



SYSTEMATIC BIBLIOMETRIC ANALYSIS OF TAKAFUL PERFORMANCE RESEARCH

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ABSTRACT

The study explores Takaful performance research based on data retrieved from the Scopus database, with the selected time frame for the analysis spanning from 2015 to 2024. A total of 166 documents were selected for performance analysis and bibliometric analysis. The performance analysis was conducted using Publish or Perish software, meanwhile, the bibliometric analysis was performed using VOSviewer software to examine co-word, country co-authorship, and source co-citation. The results were presented in three types of visualizations: network visualization, overlay visualization, and density visualization. A high relevance score was found for terms such as financial performance, Takaful performance, and performance, among other terms selected related to this study. The findings reveal Malaysia as the most cited country in Takaful performance research during this period. This study presents major research directions in Takaful performance and serves as a reference for future studies that provide valuable insights for researchers, policymakers, and industry practitioners to enhance the development and sustainability of the Takaful industry.

Keywords: Performance, Takaful, Insurance, Financial performance, Islamic insurance

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INTRODUCTION

Takaful means mutual guarantee and is a Shariah-compliant model of insurance based on the principles of mutual cooperation (*Ta'awun*) and shared responsibility. Its principles are yield to Islamic values, forbidding elements such as uncertainty (*gharar*), gambling (*maysir*) and interest (*riba*) that are inherent in conventional insurance models. Takaful is not only a financial instrument but also a way of addressing social and environmental objectives that align with the United Nations' Sustainable Development Goals (SDGs) and *maqasid al-Shariah* (Ibrahim & Markom, 2024). On the other hand, Takaful operates on a risk-sharing model in which participants contribute to a common pool administered by a Takaful operator, who ensures that the fund in a manner compliant with Islamic law. Any surplus generated after claims and





operational costs are either reinvested for future use or distributed among participants depending on the specific model employed.

Over the years, Takaful has gained popularity and has established itself as an established segment of the global Islamic financial industry (Husin, 2019). Its appeal is not limited to Muslim-majority countries; non-Muslim-majority markets have also embraced Takaful, acknowledging its ethical principles and capacity to enhance financial inclusion. Countries in Southeast Asia, the Middle East, Africa, and certain areas of Europe have developed Takaful operations, addressing various consumer needs and regulatory frameworks. Malaysia, Indonesia, Saudi Arabia, and the United Arab Emirates are among the leading markets while emerging markets in Africa and South Asia are increasingly contributing to the industry's growth (Research and Markets, 2023).

Takaful is an important component of ethical finance, promoting economic stability and financial inclusion. This plays a vital role in establishing good practices of a healthy financial ecosystem that would encourage sharing wealth through risk-sharing approaches. Malaysia is known as one of the leaders in Islamic finance, and the country's Takaful industry has contributed significantly to the economic growth. For nine consecutive years, the industry has retained its position at the top of the Global Islamic Economy Indicator (GIEI) Score (Kamarudin et al., 2023). Being the global leader in Takaful, Malaysia consistently drives innovation using digital transformation and strong regulations to grow market share (Ahmad et al., 2023). In addition, Takaful does not only provide protection but also promotes economic growth by funding infrastructure, healthcare, and sustainable initiatives, reinforcing its impact on both individuals and the broader economy (Ibrahim & Markom, 2024).

As the Takaful industry continues to grow in Malaysia and globally, studying Takaful performance is important for the sustainability and growth of the industry. Performance analysis identifies key elements leading to profitability, efficiency, and market competitiveness, enabling better decisions by stakeholders (Ali & Abdelhafeez, 2019). The family Takaful market is the largest in Malaysia, with a growth rate of 16% in 2015, which represents strong expansion in the sector; it was found that the efficiency analysis from 2017 to 2020 revealed a production efficiency level average of 56.83%, which indicates a potential for improvement (Salsabila & Nasution, 2022). Family Takaful penetration in the Malaysian Takaful industry has increased significantly from 18.6% in 2021 to 20.1% in 2022. This growth is accompanied by a rise in total net claims payout from RM 5.58 billion in 2021 to RM 7.02 billion in 2022 (Zamane & Azmi, 2024).

Bibliometric studies have become increasingly popular in finance research as it provides insights into trends, leading topics and emerging patterns in the field that can help identify gaps and future directions. Bibliometric analysis provides an overview of the most cited studies and top authors which offers insights on the essential research and major contributors in the Takaful field (Hussin et al., 2024; Nuraini, 2023). The objectives of the study include mapping the most productive authors, the most frequently used keywords, the most represented countries, and the most citations cited in Takaful research. Mapping a significant amount of literature is crucial in order to comprehend the breadth and depth of Takaful research which makes bibliometric analysis a suitable approach. For example, previous researchers have utilized bibliometric approaches to assess hundreds of articles from databases such as Scopus to identify trends and patterns in Takaful research over time (Hussin et al., 2024; Malik & Sulaiman, 2023). This approach helps in identifying key themes such as operational efficiency, Shariah compliance, and innovation in Takaful products, which are important metrics in performance assessment (Qadri et al., 2024). Furthermore, the analysis also provides insights into the geographic distribution of research, including countries and institutions. For instance, Malaysia is commonly recognized as a major contributor to Takaful





research (Hakim & Munir, 2023). Hence, this study aims to provide a bibliometric analysis of Takaful performance, highlighting major trends, publications, and research gaps.

LITERATURE REVIEW

As a part of the broader Islamic insurance market, the Takaful industry continues to develop under the influence of different factors that directly affect its performance. Research on the role of external and internal factors in enhancing operational efficiency and financial outcomes underscores the importance of a multi-dimensional perspective of understanding performance drivers. For instance, the alignment between corporate governance and operational efficiency plays a critical role in shaping the industry's success (Nduati Kariuki, 2023). These factors also include company-specific factors, management practices, and financial metrics, which affect the efficiency and profitability of Takaful operations.

Factors Determining Takaful Performance

Company-specific factors play a crucial role in determining the Takaful companies' performances. Larger Takaful companies tend to perform better because they can reduce costs by serving more customers and can invest in better technology and human resources. In Malaysia, the positive relationship between firm size and performance measures such as net investment income and investment yield has been established (Kantakji et al., 2020). Another factor is liquidity, as studies show that higher levels of liquidity indicate a negative impact on profitability. This suggests that surplus liquidity may not always be effectively utilized in generating returns (Arshad & Irijanto, 2020; Rofika & Meylianingrum, 2024). Furthermore, Takaful performance positively correlates with equity returns, which indicates that a higher return on equity investment provides better Takaful performance. However, leverage can work differently depending on how a company manages risk, as excessive leverage can cause returns or expose the company to higher financial risks (Arshad & Irijanto, 2020).

Studies examining the effects of Shariah board characteristics have shown the size, qualification, cross-membership, and reputation of the board significantly influence Takaful operators' performance, with corporate social responsibility (CSR) acting as a key mediator (Zouari, 2022). CSR was found to improve operational effectiveness, especially in Southeast Asia and the Gulf Cooperation Council (GCC) (Nazri et al., 2020). Additionally, the involvement of qualified Shariah members from reputable audit firms such as Big Four has been shown to improve financial metrics like return on assets (ROA), return on equity (ROE), and return on investment (ROI) in improving performance (Sallemi & Zouari, 2023). ROI is a significant determinant with higher returns as it indicates better financial stability. Investment returns are a major factor that affects profitability in Indonesia and Malaysia (Rofika & Meylianingrum, 2024). Moreover, underwriting risk management is important for maintaining profitability, as poor underwriting can lead to financial instability. Underwriting risk has proved to be one of the most significant drivers for Takaful companies' performance (Arshad & Irijanto, 2020).

Although internal factors are important for Takaful companies' performance, external factors such as economic conditions, regulations, and cultural influences also significantly affect their operations. External factors such as insured satisfaction and corporate social responsibility also appeared as key factors influencing the Takaful performance (Sallemi & Zouari, 2023). Notably, the influence of service and performance of Takaful agents on customer satisfaction subsequently contributes to higher operational Takaful performance





(Rahman et al., 2017). This finding highlights the necessity for Takaful firms to focus on service quality and agent performance as important factors for customer satisfaction strategies.

On a macro level, studies have explored the impact of broader policy factors, such as taxation, on the Takaful operator's performance. For instance, the implementation of goods and services tax (GST) in Malaysia was shown to reduce the technical efficiency of Takaful operators due to increased operational costs (Che Mohd Salleh et al., 2022). This highlights the importance of policy interventions to ensure that the emerging sector, such as Takaful, is not overly affected by taxes and regulations that can hinder growth and performance. Moreover, the adoption of modern technologies, such as blockchain, has been found to reduce verification costs, enhance transparency, and shorten claim processes; hence, it will increase trust and efficiency in the industry (Zulaikha et al., 2024).

The adoption of Islamic financial standards, mainly as provided by the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), also plays a significant role in enhancing performance in Takaful. Research on the application of AAOIFI standards shows that the adoption leads to improved financial performance, reduced earnings management, and an increased level of conservativeness in financial practices (Elhalaby et al., 2023). This demonstrates how that aligning with Islamic financial principles increases not only compliance but also drives better financial outcomes for Takaful operators, fostering trust and stability in the industry. Therefore, it is essential to take a thorough approach that considers both internal and external factors in order to ensure the sustainable development of the Takaful industry globally.

The Effect of Takaful Performance

The Takaful industry performance has significant implications for economic growth and development. Takaful is based on a different model of mutual cooperation and risk-sharing that aligns with Islamic finance regulations and has demonstrated a positive impact on the economic sectors. For example, in Malaysia, the Takaful was associated with real economic growth, particularly before the Islamic Financial Services Act (IFSA) 2013 was introduced, although its effect is less evident after IFSA 2013 (Kamarudin et al., 2023). In addition, it is also proven that Takaful's contribution has a positive impact on the manufacturing sector and establishes a long-term relationship between Takaful and manufacturing activity. As a result, Takaful has the ability to stimulate real economic development by providing financial protection and risk management solutions (Achmakou, 2023). In Pakistan, the Takaful firms have significantly contributed to the economic growth of the country, as evidenced by their contributions to the country's GDP (Rawat & Mehdi, 2017).

Moreover, Takaful has the potential to improve financial inclusion, especially in the areas where insurance penetration is low. As evidenced in Nigeria, Takaful can support economic sustainability and address financial inclusion through accessible insurance solutions (Tela et al., 2024). Takaful enhances productivity and economic security, thus leading to macroeconomic stability. Its contribution in terms of increasing consumption, investment, and production can positively impact GDP growth (Shahid, 2018). The implementation of Enterprise Risk Management (ERM) in the Takaful industry has shown improvement in financial performance measured by return on investment (ROI) and earnings per share (EPS). This indicates that effective risk management can enhance the industry's contribution to the economy (Masood et al., 2020).

Furthermore, the Takaful operators, particularly in Malaysia, are influenced by factors like revenue, size, and corporate governance, which can enhance the industry's economic impact by improving the efficiency of resource use and service delivery within the sector (Lee





et al., 2019). The performance of Takaful affects not only the individual companies but also the stability of the Islamic insurance market and the entire financial system. A well-developed Takaful industry enhances economic robustness through greater financial inclusion, business continuity, and an alternative to conventional insurance. As the industry evolves, understanding its corresponding performance will be essential for policymakers and stakeholders when creating strategies that support sustainable development in the Takaful sector.

Technological Advancement and AI in Takaful Performance

Technological advancements, particularly Artificial Intelligence (AI), are significantly influencing the performance of the Takaful industry. These innovations are transforming the Takaful landscape by improving operational efficiency, customer satisfaction, and regulatory compliance. Through the utilization of innovative digital devices such as Big Data Analytics (BDA), Blockchain, and Machine Learning (ML), Takaful providers are creating new products and distribution methods that improve their competitiveness in financial services (Faqih & Nurhayati, 2023).

Implementing BDA in Takaful can be used to resolve various performance metrics, including financial performance, efficiency, and Shariah compliance. This shift towards a data-driven approach has the potential for the Takaful industry to remain competitive and fulfill its goals. BDA facilitates data-driven decision-making which helps in developing smarter and more effective financial plans and overall organizational performance (Thirathon, 2016). In addition, BDA can assist in analyzing cost structures and identifying areas for cost reduction, which can contribute to increasing the efficiency of Takaful operations (Izza & Devi, 2023). BDA can help the Takaful companies become more competitive, which allows them to offer better pricing and services to customers (Lee et al., 2018).

Furthermore, blockchain technology and smart contracts can significantly improve Takaful's performance. This technology integration can be utilized to solve several challenges faced by the Takaful industry, such as high operational costs and fraud while aligning with Islamic principles. Takaful companies use blockchain technology to reduce operational costs by automating processes and minimizing the need for intermediaries. For instance, in claim verification and processing, it is particularly beneficial as the smart contract can automatically execute payments once the prescribed conditions are met, which reduces administrative costs and human intervention (Radwan et al., 2020; Zulaikha et al., 2024). Smart contracts can automate claim processing, which leads to faster and more efficient Takaful operations; hence, it allows Takaful companies to enhance participant satisfaction and provide better customer service (Meskini & Aboulaich, 2019).

Meanwhile, ML algorithms have been utilized to determine optimal re-Takaful contributions, which are important for managing risk in Takaful operations. ML models have been employed in the Moroccan Takaful industry to compute Shariah-compliant contributions and optimal for both Takaful and re-Takaful operators. It allows for better calculation of contributions which leads to a more financial stability of Takaful operations (Yassine et al., 2023). ML in Takaful also be applied for operational efficiency and risk management. For example, using model-free reinforcement learning in stress-testing frameworks can improve performance testing in extreme conditions. This method enables the adaptive and efficient generation of stress test conditions to maintain effective risk management without the need for detailed system models (Moghadam, 2019). The evolution of InsurTech and digital platforms increases market access to make Takaful services become more available to consumers. Future research should focus on enhancing AI-driven models and regulatory adaptations needed to maximize the benefits of digitalization in Takaful operations.





METHODOLOGY

Bibliometric analysis can be used as an efficient tool in assessing research performance, trends, and intellectual structure of a specific field, including financial industry such as Takaful. When applied to the study of Takaful performance, it can offer insights into the development of the field, helping to identify key contributors, influential publications, and emerging research trends. This method uses various software tools and academic databases to analyze literature systematically, identify influential works, and map the evolution of research topics.

The methodology of bibliometric analysis typically begins with data collection from a database such as Scopus or Web of Science. Tools like VOSviewer, CiteSpace, and BibliometrixR are frequently used for data visualization and analysis. These tools enable researchers to map co-citations, keyword occurrences, and collaboration networks to provide a comprehensive overview of the field (Zhu et al., 2023). The step involves identifying relevant publications using specific keywords related to Takaful and its performance metrics.

Key metrics in bibliometric analysis include the number of publications, citation counts, h-index score, and impact factors. These indicators help to evaluate the productivity and influence of research outputs, ultimately providing a quantitative basis for knowledge of the field (García-Villar & García-Santos, 2021). Science mapping is a technique used in bibliometric analysis to visually represent the structure and dynamics of research within a particular scientific research field. Through co-citation analysis, keyword co-occurrence, and thematic mapping, researchers can identify core focus areas and track emerging trends within takaful performance research (Rejeb et al., 2023).

This study's methodology involves obtaining and filtering data for the final data collection. The topic and scope of the study must be clearly defined and aligned with the goal. For this analysis, the focus is on research related to takaful performance, specifically studies available in the Scopus database. The Scopus database was selected because it is one of the largest abstract and citation databases, which covers a wide range of global and regional coverage of scientific journals, conference proceedings, and books that were verified through strict content selection and review by an independent advisory board to ensure that only high-quality data was included (Baas et al., 2020). This makes it particularly well-suited for analyzing research trends in Takaful performance.

The methodology for this bibliometric analysis of Takaful performance follows a structured process. The topic of the analysis is defined at the beginning of this study and focuses on publications indexed in the Scopus database. The selection of the year 2015 to 2024, a time frame for this bibliometric analysis is based on significant changes that occurred in the Takaful industry and its relevant research during this period. In the past decade, there has been more academic interest in this field due to the growth of Takaful and advancements in financial technology. This is to ensure that the analysis includes the latest developments, methodologies, and emerging trends. In addition, focusing on the recent research allows for a more accurate overview of the current research direction, which shows how Takaful performance studies towards the market changes and digital transformation. The search limited the coverage fields to Economics, Econometrics and Finance, Business, Management and Accounting, and Social Sciences. The search was limited to articles published in English and restricted to document type "Articles (AR)" to maintain consistency and accessibility of the reviewed literature. The keywords and search string were carefully designed to capture relevant studies.

The search query was then used to extract data from January 15, 2025. Initially, 1551 documents were identified and screened for relevance. After thorough filtering and removing duplicate or irrelevant documents, 1385 documents were excluded as they did not focus on Takaful performance. Thus, a total of 166 documents remain for further bibliometric analysis.





Data collection began with the Publish or Perish application to retrieve relevant publications. Once the search was completed, the results were saved in two formats, *.ris and *.csv, for further processing in Microsoft Excel and VOSviewer.

RESULTS AND DISCUSSION

The performance analysis of the Takaful industry is important to understand the financial stability, growth potential, and overall efficiency. As a part of the Islamic financial system, Takaful is a risk-sharing principle that makes its performance determinants differ from conventional insurance (Mroueh & de Waal, 2018). Simultaneously, bibliometric analysis has been acknowledged as an effective method to evaluate trends in academic research and provides a systematic approach to measuring intellectual development in a particular field (Lazarides et al., 2023). While performance analysis focuses on tangible metrics such as return on investment and profitability, bibliometric studies overview the knowledge structures and collaboration networks that influence the field (Olvera et al., 2018).

Performance Analysis

In this section, the results are discussed based on the top 20 most-cited research articles related to Takaful performance research, as shown in Table 1 below. The data includes key metrics such as citation count, citation per year, author count, and citation per author that highlight the influence and productivity of these publications. The most cited article is by (Farag et al., 2018) with 137 citations, with the highest annual citation rate of 20.6.

Table 1: Takaful Performance Research Data

No	First Author	Title	Year	Author Count	Cites	Cites Per Year	Cites Per Author
1	H. Farag	Corporate governance in Islamic banks: New insights for dual board structure and agency relationships	2018	3	137	19.57	46
2	A. Khan	A bibliometric review of takaful literature	2020	5	103	20.6	21
3	M. Ali	Consumer acceptance toward takaful in Pakistan: An application of diffusion of innovation theory	2019	4	63	10.5	16
4	A. Musleh Alsartawi	Performance of Islamic banks: Do the frequency of Shari'ah supervisory board meetings and independence matter?	2019	1	56	9.33	56





5	A.L. Alhassan	Efficiency, productivity and returns to scale economies in the non-life insurance market in South Africa	2015	2	56	5.6	28
6	Y. Karbhari	Governance mechanisms and efficiency: Evidence from an alternative insurance (Takaful) market	2018	4	54	7.71	14
7	M. Eling	Business failure, efficiency, and volatility: Evidence from the European insurance industry	2018	2	51	7.29	26
8	S.A. Raza	Influential factors of Islamic insurance adoption: an extension of theory of planned behaviour	2020	4	38	7.6	10
9	N.A. Omar	The effect of entrepreneurial orientation, innovation capability and knowledge creation on firm performance: A perspective on small scale entrepreneurs	2016	3	33	3.67	11
10	F. Djafri	The impact of workplace spirituality on organizational commitment: A case study of Takaful agents in Malaysia	2017	2	29	3.63	15
11	A.A. Alshamma ri	The impact of competition on cost efficiency of insurance and takaful sectors: Evidence from GCC markets based on the Stochastic Frontier Analysis	2019	3	28	4.67	9
12	M. Sherif	The impact of intellectual capital on corporate performance: Evidence from the	2016	2	28	3.11	14





		Egyptian insurance market					
13	K.-U. Rahman	Factors affecting employee job satisfaction: A comparative study of conventional and Islamic insurance	2017	3	26	3.25	9
14	W. Hemrit	Determinants driving Takaful and cooperative insurance financial performance in Saudi Arabia	2020	1	25	5	25
15	C.A. Taib	Productivity change in the efficiency of the insurance and takaful industry of Pakistan	2018	3	25	3.57	8
16	H.S. Lee	Efficiency, firm-specific and corporate governance factors of the Takaful insurance	2019	5	24	4	5
17	N. Barbuță-Mișu	Analysis of risk factors affecting firms' financial performance-support for managerial decision-making	2019	3	24	4	8
18	A. Sani	Spirituality at work and organizational commitment as moderating variables in relationship between Islamic spirituality and OCB IP and influence toward employee performance	2020	2	23	4.6	12
19	M. Azeem	The role of distribution channels and educational level towards insurance awareness among the general public	2017	4	23	2.88	6
20	F.K. Rahman	Maqashid Al-Shari'ah-based performance measurement for the halal industry	2017	4	22	2.75	6





Table 2 illustrates a comprehensive overview of citation metrics for the Takaful performance research publication. It provides summaries for 20 papers published from 2015 to 2020 and received a total of 868 citations in a decade period of time, averaging 86.80 citations per year and 43.40 citations per paper. Furthermore, the average number of papers per author was 8.15 papers with three authors per paper. Both the h-index and g-index are 20, which indicates strong and consistent citation impact, while the hI, the norm is 11, and the hA-index is 7.

Table 2: Citation Metrics

Name	Description
Publication years	2015-2020
Citation years	10 (2015-2024)
Papers	20
Citations	868
Cites/year	86.80
Cites/paper	43.40
Cites/author	340.90
Papers/author	8.15
Authors/paper	3.00
h-index	20
g-index	20
hI, norm	11
hI, annual	1.10
hA-index	7

The Scopus database search data results showed the Takaful performance publication development from 2015 to 2024, as illustrated in Figure 1. The data reveals a steady increase in research output over the years, with a significant spike in 2023 and 2024. Between 2015 and 2022, the number of publications was relatively low and stable, with 7 to 19 publications per year. This could be because Takaful research is still in its early stages where the researchers focused on the fundamental topic or basic frameworks. From 2021 to 2022, there was a consistent publication output of at least 14 studies per year, which indicates the growing interest. This steady rate at which the researchers might have begun mitigating gaps highlighted in earlier studies resulted in a long engagement.



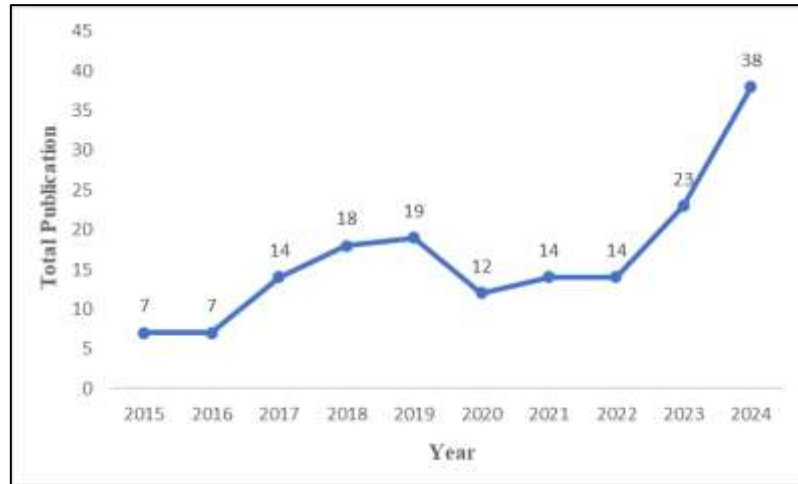


Figure 1: The Development of Publication on Takaful Performance

The striking and significant rise in 2023 has 23 publications, followed by the higher increase in 2024, reaching a total of 38 publications, representing an intensified focus on Takaful performance. This spike was probably due to advancements in technology, such as the application of machine learning, making it possible to conduct a deeper analysis of influential factors and trends. Furthermore, industry challenges and a global understanding of the role of Islamic finance in economic development may also have encouraged many researchers to study Takaful. The interest in Takaful has also been driven by the increasing demand for Shariah-compliant financial products as it provides a unique risk management system that aligns with Islamic principles (Dinç et al., 2019).

Co-Word Network Analysis

It is also possible to build a network first, but a map may already be drawn from an existing network. Hence, VOSviewer can be used to build networks and offer map visualizations for visualizing and analyzing bibliometric networks of scientific publications, scientific journals, researchers, research organizations, countries, or keywords. There are three types of visualization: network visualization, overlay visualization, and density visualization.

Co-word analysis is a technique based on tracing the existing or potential relationships among topics in a research field by analyzing the written content of the publication (Donthu et al., 2021). Based on the data research of Takaful performance, which was extracted from the title and abstract, out of a total of 3897 terms, there were only 271 terms that met the threshold were selected with at least five occurrences per term. Figure 2 shows the results of the network visualization of the co-word map on Takaful performance that is divided into four clusters.

In the network visualizations, the labels and the circles represent the keywords, and the size of the keywords reflects the weight or frequency of each term. Some labels may be excluded from the visualization to prevent overlapping. The colors assigned to the terms indicate their respective clusters, each cluster representing groups of keywords frequently used together in the context of Takaful performance research. Specifically, Cluster 1 (red) consists of 80 items, Cluster 2 (green) consists of 74 items, Cluster 3 (blue) consists of 61 items and Cluster 4 (yellow) consists of 56 items. This clustering of keywords provides a structured framework for understanding thematic relationships and identifying research gaps.

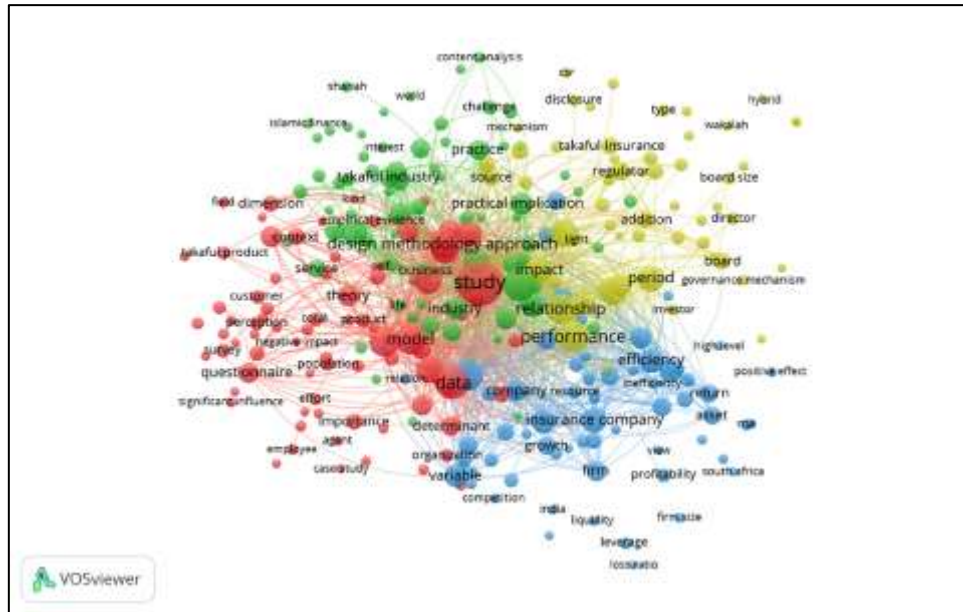


Figure 2: Co-Word Map Network Visualization of Takaful Performance

Furthermore, co-word analysis captures the thematic structure of research areas by examining which terms frequently appear together. The study highlights dominant and emerging themes in the field by analyzing the occurrences and relevance scores of the keywords. When dealing with keywords, the occurrences part shows how many documents contain a keyword, while when dealing with terms, it shows how many documents contain a term at least one time. The high relevance scores suggest areas of high importance, which potentially guide future research to explore in greater depth. For instance, the results in Table 3 provide insight into the most significant terms that have been extracted from the title and abstract field related to Takaful performance based on the Scopus database. The term “performance” appears 64 times, making it the most frequently used term in the analysis. Its high relevance score of 1.266 indicates a central role in discussions and is likely a key focus in the literature. Meanwhile, the term “takaful performance” is directly linked to the focus of this study, but it only appeared 5 times. Despite its low frequency, its relevance score 1.3741 is higher than the term “performance”. This indicates that it is a highly specific term closely tied to the study’s objectives and contributes directly to the analysis. Hence, the researchers prefer a broader term, such as “performance” or “financial performance,” to describe similar concepts.

Table 3: Co-Word Analysis

No	Term	Occurrences	Relevance Score
1	performance	64	1.266
2	Takaful	40	0.8893
3	insurance	45	0.49
4	financial performance	31	1.8508
5	Islamic insurance	27	0.8642
6	Takaful insurance	18	0.2657
7	Takaful performance	5	1.3741

Co-Word Network Analysis

Collaborations among authors from different countries and academic affiliations can improve research quality (Khanra et al., 2020). Co-authorship analysis does not only help to identify clusters of research among researchers in a particular field but can also be targeted to achieve new research in under-researched areas and countries. Node size (country) reflects the total contributions to the network based on the number of co-authored documents. Figure 3 shows the overlay visualization of co-authorship by country related to Takaful performance. Based on the data research, out of a total of 48 countries with at least one document and one citation per country, there were 46 countries that met the thresholds. The analysis highlights Malaysia as a central node, showing the importance of Malaysia to research partnerships around the globe. The strong relationships with various countries from Saudi Arabia and the United Arab Emirates to the United Kingdom suggest active collaboration with regions that prioritize similar research areas, particularly in Takaful performance or related fields. This collaborative approach enhances knowledge sharing and promotes innovation within the Takaful practices, which helps the insurance industry and its stakeholders in these countries.

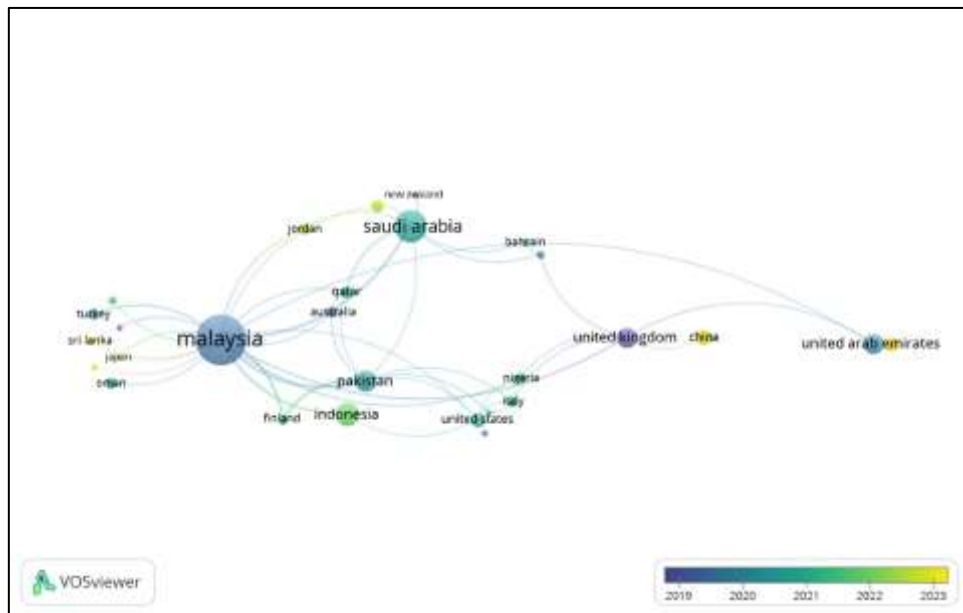


Figure 3: Country Co-Authorship Overlay Visualization of Takaful Performance

Based on the overlay visualization, the timeline from 2019 to 2023 shows the evolution of the collaborations. For instance, the longstanding collaborations between Malaysia, Saudi Arabia, and the United Arab Emirates are consistent over time; meanwhile, the newer collaborations, such as Kuwait and Jordan, are shown by the placement in the timeline (near 2022-2023). The most recent collaborations are represented by the yellowish color in the timeline (Kuan et al., 2023). The analysis in Table 4 shows the top-15 list of co-authorship by country related to Takaful performance. Despite the co-authored documents being led by Malaysia with a total of 62 and the highest total link strength being 40, it has only one citation, which suggests that the collaborations may need further recognition. The total link strength indicates how strong the collaboration between authors, institutions, or topics in the research is. This indicated that even if the research may not yet have received many citations, it is well-connected within a certain academic or research network. The low citation count suggests that the research neither lacks novelty nor relevance to the academic community outside the



country. It might also be due to where the research gets published; therefore, it may not reach enough people to get cited if the research appears in lower-impact journals.

On the other hand, South Africa and Jordan showed a similar trend of having a high citation count but producing a low number of documents and total link strength. South Africa only has eight documents but 242 citations with a total link strength of zero. Likewise, Jordan also has only three documents but 128 citations with a total link strength of three. This indicates that both countries have produced high-quality and significant research, but their limited connections in global research networks offer an opportunity to enhance collaboration. Overall, this indicates that while researchers from South Africa and Jordan have published impactful research, most of their work does not interact closely with a wider academic network. This relatively low total link strength suggests that there are limited co-authorships and cross-institutional collaborations that can help spread the impact and relevance of their findings across countries.

Table 4: Country Co-Authorship Analysis

No	Country	Documents	Citations	Total Link Strength
1	Malaysia	62	1	40
2	Saudi Arabia	26	30	14
3	Indonesia	14	17	6
4	Pakistan	11	103	16
5	United Arab Emirates	10	63	5
6	United Kingdom	10	43	7
7	South Africa	8	242	0
8	China	6	57	2
9	India	5	12	2
10	United States	5	1	7
11	Kuwait	4	30	3
12	Qatar	4	287	5
13	Australia	3	15	3
14	Italy	3	12	4
15	Jordan	3	128	3

Co-Word Network Analysis

Co-citation analysis is a bibliometric technique that examines how often two documents have been co-cited by other documents (Hota et al., 2020). The co-citation by source density visualization, shown in Figure 4, displays the relationships between journals based on their frequency of joint citations in the published literature. The color gradient represents the density of co-citations. The journals in the yellow regions of the visualization indicate their influential role in Takaful performance research discussions. These journals are key sources that are often cited by various studies, which show their impact on the academic community. On the other hand, journals in the blue and green regions contribute to the community but have lower co-citation frequencies due to either they are more specialized or having less acknowledged contributions to the field.

The label size reflects the citation weight (journals) for this analysis. The larger the size of the label, the higher the citation impact or are more central to the network. Clusters are



defined by how close one is to another. Journals located nearby within a yellow region are likely to share similar research topics or fields. Each cluster represents a specific research area within the Takaful performance literature, and the journals closest to each other can be interpreted as having more similar topics. “Journal of Islamic Accounting and Business Research” and “Journal of Risk and Insurance” appear in larger and brighter color regions due to frequently being co-cited and are key to certain research areas. For instance, the first cluster may include journals that focus on Islamic finance and accounting, highlighting the financial laws and regulations of Takaful. The second cluster may consist of the journal regarding risk management and insurance, identifying related studies focusing on underwriting, claims management, and solvency.

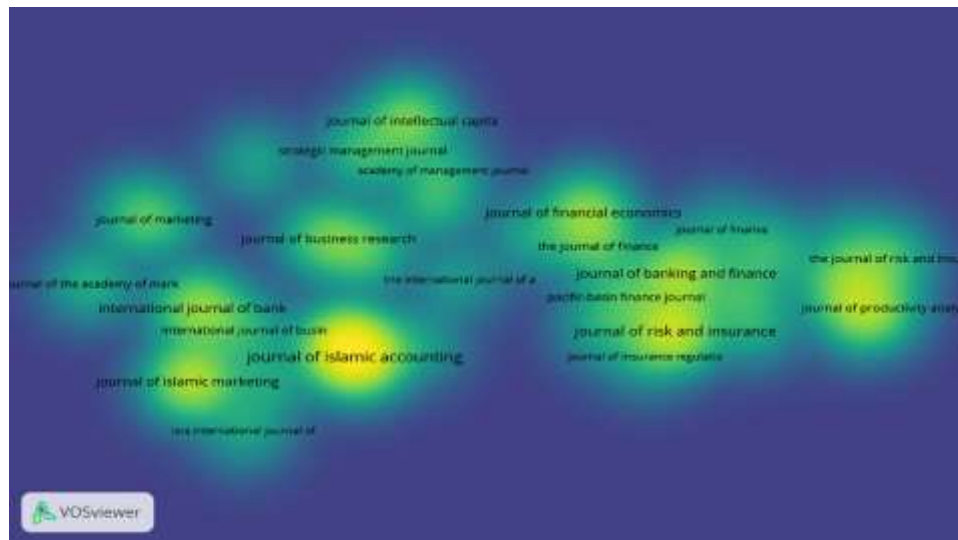


Figure 4: Source Co-Citation Density Visualization of Takaful Performance

When a journal shows high citations and total link strength, it indicates significant and strong connectivity in its field. Table 5 shows the top 15 co-citations by source in the field of Takaful performance research. The “Journal of Islamic Accounting and Business Research” is a key resource with the most citations, 155, and a total link strength of 2415. This indicates that its articles are frequently cited and have many connections with other sources, likely because it focuses on the area of Islamic accounting, business, and finance. Other examples are the “Journal of Risk and Insurance” and the “Journal of Islamic Marketing” which have ranked in second and third place with 114 and 106 citations, respectively, and total link strengths of 1260 and 1368, respectively, highlight their contributions to risk management and marketing within Islamic finance.

Table 5: Source Co-Citation Analysis

No	Source	Citations	Total Link Strength
1	Journal of Islamic Accounting and Business Research	155	2415
2	Journal of Risk and Insurance	114	1260
3	Journal of Islamic Marketing	106	1368
4	International Journal of Islamic and Middle Eastern Finance and Management	99	1479
5	Journal of Banking and Finance	90	1321



6	International Journal of Bank Marketing	85	1387
7	Journal of Financial Economics	76	1475
8	Journal of Intellectual Capital	71	789
9	European Journal of Operational Research	61	764
10	Journal of Banking and Finance	60	1183
11	Journal of Business Research	58	968
12	Journal of Business Ethics	50	730
13	The Journal of Risk and Insurance	44	948
14	Strategic Management Journal	42	804
15	The Journal of Finance	41	813

CONCLUSION AND RECOMMENDATIONS

In this study, four bibliometric analyses, including performance analysis, co-word analysis, country co-authorship analysis, and source co-citation analysis, were performed to explore the intellectual structure, research collaboration, and knowledge diffusion in the studied field. These analyses provided different perspectives and added value toward a more comprehensive understanding of the research landscape.

The performance analysis focused on evaluating the productivity and impact of researchers, institutions and countries in contributing to the field. This analysis highlighted key contributors and their influence in advancing knowledge by examining metrics such as citation counts, h-index scores, and publication outputs. It also identified trends in research productivity that served as benchmarks for assessing individual and group performance in the field. These findings are crucial for identifying high-impact contributions and guiding resource distribution in the research field. Co-word analysis offered a thematic overview by identifying key topics and research trends based on keyword frequency and co-occurrences. The themes and areas with the most contributions and the most underexplored topics are useful guidance for future research. Moreover, co-word analysis acts on finding the relationship between topics and alignment of research agendas with emerging priorities.

Country co-authorship analysis emphasized the necessity of international collaboration to enhance knowledge. Its highlighted trends of worldwide connections while identifying variation in participation among less represented countries. These findings highlight the importance of continuing a wide range of approaches to research and forming partnerships that bridge knowledge gaps and support diverse perspectives, ultimately driving innovation and solutions to global challenges. The source co-citation analysis examines the frequency with which two or more sources are cited in the same academic literature, and it shows the intellectual structure of the field. This analysis identified significant studies and the relationships between different research contributions, ultimately aiding in mapping the evolution of scholarly discourse. Researchers study these citation patterns to identify key studies, new research groups, and major theoretical influences that guide future studies and research directions.

In conclusion, bibliometric analyses are fundamental for the understanding of research dynamics and guiding strategic decision-making. This study contributes to the field by performing a bibliometric analysis of the existing literature to provide a structured overview of Takaful performance research. Through the analysis of publication trends, key research themes and collaboration networks, it helps scholars and policymakers in understanding the intellectual development of this field. This finding emphasizes the most impactful studies, active





researchers, and significant sources that provide useful insights for future research and policy formulation. Moreover, the research highlights the importance of a more diversified research landscape with greater interdisciplinary collaboration and broader geographical representation beyond Malaysia. This study reveals trends in publication and citation patterns, which provide a foundation for future studies to explore emerging themes, improve research methodologies, and address unexplored aspects of Takaful performance.

Future research can extend this bibliometric analysis by adding other databases, such as Web of Science and Google Scholar, to provide a broader view of global research trends. A larger dataset would allow for more accurate research impact assessments and highlight contributions from diverse regions. Comparative bibliometric studies between Takaful and conventional insurance literature could identify differences in the research area, methodologies approach, and industry growth trends. These studies may reveal gaps in the area of Takaful research, particularly in financial performance, risk management, and customer adoption. In addition, there is a need for further analysis of research collaboration networks. A deeper analysis of co-authorship and institutional collaborations will provide insight into the core research hub and potential for academic collaboration. This could lead to more interdisciplinary studies as key insight from finance, economics, and Islamic studies. Future studies can also conduct thematic evolution studies to show how the topics in Takaful performance have changed over time. The identification of emerging themes such as sustainability, financial resilience, or digital transformation can guide future research and policy-making in the Takaful industry.

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