Journal/sources | Publisher web | Citation | H-index |
|---|---|---|---|---|
| 1 | Energy Policy | Elsevier | 149 | 4 |
| 2 | Energy Economics | Elsevier | 134 | 4 |
| 3 | International Journal of Energy Economics and Policy | EconJournals | 90 | 6 |
| 4 | International Journal of Managerial Finance | Emerald Publishing | 84 | 1 |
| 5 | Sustainability (Switzerland) | MDPI | 67 | 4 |
| 6 | Journal of Cultural Heritage | Elsevier | 53 | 1 |
| 7 | Resources Policy | Elsevier | 51 | 4 |
| 8 | Journal of Cleaner Production | Elsevier | 48 | 5 |
| 9 | Economic Modelling | Elsevier | 44 | 1 |
| 10 | Emerging Markets Finance and Trade | Taylor and Francis | 42 | 1 |
| 11 | Energies | MDPI | 41 | 2 |
| 12 | Renewable Energy | Elsevier | 37 | 3 |
| 13 | Environmental Economics | Business Perspectives | 34 | 2 |
| 14 | Pacific Basin Finance Journal | Elsevier | 31 | 3 |
| 15 | Energy Strategy Reviews | Elsevier | 30 | 2 |
| 16 | Global Finance Journal | Elsevier | 28 | 1 |
| 17 | Applied Energy | Elsevier | 25 | 1 |
| 18 | Borsa Istanbul Review | Borsa Istanbul (Elsevier) | 25 | 1 |
| 19 | Clean Energy | Oxford University Press | 25 | 1 |
| 20 | Energy Research and Social Science | Elsevier | 24 | 1 |

Source: Author's using VOSviewer

For instance, Energy Policy and Energy Economics is the center to understanding energy efficiency trends and policy implication as reflected in research such as Dudlák (2018) and Chen et al. (2019). Similarly, International Journal of Energy Economics and Policy and International Journal of Managerial Finance provide informed details on how Islamic finance principles are used in sustainable energy investment, e.g., in Karim and Naeem (2022) and Al-Yahyaee et al. (2020). Journal of Cleaner Production and Applied Energy articles also bear witness to the life cycle assessment and sustainability case in Islamic contexts (Kouchaki-Penchah et al., 2016a; Kouchaki-Penchah et al., 2016b). By co-citation analysis, the journals are traced over time to observe milestone papers and trends in Islamic finance and investment in energy efficiency.

### *4.4.3. Co-citation references*

Co-citation analysis is a helpful tool for determining the qualitative correlation and contextual similarity of publications in subject matter, methodologies, techniques, or systematic disciplines. The method also allows the determination of the top co-cited references in a dataset chosen for bibliometric analysis. The top

co-cited references in energy efficiency investments and Islamic finance are determined in Table 10 using VOSviewer software. These results are placed against the background of a minimum of three co-citations per reference cut-off. Figure 8 also illustrates the connectivity of these references through nodes and edges in the visual analysis.

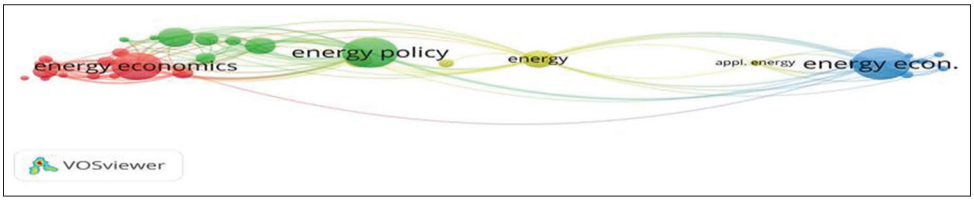
The most-referenced co-sourcing is Jawadi et al. (2014), referenced 7 times in the set of 969 documents. The pioneering paper provides rich correlation on Islamic and traditional financial markets and offers a window for research on the use of Islamic finance principles to sustainable investment in the future (Karim and Naeem, 2022).

**Table 10: Most co-citation references**

| No. | Cited reference | Journal | Publisher | Citations |
|---|---|---|---|---|
| 1 | Jawadi et al. (2014) | International Economics | Elsevier | 7 |
| 2 | Diebold and Yilmaz (2014) | Journal of Econometrics | Elsevier | 5 |
| 3 | Nagayev et al. (2016) | Energy Economics | Elsevier | 5 |
| 4 | Saeed et al. (2021) | Energy Economics | Elsevier | 5 |
| 5 | Badeeb and Lean (2018) | Energy Economics | Elsevier | 4 |
| 6 | Bekiros et al. (2016) | Finance Research Letters | Elsevier | 4 |
| 7 | Sadorsky (1999) | Energy Economics | Elsevier | 4 |
| 8 | Smart Energy International | Smart Energy International | N/A (Trade Publication) | 4 |
| 9 | Sopian et al. (2011) | Renewable and Sustainable Energy Reviews | Elsevier | 4 |
| 10 | Al-Khazali et al. (2014) | Pacific Basin Finance Journal | Elsevier | 3 |
| 11 | Al-Khazali et al. (2016) | Emerging Markets Finance and Trade | Taylor and Francis | 3 |
| 12 | Aloui et al. (2018) | Emerging Markets Finance and Trade | Taylor and Francis | 3 |
| 13 | Apergis and Miller (2009) | Energy Economics | Elsevier | 3 |
| 14 | Bahloul and Khemakhem (2021) | Resources Policy | Elsevier | 3 |
| 15 | Boyer and Filion (2007) | Energy Economics | Elsevier | 3 |
| 16 | Broadstock and Filis (2014) | Journal of International Financial Markets, Institutions and Money | Elsevier | 3 |
| 17 | Choi and Hammoudeh (2010) | Energy Policy | Elsevier | 3 |
| 18 | Deschryver and De Mariz (2020) | Journal of Risk and Financial Management | MDPI | 3 |
| 19 | Diebold and Yilmaz (2012) | International Journal of Forecasting | Elsevier | 3 |
| 20 | Ferrer et al. (2021) | Journal of Cleaner Production | Elsevier | 3 |

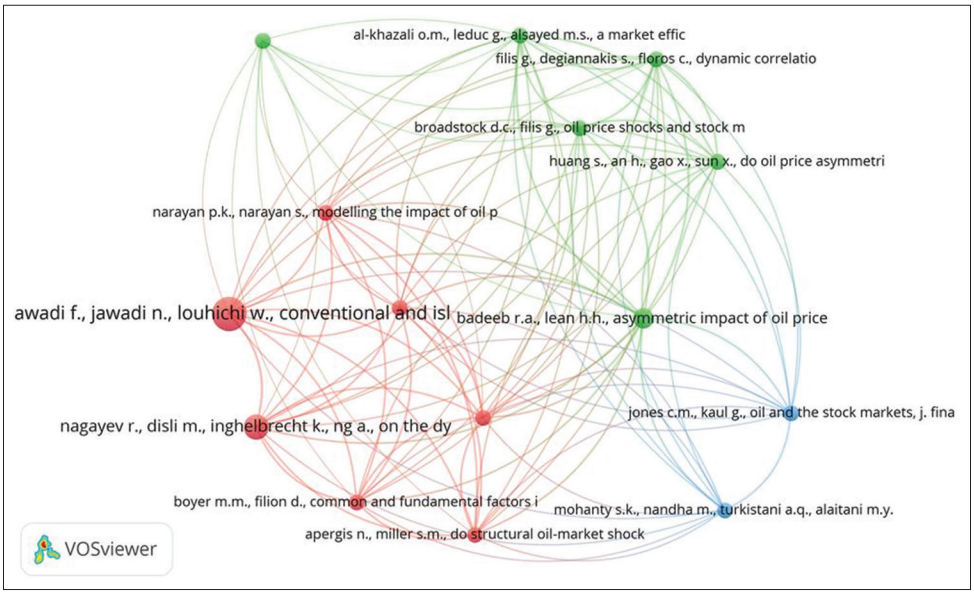
Source: Author's using VOSviewer

**Figure 7:** Top co-citation journal




Source: Author's using VOSviewer

**Figure 8:** Co-citation references




Source: Author's using VOSviewer

This research identifies those most cited references in the discipline and maps for researchers and practitioners who may need to look up seminal studies. By identifying such co-cited references, this research sheds light on the intellectual landscape of the discipline and brings to light the foundational work that current Islamic finance and energy efficiency investment controversies are drawing upon.

Diebold and Yilmaz (2014) Journal of Econometrics article is 5 times co-cited. It provides a description of the measures of financial market connectedness applicable in green bonds and sukuks studies (Umar et al., 2023). Similarly, Nagayev et al. (2016) and Saeed et al. (2021), in Energy Economics, are a continuation to the list of literature books on spillovers in volatility and diversification impact on Islamic finance portfolios (Ahmad and Rais, 2018; Mensi et al., 2017). The other research pieces are Badeeb and Lean (2018), Bekiros et al. (2016), and Sadorsky (1999), who have provided a scientifically contribution to the book portfolio on energy efficiency and investment programs.

Unexpectedly, 72.72% (8 out of 11) of the journals are published by Elsevier publishers, followed by 18.18% and 9.10% by Taylor and Francis and MDPI, respectively. It indicates that Elsevier is a dominant publisher of Islamic finance and energy efficiency investment research. For instance, Resources Policy and Journal of Cleaner Production have printed articles like Kouchaki-Penchah et al. (2016a; 2016b) and Ferrer et al. (2021) on life cycle analysis and Islamic Republic of Iran's sustainability assessment. Similarly, Energy Policy and Emerging Markets Finance and Trade have also made some contribution regarding market dynamics and policy implications (Chang et al., 2020; Al-Yahyaee et al., 2020). By co-citation analysis, the citations are systematically mapped to define central pieces of work and areas of future research on Islamic finance and energy-efficient investments.

## 5. TOP FINDINGS/RESULTS

The key findings concerning the research questions are as follows:

### 5.1. Publication Trends and Growth Patterns

Between the years 2001 and 2010, the frequency at which articles were published on Islamic financing and energy efficiency investments grew at a rate of 10.11%. Between the years 2011 and 2020, the articles in this sector grew at an average annual rate of 89.89%. Green sukuk and other Islamic financial instruments are becoming more popular as a means to fund renewable energy projects throughout the world (Alqudah et al., 2024; Abu Orabi et al., 2024), and this is responsible for the increase. The International Journal of Energy Economics and Policy with a total of 22 articles is leading. Journal of Cleaner Production is lagging just behind at 5 articles, followed by #4 Energy Economics.

### 5.2. Geographical Contributions and Strategic Focus

Iran and Malaysia stand out as the best-performing countries in this area through their strategic importance of integrating Islamic finance concepts in sustainable energy projects. Iranian milestones include lifecycle analyses of energy-intensive industries (Kouchaki-Penchah et al., 2016b), while Malaysian efforts reflect new Sharia-compliant financing methods for renewable energy projects (Karim and Naeem, 2022). Apart from this, the USA and China are the major stakeholders based on energy matters in light of Islamic economies (Shaari et al., 2020; Yousaf et al., 2022).

### 5.3. Thematic Focus Through Keyword Analysis

The most frequent co-occurring words are "investment" (62) and "energy efficiency" (15), followed by "renewable energy" (30), "sukuk" (3), and "green bonds" (15). The words emphasize the thematic concentration on green sukuk financing vehicles, among others, for supporting energy efficiency and renewable energy projects.

### 5.4. Collaborative Networks and Key Researchers

Co-authorship analysis recognizes pioneering scholars leading innovations in this field, including Hammoudeh S., Kang S.H., Mensi W., and Sharif A., mostly based in the USA, South Korea, and Tunisia. Through their collaborative works, they have been instrumental in exploring inter-linkages between equity markets and Islamic to conventional risk spillover (Nazlioglu et al., 2015; Mensi et al., 2017).

### 5.5. Co-citation Analysis and Intellectual Foundations

Co-citation analysis highlights context relationships between landmark pieces in the field. Hammoudeh, S. is the most widely co-cited author (254 citations), seconded by Kang, S.H. (213), Mensi, W. (213), and Sharif, A. (203). High-ranking journals include Energy Policy (149 citations), Energy Economics (134), and the International Journal of Energy Economics and Policy (90). The most referenced work, Jawadi et al. (2014), with seven co-citations, considers dynamic correlations between Islamic and traditional financial markets and provides trailblazing ideas for future research (Karim and Naeem, 2022).

## 6. CONCLUSIONS AND POLICY IMPLICATIONS

The blending of Islamic finance with energy efficiency investments has emerged as a key mechanism for achieving sustainable development and addressing global energy requirements. Financial instruments such as green sukuk and other Islamic financial instruments have gained greater prominence in renewable energy project financing, driven by the intersection of Maqasid al-Shariah (objectives of Islamic law) and sustainable development goals (Umar et al., 2023; Morea and Poggi, 2017). This synergy likewise showcases the attributes of Islamic finance in contributing majorly to environment sustainability and energy security.

Fresh trends in research show a strengthened focus on sustainability, renewable power, sukuk, and green bonds, where the topics differentiate from the old energy efficiency matters. These topics highlight the exacerbation of Islamic finance convergence into other financing patterns for sustainable energies. Methodologically, studies have employed advanced analysis techniques, including Granger causality, panel data modeling, cointegration, error correction models, and ARDL bound testing, to examine interconnectivity and portfolio behavior (Ahmad

and Rais, 2018; Chang et al., 2020). Interdisciplinary research emphasizes the need to integrate a variety of approaches to solve complex problems effectively.

Policy-wise, interdisciplinary research can be revolutionary through encouraging globally coordinated research designs. Examining trade openness, natural resource utilization, environmental degradation, and foreign investment in the light of Islamic finance tools has multifaceted implications for scientific literature (Abu Anzeh et al., 2024; AlKarabsheh et al., 2024; Aladayleh et al., 2023; ALShanti et al., 2024; Momani et al., 2023). Concentrating research on the country level can enhance the closeness and relevance of results to big picture analysis. Governments, energy organizations, and researchers can benefit from such information to coordinate economic and environmental interests in order to gain sustainable dividends.

Global energy agencies like the International Energy Agency and World Energy Outlook require inter-agency strategic cooperation in order to set up integrated plans for energy efficiency and promote sustainable development goals. Joint research activity whose goal is to exchange findings internationally can take on issues challenging the world like climate change, ecosystem degradation, and production of greenhouse gas emissions. In addition, the outputs offer advice to researchers on how to select a research topic, including other approaches, seeking possible co-authors, and seeking institutions for academic collaboration.

This bibliometric study provides a baseline understanding of Islamic finance and energy efficiency investment patterns in studies. It points the directions by which Sharia-compliant instruments could be leveraged to advance global sustainability objectives, and it serves as a roadmap to prospective studies and practical applications in this emerging discipline.

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