

How Far Takaful Efficiency Has Been Researched? A Bibliometric Approach from Dimensions Database

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This study utilizes a bibliometric approach to investigate efficiency in the takaful industry, which has been under-researched in the literature. Focusing on the theme of "Takaful Efficiency," this study is the first of its kind in this field. The aim is to analyze the development and contribution of research on takaful efficiency in the literature. Data was retrieved from the Dimension.ai platform, and a total of 71 documents were used, with the majority being scientific articles. The analysis shows that scientific articles are the most widely used publication type in this study. Through the mapping of journals and research, it can be seen that the discussion on takaful efficiency is still active and fluctuates every year. In recent years, competition in the insurance sector, especially takaful, has increased, and research indicates a positive relationship between competition and cost efficiency in the takaful industry. Interestingly, this study provides a research path from the results obtained based on seven clusters. These findings can provide valuable guidance for future studies, takaful industry practitioners, as well as policy makers in developing more effective and informed strategies. In addition, this study also contributes to the development of knowledge by illustrating research trends and factors that contribute to efficiency in the context of the takaful industry.

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INTRODUCTION

The Islamic insurance industry, better known as takaful, has become an integral part of the global financial market. (Hassan, 2020). Takaful has a deep value in the principles of justice, solidarity, and togetherness, which reflect the philosophical outlook of Islam (Sarfaz et al, 2022). In an effort to optimize performance and understand the operational effectiveness of this industry, much attention has been paid to the concept of takaful efficiency (Mihardjo et al., 2021).

Efficiency in the context of the takaful industry is not just about achieving optimal financial results, but also involves broader aspects such as corporate governance, product innovation, customer service, and social impact. (Muhamat et al., 2021). Research on takaful efficiency has become an important topic for academics, practitioners, as well as policy makers in order to address the various challenges faced by the industry (Zarunnaim et al., 2023).

However, in terms of understanding the extent to which research on takaful efficiency has been conducted, efforts are still needed to provide a comprehensive and in-depth picture of the direction and impact of these studies. Therefore, this study aims to conduct a bibliometric approach based on indexed dimension.ai publications to analyze and describe the development and contribution of research on takaful efficiency in the literature.

Bibliometric approaches play a crucial role in uncovering research patterns that emerge from scholarly articles, journals, conferences, and other sources. By applying this approach, we will identify influential works, networks of collaboration between researchers, key concepts that have been explored, as well as trends in keyword development over time.

Previous research that also discusses takaful using a literature approach, namely Handayani & Alam (2022). This study explores trend analysis related to takaful research from 1989 to March 2022. The results showed the most publications in 2017 and 2020. Then by Marzuki et al. 2022), presents past and current research on Takaful direct publications in the future. This study uses meta-analysis; a combination of bibliometric analysis and content analysis. This bibliometric analysis examines 398 research publications from 1989 to 2022 while content analysis has been conducted on the latest takaful literature published during the period 2021 to 2022 to highlight the latest research contributions. Then the research conducted

by Qadri et al. (2022), to provide a comprehensive analysis of the development of qualitative research by scrutinizing the dynamic role of takaful in Islamic Social Finance. Finally, research conducted by Khan et al. 2020), provides a thorough analysis of the existing contributions in Takaful through meta-literature. The methodology includes bibliometric (quantitative) and content (qualitative) analysis reviewed 71 articles that aim to provide a rigorous background for the Islamic finance industry, society and its economy, academic research and policy makers and this study also identified and reviewed three leading research lines on Takaful.

As far as the researcher observes, there has been no literature research or bibliometric analysis with the theme "Takaful Efficiency". Therefore, this is the first research on the theme. The results of this study are expected to provide insights into the direction that future studies can take. As such, this study is expected to make a valuable contribution to the development of the takaful industry by identifying opportunities for improvement, areas of research that are still under-explored, and providing guidance for policy makers and practitioners in taking more informed and effective steps. In addition, this study is also expected to provide valuable input to the development of science by illustrating research trends in the context of takaful efficiency.

LITERATURE REVIEW

Takaful

Takaful is an Arabic term derived from the verb "kafal" which means to take care of each other's needs or to guarantee each other. In this scheme, members or participants in a group agree to jointly insure themselves against loss or damage. The whole group is willing to help members who suffer losses by replacing them and providing financial assistance. Takaful has the basis of a legal agreement among all participants of the scheme to pay to members who suffer losses in accordance with the provisions stated in the takaful policy document (Swartz & Coetzer, 2010).

Sharia insurance is one type of non-bank financial instrument used by the public as a means of anticipating future risks (Disemadi & Prananingtyas, 2020). Sharia insurance is an alternative for people, especially Muslim people, who avoid conventional insurance (Isyanto, 2014). Although Sharia Insurance has been developed in

Indonesia since 1994, its development has not yet reached a significant level. The growth of Sharia Insurance from time to time has not been able to rival or even match the development of conventional insurance. However, the presence of Sharia Insurance has received a positive response from the community, not only from the Muslim community, but also from non-Muslims. Therefore, Sharia Insurance in Indonesia is experiencing rapid growth (Supriyatni & Fauji, 2017). Sharia insurance includes two types, namely life insurance and general insurance (Idris & Paulus, 2020).

Bibliometrics

Bibliometrics comes from the root word "biblio" which refers to books or bibliography, and also "metrics" which is related to measurement. Therefore, the term bibliometrics refers to the process of measuring or analyzing books or literature using mathematical and statistical methods. However, today bibliometrics is more commonly used to measure periodical publications such as scientific journals or magazines, compared to book works (Himawanto, 2015).

Research on bibliometric mapping is a significant topic in the field of bibliometrics (Borner, Chen and Boyack, 2003). In the bibliometric context, two aspects can be distinguished: the creation of bibliometric maps and the graphical representation of these maps. In the bibliometric literature, the main focus is often on the bibliometric generation process. Studies have been conducted on how differences in similarity measures have an impact (Ahlgren et al., 2003; Klavans & Boyack, 2006; Van Eck & Waltman, 2009), and these researchers have tested different mapping techniques (Boyack et al., 2005; Van Eck & Waltman, 2007; White, 2003). On the other hand, there has been limited attention to the graphical representation of bibliometric maps. Although some researchers have seriously studied issues related to graphical representation (Chen, 2003; Skupin, 2004), the majority of articles in the bibliometric literature focus more on the map construction aspect.

VOS (Similarity Visualization)

This section reviews the application of the concept of visualization of similarity (VOS) in the creation of bibliometric maps. VOS aims to place entities in a way that accurately reflects the degree of similarity or association between them. For each pair of entities i and j , VOS

requires an input similarity score s_{ij} (with $s_{ij} > 0$). The VOS approach treats the similarity value s_{ij} as a ratio-scale measure. Typically, the similarity value s_{ij} is calculated using the measure of strength of association defined in equation 1 (Van Eck & Waltman, 2007b; Van Eck et al., 2006). The VOS method determines the location of entities on the map by performing optimization to minimize the following factors:

$$V(x_1, \dots, x_n) = \sum_{i < j} s_{ij} \|x_i - x_j\|^2 \quad (1)$$

to:

$$\frac{2}{n(n-1)} \sum_{i < j} \|x_i - x_j\| = 1 \quad (2)$$

Therefore, the VOS concept aims to reduce the total weighted squares of the distances between all pairs of elements. The equations connecting these elements involve the weighted squares of the distances between the pairs of elements. To avoid uninformative solutions, where all elements have identical positions, a constraint is imposed so that the average distance between the two elements must equal one (Rusydiana et al., 2021).

PREVIOUS STUDY ON THE ISLAMIC INSURANCE

This research uses previous studies as references and references related to the theme of takaful efficiency. This is intended to be the basis of argument and material for further study. Munir et al. (2023), examined the development of takaful industry research with bibliometric analysis from 2013 to 2022. The study showed that Malaysia is the most significant contributor to research in the takaful industry. Salman is the most prolific author, with 18 articles to his credit. In addition, the Journal of Islamic Research and Accounting proved to be the most widely used journal in publishing articles related to the takaful industry. The findings also point to potential topics for future research, including mutual insurance, takaful insurance, and aspects of Islamic governance relating to the Islamic banking sector.

Khan et al. (2020) conducted academic research on takaful literature by analyzing 69 articles published between 1950 and 2020. Of these, 49 articles came from ISI Web of Knowledge and 20 articles from other contributing sources. The results of this study revealed various aspects that have an impact on takaful literature, including information on countries, authors, institutions, articles, and also the citation networks formed. In addition to the aforementioned aspects, the study also identified three main streams of research, namely takaful reviews, developments and models, takaful governance mechanisms, and takaful products/services and customer perceptions.

Qadri et al. research, (2022) analyzes the qualitative development of Islamic insurance by carefully examining the nature of science and aspects of social relations in Islamic Social Finance (ISF). This study found that there is a clear research gap in the existing literature on takaful. This available research covers the historical background, concept and model of takaful as well as nasbh satisfaction with the takaful model.

Kantakji et al. (2020), conducted research on the factors affecting the performance of takaful companies globally. They used an unbalanced panel data set over the period 2010-2015 from 53 companies. The performance assessment in this study includes two aspects, namely yield and net investment income, which have an interrelated relationship. The study found that the financial performance of the companies had a positive correlation with firm size, GDP per capita, return on equity, and interest rate. In contrast, liquidity and dependency rate show a negative correlation.

From the literature review above, it can be concluded that research on the takaful industry has been the focus of attention in recent years. From these results, as far as the researcher observes, no bibliometric research on takaful efficiency using metadata dimensions has been found. The purpose of this study is specifically to look at the development of takaful efficiency research around the world published by journals with this theme and to see future research opportunities by formulating a future research agenda.

RESEARCH METHODS

This study uses paper publication data sourced from various research journals with the theme of takaful efficiency. The data was collected in the last 11 years, from

2014 to 2020. Searches were conducted using the term "Takaful Efficiency" according to abstracts and citations. As a result, there were 7 publications in August 2023.

In addition, the development trend of takaful efficiency publications was analyzed using the VOS Viewer. A computer program called VOS viewer. VOSviewer is a program developed specifically for building and visualizing bibliometric maps and its information can be found on the website www.vosviewer.com.

With the help of VOSviewer, this research is able to create author collaboration maps and journal maps based on author collaboration attachment data and keywords that often appear together in publications. This program provides an opportunity for readers to carefully examine the bibliometric maps that have been produced.

This research method can be described as a descriptive approach based on bibliometric analysis. The data used in this study comes from publications related to the efficiency of Islamic banks taken from the Dimensions.ai database (<https://Dimensions.ai>). In indexing alternatives using dimensions, the criteria applied is that each article must have a title and abstract.

VOSviewer uses the VOS mapping technique (Van Eck and Waltman 2007a), where VOS means visualization similarity. Previous studies where VOS mapping techniques were used refer to Van Eck and Waltman (2007b) and Van Eck et al. VOS Viewer can display maps that have been constructed using techniques that are compatible with the mapping technique. Therefore, this program can display maps created using VOS mapping techniques and display maps constructed using multidimensional scaling techniques. VOSViewer runs on many hardware and operating system platforms and can be started directly from the internet (Rusydiana et al., 2021). Applied studies on bibliometric in Islamic economics and finance can be seen at Niswah (2022), Rusydiana & Bahri (2022), As-Salafiyah & Mahsyar (2022), Izza (2022) and also Rahayu (2021).

RESULTS AND DISCUSSION

The following is a collection of documents through searches with dimensions used in research on the theme of takaful efficiency. Of the total 71 documents used, there are 5 types, namely Article (61 documents), Chapter (3), Preprint (4), Proceeding (2), and monograph (1).

Table 1: Publication Type

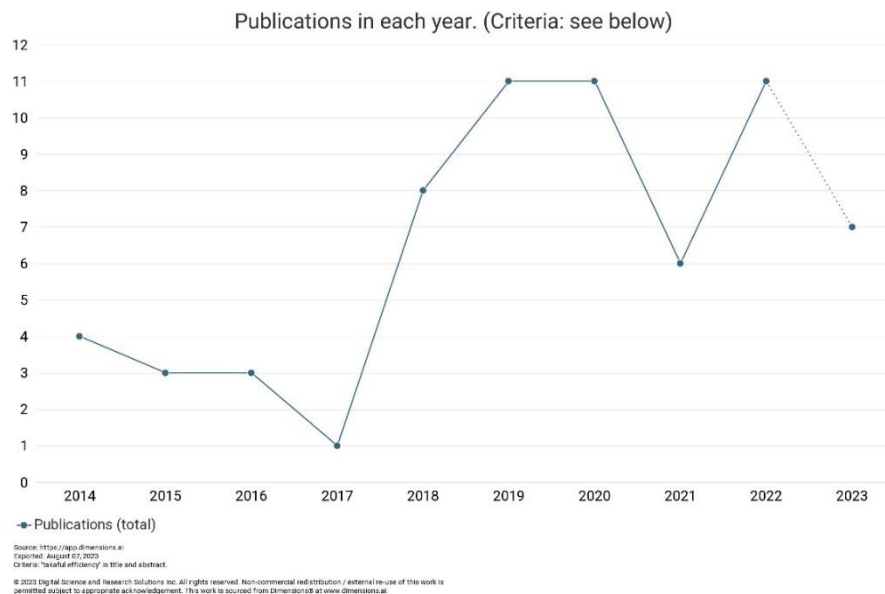
No.	Document Types	Number of Articles
1	Article	61
2	Chapter	3
3	Preprint	4
4	Proceedings	2
5	Monograph	1
	TOTAL	71

Based on the results of the grouping of document types above, the type of document that is most widely used as a research subject with the theme of Takaful Efficiency is a document in the form of an article as many as 71 documents. While the least used document is a

monograph as much as 1 document. This shows that the references used are quite valid because most of them come from documents in scientific articles. Scientific articles are the most published publications in takaful efficiency research.

Publication Graph Analysis

This study reviewed 71 journals and research published by various publishers. This review also focuses on the theme of takaful efficiency. It can be seen in table 1 that the discussion of takaful efficiency fluctuates every year. This means that the discussion about takaful efficiency is still ongoing every year as well as the level of publication.

**Figure 1:** Article Publication in each year

Based on the results of the graphical display above that we peeled from Dimesions.ai, we found that the number of articles published was 71 from 2014-2023.

- The least number of published articles occurred in 2017 with 1 document.
- The highest number of published articles occurred in 2019, 2020, and 2022 with 11 documents.
- In 2023 there was a decrease where there were only 7 published articles, where at this time 2023 had not been recorded for a full year. Given that this data was collected in August 2023

The results of this graphic display provide additional insight to readers. In 2019, 2020 and 2022 were the most published years with the theme of takaful efficiency.

In recent years, competition in the insurance sector has increased due to the emergence of takaful as a player in the competition against insurance in the Gulf Cooperation Council (GCC) countries. Research conducted by Alshammari et al. (2019), the relationship between competition and efficiency shows a negative value when it comes to conventional insurance, and positive only for takaful. The positive relationship

between competition and cost efficiency can encourage policy makers and regulators to support a competitive insurance industry that must improve efficiency. When there are many players operating in a particular market, it encourages competition. Thus, healthy competition in the market leads to efficiency performance. Takaful and conventional insurance are two parallel methods used to transact insurance business. The emergence of the Takaful market has contributed to competitiveness and conventional insurance faces competition with Takaful (Ahmed & Ab-Rahim, 2021).

The Takaful industry is growing rapidly compared to conventional insurance in the GCC and, therefore, the financial market may have additional advantages for the GCC region (Alshammari, Alhabshi, et al., 2019). Other research also examined in the GCC conducted by Benyoussef & Hemrit (2019), to compare the efficiency of takaful and cooperatives. The findings state that Islamic insurance companies have excess resources and in other cooperatives there is a lack of resources. Furthermore, a study conducted by Sim & Hassan (2020), to assess the relationship between market competition and financial stability examined the structure of the Islamic insurance market in Saudi Arabia and Malaysia, and to investigate the relationship between market competition and financial

stability from 2008 to 2016. The study conducted by Zablawi et al. (2020), shows the potential for substantial efficiency improvements in all markets with large differences in efficiency scores across GCC countries indicating differences and stages of sector development and regulatory heterogeneity.

Increased efficiency will increase the entry of more viable competitors to participate in the Islamic insurance industry. Therefore, regulators need to implement careful monitoring of Islamic insurance operations because increased efficiency will make Islamic insurance operators more competitive. Further implications explain the motivation for insurance companies to increase efficiency that allows them to charge lower prices to increase competition that can benefit both companies and customers (Lee et al., 2018).

Co-Writing Analysis.

In addition to the graphical display, bibliometric also displays results according to subthemes, namely author, organization, and country. By using VOSviewer software, we obtained bibliometric mapping of authors who published papers on the topic of "Takaful Efficiency, as shown below.

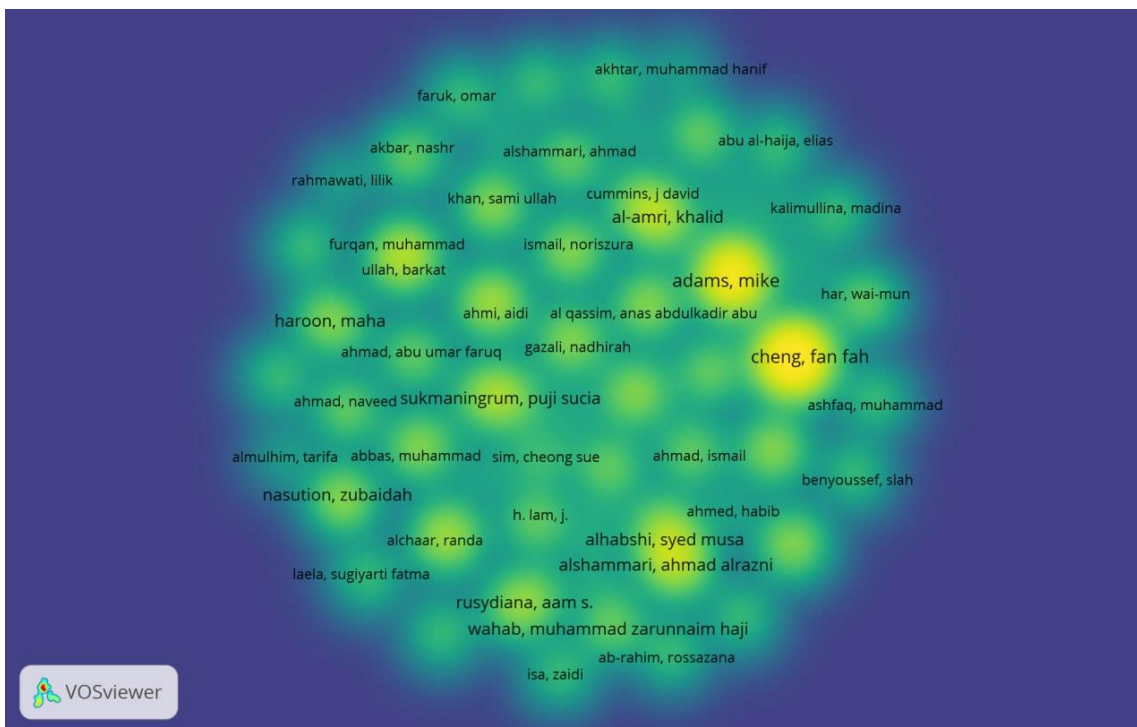


Figure 2: Author Bibliometrics

The appearance of the cluster density depends on the brightness level of the yellow light. This identifies that the yellow color of the map depends on the number of items associated with other items. This section is useful to get an idea of the general structure of the bibliometric map with respect to which part of the light is considered important to analyze. Based on the results of this data mapping, the bigger and brighter the names of the authors, the more articles they published on the theme of takaful efficiency.

Overall, there are still not many authors who publish writings on "Takaful Efficiency". The most published author publications related to the theme of takaful efficiency based on bibliometric mapping are Fan Fah Cheng, Mike B Adams, Hui Shan Lee, and Nazrul Hisyam Ab Razak. They are also active in collaborative writing on takaful efficiency.

One of the studies conducted Lee, Cheng, & Nassir (2019), the purpose of this study was to analyze the efficiency level of the general Islamic insurance industry using two-stage Data Envelopment Analysis (DEA) to identify factors that affect the efficiency level of the general Islamic insurance industry. The findings showed that the factors of turnover and size have a positive and significant effect on the efficiency of general Islamic insurance, but total net income shows a negative relationship with cost efficiency. Meanwhile, the share of Muslim directors in the board of directors was found to

affect the efficiency of general Islamic operators. The results recommend that a wider pool of experienced and talented Muslim executive directors equipped with Islamic finance knowledge are capable of managing takaful general operators well with the achievement of maximum cost efficiency.

Furthermore, they also examined the factors affecting the level of efficiency (cost efficiency and technical efficiency) of the Islamic insurance industry and to examine the influence of Islamic insurance firm-specific factors and corporate governance factors affecting the efficiency of Islamic insurance. The results show that Islamic insurance operators in general have allocative inefficiency but family Islamic insurance is more cost-effective than general Islamic insurance. The results of panel data analysis revealed that corporate governance factors affect cost efficiency but found no evidence on firm-specific factors on cost efficiency and technical efficiency in Islamic insurance operators (Lee, Cheng, Har, et al., 2019).

Top Citation Analysis

The following table shows the top 10 papers ranked by total citations from the time of publication to the time of this study (August 2023). Out of 71 papers published on the theme of Takaful Efficiency in the last 11 years, i.e. from 2014-2023

Table 2: Top Citation

Citations	Title	Author
64	The Cost Efficiency of Takaful Insurance Companies	Hale Abdul Kader et al. (2010)
39	Governance mechanisms and efficiency: Evidence from an alternative insurance (Takaful) market	Yusuf Karbhari et al. (2018)
37	Cost efficiency and board composition under different takaful insurance business models	Hale Abdul Kader et al. (2014)
23	The impact of competition on cost efficiency of insurance and takaful sectors: Evidence from GCC markets based on the Stochastic Frontier Analysis	Ahmad Alrazni Alshammari (2019)
21	Takaful insurance efficiency in the GCC countries	Khalid Al-Amri (2015)
18	Performance analysis of Takaful and conventional insurance companies in Saudi Arabia	Muhammad Hajif Akhtar (2018)

17	Measuring the relative efficiency of insurance companies in Saudi Arabia: The case study of Takaful vs cooperative industries	Slah Benyoussef and Wael Hemrit (2019)
16	Efficiency Measure of Insurance v/s Takaful Firms Using DEA Approach: A Case of Pakistan	Atiquzzafar Khan and Noreen Uzma (2014)
15	Analysis of Takaful vs. Conventional insurance firms' efficiency: Two-stage DEA of Saudi Arabia's insurance market	Tarifa Almuhammim (2019)
14	Efficiency, firm-specific and corporate governance factors of the Takaful insurance company.	Hale Abdul Kader et al. (2014)

The highest ranking with a total of 64 citations is a paper entitled "The Cost Efficiency of Takaful Insurance Companies" (Hale Abdul Kader et al., 2010). This study examines the cost efficiency of non-life Takaful insurance companies operating in 10 Islamic countries. The results show that separating the functions of Chief Executive Officer and Chairman does not improve cost efficiency. However, board size, firm size and product specialization positively affect the cost efficiency of Islamic insurance. In contrast, the regulatory environment was found to be statistically insignificant in terms of improving cost efficiency (Kader et al., 2010).

In second place with a total of 39 citations is a paper entitled "Governance mechanisms and efficiency: Evidence from an alternative insurance (Takaful) market", this study examines the relationship between corporate governance attributes and the technical and scale efficiency of global Takaful Insurance operators, using alternative estimators for efficiency, the results show that inefficient takaful operators indicate widespread managerial lethargy and operational inefficiency (Yusuf Karbhari et al., 2018).

And in third place, with 37 citations is a paper entitled "Cost efficiency and board composition under different takaful insurance business models" (Hamzah Abdul Razak, 2019), this study examines the relationship between cost efficiency and board composition in non-life takaful insurance companies operating in 17 Islamic countries using panel data for 2004-2007. Nonparametric data envelopment analysis (DEA) was used to calculate

cost efficiency scores and a second-stage logit transformation regression model was then used to examine the effect of firm characteristics on this efficiency. The study found that the average level of cost efficiency in the takaful insurance market mirrors that of the developed non-life insurance market. The relative influence of board composition, such as the proportion of non-executive directors on the board, on takaful insurance cost efficiency depends on its interaction with other firm-specific characteristics such as board size. Therefore, the effect of corporate governance systems on takaful insurance cost efficiency can be complicated by various firm-specific factors (Kader et al., 2014).

Keyword analysis.

This section will present a graphical visual representation of papers focusing on the field of takaful efficiency. The results of the keyword mapping analysis serve as the basis for the creation of a co-occurrence map of important or unique terms present in a given article. This mapping process allows one to identify knowledge elements, their configurations, dynamics, interdependencies and interactions. In the context of bibliometrics, science mapping is a form of visualization of a field of knowledge. This visualization is done by creating a visual image that displays the topics that exist in the knowledge. The results of the visualization of the co-word linkage network for the publication of Takaful Efficiency-themed papers can be seen in the following figure.

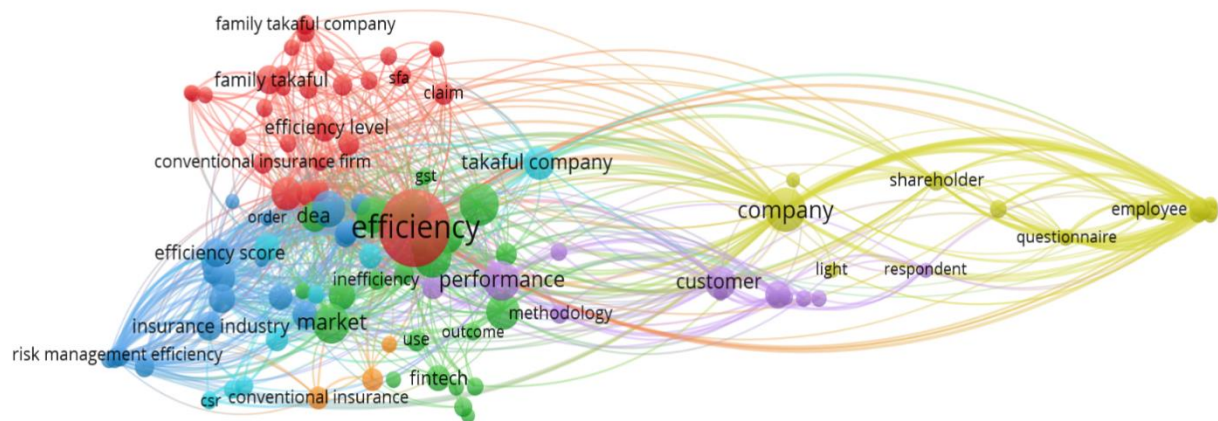


Figure 3: Bibliometric Mapping

Based on the results of the analysis using VOSviewer on keywords themed takaful efficiency there are many parts and interrelated with other keywords. Keywords that have the same color indicate a very close relationship. In the mapping displayed there are several keywords that often appear in takaful efficiency themed articles which are divided into 7 colors namely red, green, yellow, purple, light blue and orange. The most used keywords in takaful efficiency-themed journals are those found in red clusters.

Here is the description of the picture above:

- **Cluster 1** in red consists of 31 keywords, namely addition, application, claim, conventional insurance, data envelopment analysis, efficiency, efficiency level, family, family takaful, family takaful company, family takaful operator, government, improvement, Indonesia sharia insurance, input, input variable, investment income, life insurance, life insurance institutions, Malaysian takaful, mpi, output, output variable, premium, productivity, productivity level, scale, sfa, sharia life insurance, stochastic frontier approach and term.
- **Cluster 2** in green consists of 24 keywords, namely corporate governance factor, cost, cost efficiency, data, dea, digital economy, fintech, gst, importance industry, inefficiency, insurance, Islamic insurance industry, level, market, opportunity, outcome, policymaker, takaful, takaful industry, takaful insurance company, technical efficiency, and use.
- **Cluster 3** in blue consists of 20 keywords namely authors, ci firm, design methodology approach, efficiency score, firm, insurance company, insurance company, insurance firm, insurance industry, insurance sector, ksa, order, originality value, practical implication, relative efficiency, research limitation implication, risk management efficiency, Saudi arabia, scope, takaful firm, and uae.
- **Cluster 4** in yellow consists of 15 keywords, namely alshaibani complex, company, employee, ood industries, human resources management, institutional performance, light, medium industrial company, number, questionnaire, republic, researcher, shareholder, solidarity company, and training.
- **Cluster 5** in purple consists of 12 keywords, namely behalf, customer, health awareness, implication, innovation, intention, medical takaful card, medical takaful coverage, methodology, performance, public sector officer and respondent.
- **Cluster 6** consists of 10 keywords, namely csr, gcc, gcc country, operation, sample, size, southeast asia, takaful company, takaful insurance, and takaful performance.

- **Cluster 7** consists of 3 keywords, namely competition, competitiveness, and conventional insurance.

ANALYSIS

Cluster 1: Efficiency and Development in the Family Takaful Industry

Findings: The family takaful industry, which combines Islamic insurance principles with family protection, is the main focus of Cluster 1. Interesting findings from this study reveal how important operational efficiency and development efforts are in maintaining the sustainability of this industry. Analytical methods such as Data Envelopment Analysis (DEA) and Stochastic Frontier Approach (SFA) have become key weapons in the effort to improve operational efficiency and productivity of family takaful companies. Using these approaches, companies can identify efficiency gaps and take the necessary corrective measures.

Study conducted by [Sukmaningrum et al. \(2022\)](#), provides a deeper insight into the importance of productivity in maintaining the viability of family takaful companies. The productivity index becomes an invaluable evaluation tool, allowing companies to effectively manage their resources to achieve optimal results. The importance of technological innovation also emerges as an important point in this study. The management of family takaful companies in Indonesia needs to focus on technological developments and innovative service delivery to improve productivity. Meanwhile, companies in Malaysia need to continue to maintain efficient use of technology to keep operating productively.

The role of government is also prominent in this study. The steps taken by the Indonesian and Malaysian governments to improve the efficiency and development of Islamic insurance is a positive step. By formulating regulations that support innovation and technological development, the government can be a strong driver in the growth of the family takaful industry. This study reminds us of the importance of close collaboration between the private sector and the government in developing the family takaful industry. In an era of ever-evolving innovation, adaptation to technology and proper regulation will be key in ensuring a bright future for the industry.

Cluster 2: Governance and Efficiency in the Takaful Industry

Findings: This cluster highlights the importance of corporate governance factors in achieving efficiency in the takaful industry. The analysis in this cluster may focus on the impact of regulatory policies, such as the introduction of Fintech and Goods and Services Tax (GST), on the operational efficiency and performance of the takaful industry. The findings also highlight the important role of stakeholders and policymakers in shaping the efficiency of the takaful industry. The presence and composition of the board of directors, particularly the presence of independent directors, is shown to have a positive relationship with takaful company performance. The study conducted by [Eldaia et al. \(2023\)](#), provides concrete evidence of this, by showing that a strong and diverse board of directors can contribute significantly to takaful company performance, especially in the context of Malaysian Takaful. The study also emphasizes the need to improve policymaker effectiveness and the quality of Shariah committees. These actions aim to reduce agency costs and improve firm performance. In this regard, the role of government and prudent regulation is crucial to create a conducive environment for the efficiency and growth of the takaful industry.

Another study by [Hemrit \(2020\)](#), also provides a perspective in line with these findings. They emphasize the importance of transparency, accountability, and stakeholder participation in driving efficiency and growth in the takaful industry. The emphasis on strong governance and effective stakeholder roles has the potential to form a solid foundation for the long-term success of the industry.

Cluster 3: Efficiency Methodology in the GCC Insurance Industry

Findings: This cluster highlights efficiency assessment methodologies in the GCC insurance industry. The efficiency assessment methodologies explored in this cluster include Relative Efficiency and Data Envelopment Analysis (DEA) approaches. The Relative Efficiency approach helps identify those firms that perform better in relative terms compared to others, while DEA provides a tool to measure the relative efficiency of firms in relation to their inputs and outputs. This finding is in line with research [Almulhim \(2019\)](#), which wanted to explore the practical implications of the research results on risk

management and efficiency in the takaful sector in the region as well as key implications for decision makers, regulators, and managers related to the insurance industry in the GCC and other emerging insurance markets.

Furthermore, research by Chaibi (2014), the study revealed that takaful companies operating in GCC countries are more efficient than Malaysian operators who are encouraged to have marketing strategies to gain better growth. Relevant research by Al-Amri (2015), and Al-Amri et al. (2012), enrich this insight by showing how DEA and MPI can be used to assess efficiency in the GCC insurance sector. These findings underscore that the region's insurance sector has great potential for improvement, and continuous evaluation of its performance is an important step in driving progress.

Cluster 4: Performance and HR Management in the Takaful Industry

Findings: This cluster addresses the performance of takaful companies in the context of human resource management (HRM). Research in this cluster reviews HR management practices, employee training and shareholder engagement in improving company performance. It also identifies factors that influence takaful company performance and operational success. These findings are in line with the results of research conducted by Jehan et al. (2020), the study showed a significant effect of green human resource management (GHRM) practices, namely. (training and development, performance appraisal, and reward and compensation) on Organizational Sustainability. GHRM is an innovative idea in developing countries, and additional studies are needed to identify sustainability issues and evaluate the impact of GHRM practices in the textile and manufacturing industry in Pakistan.

Furthermore, research by Mihardjo et al. (2021), shows that human capital, training and rewards have a significant effect on employee commitment which in turn affects service recovery performance (SRP) to be improved. Mao et al. (2022), Service recovery performance (SRP) is critical for the takaful insurance industry to retain and attract new clients, which in turn serves as a competitive advantage for business continuity and a sustainable future. If the insurance sector cannot maintain SRP, then the organization's competitive advantage may deteriorate.

Cluster 5: Health Awareness and Health Takaful Performance

Findings: This cluster examines the relationship between health awareness and health takaful product performance. Research in this cluster reveals how health awareness affects the demand for health takaful products, and the implications for product innovation and takaful industry performance in this regard. Health awareness, as a factor revealed by this research, plays an important role in shaping consumer preferences and decisions regarding takaful health products. As stated by Zarunnaim et al. (2018), the positive and significant relationship between health awareness and consumer knowledge can provide an important impetus in shaping customers' intention to purchase medical takaful. In this context, this study shows that the higher the level of health awareness, the more likely consumers will tend to choose takaful health products.

One interesting aspect that emerges from these findings is the implication of health consciousness on product innovation and overall takaful industry performance. The presence of health consciousness in consumer decision-making may encourage takaful companies to develop products that focus more on health and well-being aspects. This creates significant innovation opportunities in the design and offering of takaful health products that are more relevant to the needs and preferences of increasingly health-conscious consumers.

Salleh et al. (2019), identified factors that influence the Medical Effect of Health Insurance and Takaful Demand in Malaysia. Demographic factors, such as age and gender, were revealed as key drivers in decision-making regarding health insurance and takaful. This analysis reflects the important role that social and demographic factors play in shaping perceptions and preferences towards health and financial protection products. In this regard, the government has a crucial role to play in supporting increased public awareness of the importance of health insurance and takaful. Policy measures that support education and health awareness campaigns can help create an environment where consumers have better knowledge and a deeper understanding of the benefits of takaful health products.

Cluster 6: Social Responsibility and Takaful Performance in Southeast Asia

Findings: This cluster explores corporate social responsibility (CSR) practices and takaful company performance in the Southeast Asian region. Research in this cluster explores how CSR practices influence consumer perceptions and takaful company performance. CSR practices not only have an impact on improving the brand image and reputation management of the company (Ahmad et al., 2016). But it also contributes positively to the success and efficiency of takaful performance (Sallemi & Zouri, 2022). Research Sallemi & Zouri (2022), also highlighted that CSR activities have an important mediating role in the relationship between cross-membership and takaful performance in the Southeast Asian region and GCC countries.

The findings also highlight the role of takaful in supporting economic growth and social welfare in the region. The research also highlights the role of takaful in supporting economic growth and social welfare in Southeast Asia. Takaful, as an Islamic insurance system based on the principle of mutual assistance, not only provides financial protection to people, but also contributes to social development that benefits the community (Darus et al., 2016). Research has also noted differences in the impact of CSR practices depending on their dimensions. CSR practices that are more focused on the economic and philanthropic dimensions have a more positive influence on brand image and corporate reputation management compared to CSR that is more focused on the legal and ethical dimensions (Ahmad et al., 2016).

Cluster 7: Competition and Competitiveness in the Insurance Industry

Findings: This cluster analyzes competition and competitiveness in the insurance industry, especially the comparison between takaful and conventional insurance. Research in this cluster reviews the impact of competition on business strategy, product innovation and consumer preferences. Research in this cluster illustrates the impact of increasing competition in the insurance sector, especially with the emergence of takaful as a new player. The positive relationship between competition and cost efficiency provides impetus for policymakers and regulators to support a competitive insurance industry. However, a balance is needed between a healthy level of competition and strict limits to market entry (Alshammari, Syed Jaafar Alhabshi, et al., 2019).

In the context of the insurance market in Indonesia, a strategy that focuses on technical excellence and allocates resources comprehensively helps Top 20 insurance companies to gain market share and achieve better financial performance (Setiadi, 2019). This shows the importance of a well-thought-out strategy in the face of intense competition.

Intense price competition in life insurance is a major highlight (Octavia and Abdillah, 2022). While the challenges of digitization, innovation, and regulation will continue to arise, life insurance companies must remain prepared for these changes. An increased focus on innovation and adaptation to regulatory changes will be key to future success (Octavia and Abdillah, 2022).

CONCLUSIONS

The conclusion of this study is that research on takaful efficiency has gained significant attention in recent years. From the analysis conducted on various types of documents, especially scientific articles, it can be concluded that this research has resulted in a deeper understanding of the factors affecting efficiency in the Islamic insurance industry.

The results show that scientific articles are the most widely used form of publication in research on takaful efficiency, with a significant number of publications in certain years such as 2019, 2020, and 2022. This indicates a high interest in studying and improving operational efficiency in the context of Islamic insurance.

The importance of corporate governance in achieving efficiency is evident in the results of the analysis. Factors such as board composition and regulatory policies have a significant influence on the performance and efficiency of Islamic insurance companies. The government and policy makers have an important role in creating an enabling environment for the development of an efficient Islamic insurance industry.

In relation to the takaful industry, the results show that takaful performance and efficiency can be improved by optimizing human resource management, paying attention to corporate social responsibility (CSR), and adapting to competition in the insurance industry as a whole.

Overall, the results of this study provide valuable insights into the developments and challenges in achieving efficiency in the Islamic insurance industry. The implications of this study suggest the need for attention to

factors such as corporate governance, product innovation, corporate social responsibility, and fair competition to promote growth and efficiency in the industry.

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