






“Efficiency studies of the sharia insurance industry: A systematic literature review”

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ARTICLE INFO	Azhar Alam, Ririn Tri Ratnasari, Fikri ‘Ainul Qolbi and Fauzul Hanif Noor Athief (2022). Efficiency studies of the sharia insurance industry: A systematic literature review. <i>Insurance Markets and Companies</i> , 13(1), 90-101. doi: 10.21511/ins.13(1).2022.08
DOI	http://dx.doi.org/10.21511/ins.13(1).2022.08
RELEASED ON	Tuesday, 27 December 2022
RECEIVED ON	Wednesday, 17 August 2022
ACCEPTED ON	Wednesday, 14 December 2022
LICENSE	 This work is licensed under a Creative Commons Attribution 4.0 International License
JOURNAL	"Insurance Markets and Companies"
ISSN PRINT	2616-3551
ISSN ONLINE	2522-9591
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

61



NUMBER OF FIGURES

2



NUMBER OF TABLES

7

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BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine
www.businessperspectives.org

Received on: 17th of August, 2022

Accepted on: 14th of December, 2022

Published on: 27th of December, 2022

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Conflict of interest statement:

Author(s) reported no conflict of interest

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EFFICIENCY STUDIES OF THE SHARIA INSURANCE INDUSTRY: A SYSTEMATIC LITERATURE REVIEW

Abstract

The sharia insurance industry has experienced significant development from year to year. A sharia insurance company's efficiency is crucial because it reflects its capacity to generate outputs from resources. This study aims to enhance comprehension of the efficiency of sharia insurance currently studied by doing a comprehensive literature study. This study selected 429 published articles about Islamic insurance indexed by Scopus between 2010 and 2022. 32 final articles that met the criteria that discussed efficiency as the primary study included in the qualitative synthesis analysis were selected. As a result, this study succeeded in revealing the development of sharia insurance efficiency studies based on the number of publications, authors, countries, subject areas, sources of publications, and cited articles. The study found four main methods researchers used to measure the efficiency of Sharia insurance. This study also revealed several studies comparing the efficiency level between conventional and sharia insurance. Furthermore, the study's results were mapped based on the significance of the influence of variables on the efficiency of Sharia insurance. This study offers a new opportunity for further development in methods and variables of the efficiency of sharia insurance.

Keywords

takaful, efficiency, Scopus database, sharia insurance sector, insurance company

JEL Classification

D61, G20, G22, G14

INTRODUCTION

Sharia financial institutions are one of the economic driving forces in a country with a predominantly Muslim population (Mensari & Dzikra, 2017). Insurance is a financial institution that makes customers feel financially secure when something unexpected happens (Wahyono et al., 2021). For example, money is back when the insured item is damaged (Nugroho et al., 2021). From the sharia perspective, insurance is an effort to help each other between companies and group participants to help individuals who need assistance (Hasan, 2014). Unlike conventional insurance, which uses the concept of risk transfer, the insurer binds himself to the insured with a premium to be used by the insurer himself later.

In Arabic, sharia insurance, called *Takaful*, uses the concept of mutual help using a *tabarru* contract (Mahmuda & Azizah, 2019). Unfortunately, sharia insurance is still less attractive to the public. Hasibuan (2017) revealed that the growth of premiums, assets, claims, and conventional insurance investments in 2011–2015 had a higher increase than in the same period of sharia insurance. In addition, the market penetration of sharia insurance is also low (Maf'ula & Mi'raj, 2022). The consideration of potential insurance customers is the excel-

lent performance of the institution due to high efficiency. Insurance companies should be innovative in managing their inputs and outputs so that current performance is manageable (Nurbaya & Alam, 2019). Optimizing the input and output is efficient (Iskandar et al., 2020). Efficiency becomes a reference for sharia financial institutions to determine whether a company's performance has been optimal.

There is a lot of research and studies about sharia insurance. So it is necessary to map out all of the literature related explicitly to efficiency studies in the sharia insurance industry to see the extent of the development of the study and to look for further opportunities.

1. LITERATURE REVIEW

A literature review is a critical study that can contribute to subsequent research design. Several previous researchers have conducted literature reviews on Sharia insurance studies. Sadeghi (2010) conducted a literature survey on sharia insurance to determine the emergence and evolution of sharia insurance. The study of Sadeghi (2010) highlighted the urgency of *Takaful* as a conventional alternative by discussing and comparing them. Olorogun and Noor (2014) also applied the literature survey method and described how the sharia insurance literature could influence standards and shape professional outcomes in the area of sharia insurance. Unfortunately, as a result, many studies disagree with each other and cause the curriculum in the sharia insurance profession to not exist at the national or international level (Olorogun & Noor, 2014).

Al-Amri and Hossain (2015) used a literature survey covering aspects of the concept and practice of sharia insurance. The study has limitations from the beginning of the emergence of sharia insurance until 2014 and states that today's sharia insurance practice is an alternative to conventional insurance. In contrast to the previous literature, the sharia insurance study of Khan et al. (2020) used bibliometric methods and content analysis. The literature of 69 articles at the beginning of 2020 was analyzed using the HistCite and VOSviewer software. As a result, the role of conventional insurance in building the economy is quite reasonable for sharia insurance to get the same effect.

In the following year, Kusmayadi et al. (2021) did the same research with the same method. The difference lies in the limitation of articles from 2014–2021 with the “dimensions.ai” database. The data obtained amounted to 500 articles, with 79.8% published in journals. As a result, the development of sharia insurance research from year to year has grown. From

the conventional side, bibliometric research discussed the purity and progress of the sustainable life insurance business (Nobanee et al., 2021).

Ansari (2022) studied a systematic literature review (SLR) of sharia insurance for 20 years (2000–2019). This study used the keywords “*takaful*” or “sharia insurance” in 304 relevant articles, book chapters, conference journals, and review journals. From 304, they selected 96 articles most relevant to discuss sharia insurance for analysis. As a result, many sharia insurance studies covered marketing, finance, human resources, and especially legal governance. Also, *takaful* companies' financial performance indicators differ from established companies.

Several bibliometric studies on Sharia insurance (Alshater et al., 2021; Khan et al., 2020; Kusmayadi et al., 2021) showed considerable attention from researchers around efficiency studies as part of the performance of the Sharia insurance industry. A systematic literature review in the field of Sharia insurance was only conducted by Ansari (2022) but has yet to discuss in detail and in-depth about efficiency studies.

Studies on efficiency measurement in the *takaful* industry have been carried out by many researchers using a variety of methods such as Data Envelopment Analysis (Almulhim, 2019; Kader et al., 2014; Lee et al., 2019a; Lai et al., 2019; Yakob & Isa, 2016; Yakob et al., 2014a, 2014b, 2015), Malmquist Productivity Index (MPI) (Taib et al., 2018a; Lee et al., 2019b; Sukmaningrum et al., 2022), Stochastic Frontier Analysis (SFA) (Alshammari et al., 2019a, 2019b; Baharin & Isa, 2013, 2018b; Shaddady, 2021), regression (Al Arif & Firmansyah, 2021; Nizar & Falikhhatun, 2021), and other efficiency analysis methods such as Treynors and Sharpe's Ratio, article-based theory library, and an asymmetric ARCH (Halim et al., 2020; Hasnaoui, 2018; Hassan & Amuda, 2019).

Sim and Hassan (2020) expressed the importance of regulatory implementation in order to improve the market efficiency and stability of the Takaful Industry. Efficiency is also a way of comparing the performance of Islamic Insurance with other financial institutions (Abdul Razak et al., 2021; Al-Amri, 2015; Al-Amri et al., 2021; Benyoussef & Hemrit, 2019; Lee et al., 2018, 2019b; Lim et al., 2021; Naushad et al., 2020; Sukmaningrum et al., 2022; Taib et al., 2018). In addition, Rodríguez-Moreno (2021) showed the role of technology in improving the efficiency of Islamic Insurance in the aspect of ease of access in production and distribution. Meanwhile, Che Mohd Salleh et al. (2022) highlighted the impact of the implementation of goods and services tax on welfare by reducing the efficiency of Islamic Insurance institutions.

The previous study can be said to be similar to this study. The results of classifying themes from previous studies need to be arranged in synthesis. The analysis compiled by the synthesis can make it easier for the reader to find specific keywords. The sys-

tematic literature review study examines the entire sharia insurance efficiency literature indexed in the Scopus database.

For this reason, the study aims to describe the development of sharia insurance efficiency studies (based on the number of publications, authors, countries, subject areas, publication sources, and article citations) and to map the findings according to the existing variables of Takaful efficiency studies.

2. METHOD

This study is a type of qualitative with an SLR. This method can also show how extensive the study has been and provide an overview of different undisciplined studies (Rohman et al., 2021). In addition, this method differs from the usual literature method in that it needs to be objectively oriented, comprehensive, and sometimes similar to empirical studies (Weed, 2005).

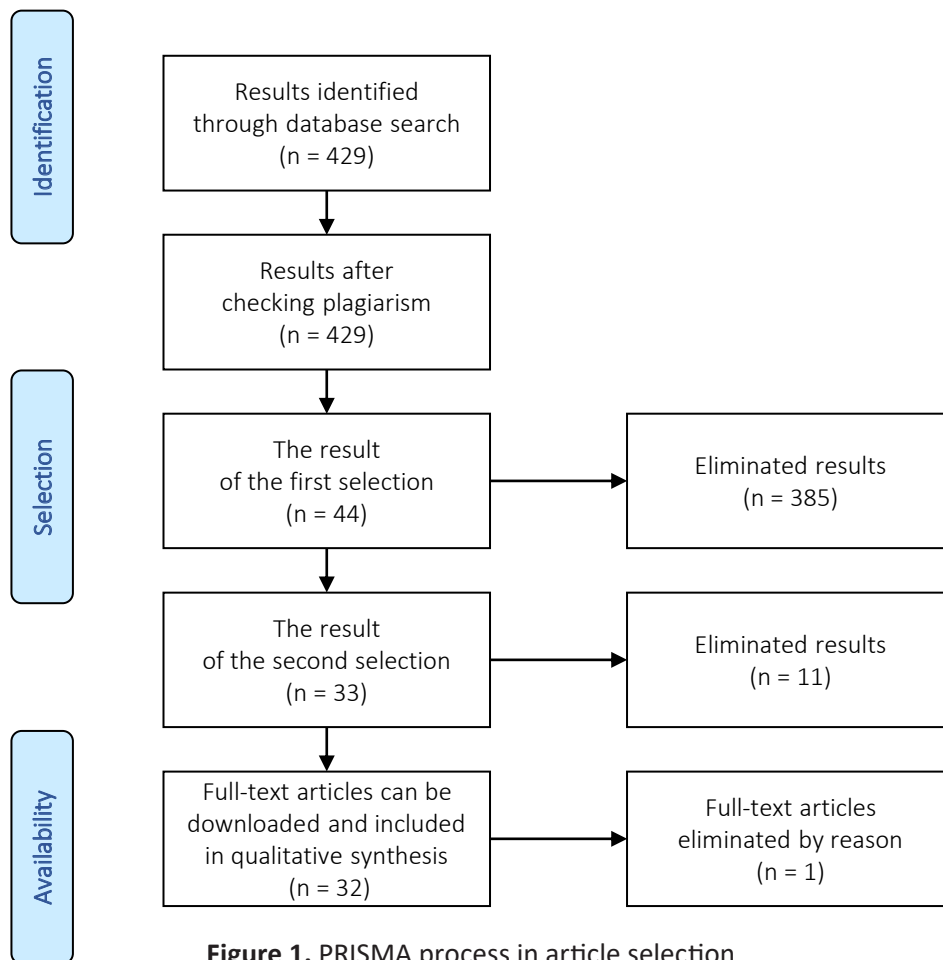


Figure 1. PRISMA process in article selection

This study used PRISMA statements to help flow the process of selecting, accepting, or rejecting articles. PRISMA is an evidence-based minimum item for reporting in systematic reviews and meta-analyses (Moher et al., 2009). The statement is a guide for setting the planned review's reasons, hypotheses, and methods. That way, this study can ensure that reporting is transparent and complete. The database used in this study is Scopus, one of the largest indexing sites for reputable publications (Ahmi et al., 2019; Boonroungrut et al., 2022; Jeflea et al., 2022).

Using the Scopus database, the authors searched the literature with the keywords "Islamic insurance" OR "*takaful*" OR "sharia insurance" from the search box. 429 articles related to these keywords were found on March 16, 2022. Then, a search for keywords that used the most "efficiency" was conducted according to the topic to be analyzed. The remaining 44 articles have been selected with indications discussing efficiency in sharia insurance. Then, from 44 articles, the second stage of selection was carried out until 33 articles were found that were most suitable for analysis. The study chose these articles because they became efficient as a significant part of the study. In addition, all articles were checked manually for articles indicated as plagiarism results. This study has tried its best to contact the authors but has not received a response from one article. Finally, 32 articles can be downloaded for analysis at a later stage.

3. RESULTS

This study presents the results in two forms, namely the results of descriptive analysis and classification of publication themes about the efficiency of sharia insurance.

Figure 2 shows a graph of the development of publications on efficiency studies in sharia insurance or *Takaful* from year to year. Most publications occurred in 2018, with eight published articles. It was followed by a decrease in publications in 2019 with seven articles. In 2021, there was a third increase, with five articles published after a decline in 2020. In 2014, 2015, and 2020, publications averaged three articles per year. In addition, the number of publications could be more substantial at one article per year.

Table 1 describes the authors who most actively contributed to published articles according to the data of this study. First, Hui Shan Lee became a prolific writer who contributed four articles with a percentage of 18.2%, followed by Rubayah Yakob and Fan Fah Cheng with three articles and 13.6%. Table 1 also shows that the authors are predominantly from Malaysia.

Next, Table 2 shows the research subject areas in discussing and analyzing what they researched. Economics, Econometrics, and Finance became the highest subjects studied because they had a percentage of up to 38.89%. They were shortly followed by Business, Management, and Accounting with 37.04%. The topics of Arts and Humanities, Physics and Astronomy are far below with a percentage of 3.70%. In addition, other topics only have a percentage of 1.85%.

Table 3 shows the countries that are often the basis for publication. As the author said earlier, Malaysia is a country that publishes more than five publication articles, namely 19 articles, with a percentage of 45.24%. This finding is also in line with the article's author, who is predominantly

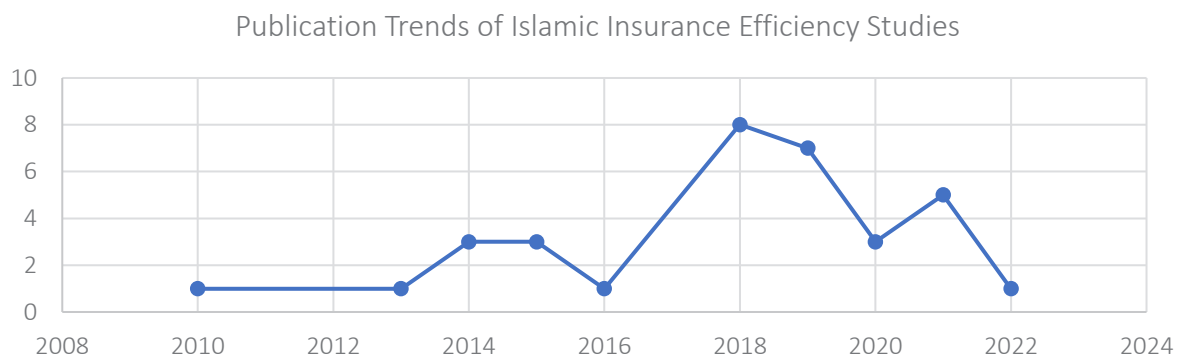


Figure 2. Publication trends by year

Table 1. Top three most productive authors

Full name	Affiliation	Country	TP	Percentage, %
Hui Shan Lee	Tunku Abdul Rahman University	Malaysia	4	18.2%
Jacob's Fox	National University of Malaysia	Malaysia	3	13.6%
Fan Fah Cheng	Universiti Putra Malaysia	Malaysia	3	13.6%

from Malaysia. Saudi Arabia followed quite far in 7 published articles with 16.67%. Then, Indonesia came in third by publishing three publications simultaneously as the United Kingdom.

Table 2. Publications by subject area

Subject area	TP	Percentage, %
Economics, Econometrics, and Finance	21	38.89%
Business, Management, and Accounting	20	37.04%
Arts and Humanities	2	3.70%
Physics and Astronomy	2	3.70%
Other Subject Areas	1	1.85%

Table 3. Publications by the country issuing five or more documents

Country	TP	Percentage, %
Malaysia	19	45.24%
Saudi Arabia	7	16.67%
Indonesia	3	7.14%
United Kingdom	3	7.14%
Oman	2	4.76%
Turkey	2	4.76%
United States	2	4.76%
Other Countries	1	2.38%

Publishing requires a responsible journal to be the “Home” of an article. Table 4 shows the journals that are often used to publish articles. The Academy of Accounting and Financial Studies Journal has the highest percentage among other journals, with 12.12%. That is, the authors publishing their research often use the journal. Followed by the journal Geneva Papers On Risk and Insurance Issues and Practice with 9.09%, and the AIP Conference Proceedings with 6.06%.

Table 4. Publications by source title

Source title	TP	Percentage, %
Academy of Accounting and Financial Studies Journal	4	12.12%
Geneva Papers on Risk and Insurance Issues and Practice	3	9.09%

Source title	TP	Percentage, %
AIP Conference Proceedings	2	6.06%
Journal of International Financial Markets Institutions and Money	2	6.06%
Management Journal	2	6.06%
Other Publication Source Titles	1	3.03%

Table 5 shows that the published articles the authors have prepared have many citations. The highest percentage of citations, with 21.31%, was achieved by an article entitled “The Cost Efficiency of *Takaful* Insurance Companies,” with 52 citations. Meanwhile, the article entitled “Governance mechanisms and efficiency: Evidence from an alternative insurance (*takaful*) market” followed quite a distance with a percentage of 9.84% or 24 times cited. The article entitled “Cost efficiency and board composition under different *takaful* insurance business models” is slightly below it with 23 citations with a percentage of 9.43%. Several articles also followed with the distance between the number of citations not too far away.

Table 5. Top five most cited publications

Title	Citation	Percentage, %
The cost efficiency of <i>takaful</i> insurance companies	52	21.31%
Governance mechanisms and efficiency: Evidence from an alternative insurance (<i>takaful</i>) market	24	9.84%
Cost efficiency and board composition under different <i>takaful</i> insurance business models	23	9.43%
Productivity change in the efficiency of the insurance and <i>takaful</i> industry of Pakistan	22	9.02%
<i>Takaful</i> insurance efficiency in the GCC countries	21	8.61%

The study on efficiency in sharia insurance has interesting angles to analyze. The study identified four methods for measuring the efficiency of Sharia insurance that are often used by studies, as shown in Table 6. The four methods are Data Envelopment Analysis, Stochastic Frontier Analysis, Malmquist Productivity Index, And Regression Analysis. However, the use of other

Table 6. Efficiency analysis model

Efficiency analysis method	Source of literature	Number of studies
Data Envelopment Analysis (DEA)	Almulhim (2019), Naushad et al. (2020), Lai et al. (2019), Yakob et al. (2014a), Bakhouché et al. (2020), etc.	20
Stochastic Frontier Analysis (SFA)	Alshammari et al. (2019a, 2019b), Baharin and Isa, (2013, 2018), Shaddady (2021)	5
The Malmquist Productivity Index (MPI)	Taib et al. (2018a), Lee et al. (2019b), Sukmaningrum et al. (2022)	4
Regression Analysis	Al Arif & Firmansyah (2021), Nizar and Falikhatun (2021)	2
Treynors And Sharpe's Ratio	Halim et al. (2020)	1
ARCH model	Hasnaoui (2018)	1

methods, such as Treynors and Sharpe's Ratio and Autoregressive Conditional Heteroskedasticity (ARCH), is a method that still needs to be used in Islamic Insurance efficiency measurement studies.

Data Envelopment Analysis (DEA) is the most common and suitable method for determining the efficiency level in the sharia insurance industry. Lai et al. (2019) proved the results of their analysis with six financial companies with an efficiency level of 100% using DEA. It can be stated that this method can accurately and efficiently measure a company's efficiency. Of the 32 articles, 20 articles use this method. For example, Kader et al. (2014) studied cost efficiency and the elemental composition of the sharia insurance business model. DEA can also be processed in stages, such as the analysis carried out in two stages with a regression panel as the dependent variable and insurance company-specific factors (Lee et al., 2019b) or as the dependent variable.

Meanwhile, exogenous factors are considered independent variables (Yakob et al., 2014a). Almulhim (2019) differs in his study by comparing the two stages of production in the sharia and conventional insurance markets in Saudi Arabia. Then, the Slack Based Measure (SBM) is applied with DEA to measure investment management efficiency (Yakob et al., 2014b; Yakob et al., 2015). Finally, one article tests this analytical model to ensure the stability of the relative efficiency obtained by DEA (Yakob & Isa, 2016). This finding is interesting because the study is only a conceptual framework that allows the authors to understand the world of the DEA model better to apply.

This study found five articles that used this method as an analysis model. Stochastic Frontier Analysis (SFA) is an alternative method in measuring the

value of company efficiency, in addition to using DEA. However, it is easy for DEA to overlook differences in Decision Making Unit (DMU) variants, such as differences in regulations and environmental or political backgrounds. As stated by Baharin and Isa (2018), SFA overcame the limitations of DEA in efficiency studies involving DMUs across regions/countries. This method provides suitable statistical tests to investigate the validity of the specification model in the form of functional or internal and external factors (Alshammari et al., 2019a). Baharin and Isa (2013) and Alshammari et al. (2019b) concluded that their studies' results showed that sharia insurance's efficiency is lower than conventional. This study shows that SFA can also measure sharia insurance's efficiency level. However, DEA-SFA can also collaborate on a multi-stage method. SFA reduces decomposition in stage one with the DEA method caused by environmental impacts, errors in original data, and statistical disturbances (Shaddady, 2021).

The Malmquist Productivity Index (MPI) method is used to measure the index of changes in total factor productivity over time. Taib et al. (2018a) link this method with DEA because MPI makes it possible to separate technical efficiency changes from technological changes, and both use linear programming to measure distance functions. DEA and this method can also be applied with other methods such as Panzar Rose (PR). For example, Lee et al. (2019b) used MPI as a Family Takaful Operator (FTO) analysis tool before using PR. Unlike the previous two articles, MPI is the sole method of measuring the productivity level of sharia insurance families in Malaysia and Indonesia (Sukmaningrum et al., 2022).

Quantitative calculations using regression analysis are the third highlight in measuring the effi-

ciency of sharia insurance. Although only two articles were found, this method can measure the relationship between market structure and profitability of Islamic life insurance companies in Indonesia using the Return of Assets (ROA) measure (Al Arif & Firmansyah, 2021). In addition, Return on Equity (ROE) is the measure of choice by Nizar and Falikhatun (2021) to examine the influence of Islamic intellectual capital on sharia insurance's financial performance in Southeast Asia and the Middle East during 2016–2019. The difference lies in the analysis that is made double linear using the Fixed Effect Model (FEM) or Random Effect Model (REM) to determine the most suitable data analysis.

Research on sharia insurance efficiency studies on the previous methods. Other literature addresses this issue with different styles. For example, Halim et al. (2020) used The Treynors and Sharpe's Ratio method to measure efficiency, referring to the profit ratio based on volatility, measuring standard deviation, and the level of investment profit. There is also a study that uses an article-based theory library and content analysis to examine the sustainable efficiency of diversifying the drivers of sharia insurance for the benefit of the poor in Saudi Arabia (Hassan, 2019). This study is similar to a literature review because research gaps are found that encourage other researchers to be developed based on articles. In addition, there is conceptual-based research in addition to the above DEA conceptual research. An asymmetric ARCH model with a Skewed distribution is used to measure the Value at Risk (VaR) insurance market insurance in the Kingdom of Saudi Arabia (KSA). As a result, this method can estimate the ability of conventional and sharia insurance companies (Hasnaoui, 2018).

Some research results state that Sharia insurance has an efficient performance by analyzing various sectors. Lee et al. (2018) and Lee et al. (2019b) revealed that with a company's increased efficiency, the potential for more viable competitors in the sharia insurance industry would increase. That statement has something to do with Al-Amri et al. (2021), who state that Sharia insurance with more investment in stocks and real estate has a higher ROA and ROE than Sharia insurance with a low proportion. This potential also has a strong

relationship with the company's operational area, such as the efficiency of the sharia insurance industry in the Gulf Cooperation Council (GCC) country, making the industry development space quite large (Al-Amri, 2015). In contrast to the above research, Ashraf et al. (2018) found inefficiencies in Pakistan's insurance industry. This inefficiency comes from the natural efficiency scale, not technical or pure efficiency. Sukmaningrum et al. (2022) also found inefficiency in family insurance productivity in Indonesia and Malaysia due to the low rate of technological change. Several studies compare the efficiency level of one sharia insurance company with other insurance companies. This method makes research more exciting and valuable for those who need a performance appraisal of the company being assessed. The statement is evidence that Sharia insurance is more efficient than conventional insurance. Both have the same productivity, but conventional insurance has decreased productivity after Risk-Based Capital (RBC) is implemented (Lim et al., 2021). Benyoussef and Hermit (2019) even compared sharia insurance with cooperative insurance companies, and sharia insurance is still relatively more efficient than cooperative insurance. However, in the KSA area, both companies still have the same efficiency in the management sector (Naushad et al., 2020).

Efficiency has a variable that becomes an indicator of a company to be analyzed and concluded, as shown in Table 7. Some of them have significant changes from the results of the analysis. For example, the scale of the board of directors, product specialization, and the company's scale become variables by producing significant changes and positively impacting cost efficiency. This data indicates that large companies are better optimized than smaller companies to realize their operational developments seen from the track record of the board of directors and financial experience (Kader et al., 2010). Karbhari et al. (2018) also used variables similar to the board of directors' scale, organizational age, jurisdictional regulations, CEO duality, and company and also have a positive relationship with technical efficiency. Bakhouché et al. (2020) used scale, profitability, solvency, and investment concentration to measure cost efficiency in GCC countries and Jordan. One result of the analysis of a company's efficiency has a

Table 7. Influence of variables on efficiency

Significant variables	Source of literature	Insignificant variables	Source of literature
The Scale Of The Board Of Directors	Kader et al. (2010)	The Users' Size and The Organization's Form	Yakob et al. (2014a)
Product Specialization	Karbhari et al. (2018)	Human Capital Efficiency (HCE)	Nizar and Falikhatun (2021)
The Company's Scale	Bakhouche et al. (2020)	Insurance Company as Decision Making Unit (DMU)	Akhtar (2018)
–	–	The Local Jurisdiction	Kader et al. (2010)

negative impact. However, it is significant when Capital Employed Efficiency (CEE) is analyzed using the multi-linear regression method (Nizar & Falikhatun, 2021).

In addition to having an effect, some indicators and variables do not significantly affect the results of the efficiency study. Variables in a study that affect efficiency significantly may not necessarily be influenced in other studies. For example, the research above shows several scale variables that have a positive and significant effect. Compared to the efficiency of risk management, the users' size and the organization's form are insignificant indicators of the efficiency of investment management (Yakob et al., 2014a). Human Capital Efficiency (HCE) (Nizar & Falikhatun, 2021), Insurance Company as Decision Making Unit (DMU) (Akhtar, 2018), and the local jurisdiction are variables that do not influence the efficiency of Sharia insurance companies (Kader et al., 2010).

4. DISCUSSION

According to this research's findings, the data envelopment analysis (DEA) method predominated the research analysis. It was selected because it is easier to utilize when coping with various input and output models and does not necessitate operating assumptions like the SFA technique (Benyouef & Hemrit, 2019). Besides that, Abdul et al. (2014) and Kader et al. (2010) have a reason that the study sample is relatively small and has an abnormal primary data distribution

The efficiency of sharia insurance research shows that the sharia insurance industry has a relatively higher efficiency level than other insurance. With efficient performance, competition in the industry is more feasible and competitive and has better opportunities if the operational area supports it.

Variables that become efficiency indicators are significantly dominated by the board of directors and the scale of the company, as well as several other sectors. However, there are also studies with insignificant variables on efficiency indicators such as user size, organizational form, HCE, DMU, or a company's regulatory environment.

Research on efficiency in the Sharia insurance industry has the opportunity to create gaps that can be explored more broadly and better. Combination models of research methods, such as "Fuzzy set qualitative comparative analysis" accompanying DEA analysis (Li et al., 2021), could be implemented as a method. The DEA bootstrapping model (Shieh et al., 2022), making the method quite dominating, is not monotonous and gets a new measuring style. Due to the frequent use of the DEA method, researchers can use other alternative methods, such as Stochastic Frontier Analysis (SFA) or Malmquist Productivity Index (MPI). It is interesting because, with minority status for those new method approaches, researchers can have more impact on the development of sharia insurance efficiency research.

Decision-Making Units (DMU), especially insurance companies, need to be re-examined against efficiency indicators of sharia insurance because they are a set of variables that can determine whether the economy is running well and efficiently or not. Human Capital variables also can significantly affect efficiency because they are the engine of the running of Sharia insurance companies. If the performance of the management is good, then the company's performance should also run efficiently. In addition, regulations that do not have a significant effect may not necessarily apply to other companies that have not been studied. Therefore, the study of regulations of Takaful companies is essential to be conducted.

CONCLUSION

This study tries to answer two research questions. How is the development of research on the efficiency of the Sharia insurance industry in terms of the trend of increasing publications, the most productive authors, subject areas, publication sources, countries, and citations? What are sharia insurance efficiency studies synthesized based on methods and findings? Research that measures efficiency in the Sharia insurance industry in the previous year with the current year has differences. 2018 became the most active year for the emergence of Sharia insurance efficiency research and was dominated by Malaysia as the publication country. Hui Shan Lee is a researcher who often raises this issue, with the percentage reaching 18.2%. Then the subject area often used in this theme is “Economics, Econometrics, and Finance,” and “The Academy of Accounting and Financial Studies Journal” is the most dominant journal for article publication. Then, the article “The cost efficiency of takaful insurance companies” has the best citations from other articles. This study found that the data of the four main methods in Sharia insurance efficiency studies include Data Envelopment Analysis, Stochastic Frontier Analysis, Malmquist Productivity Index, and Regression Analysis. In line with the conclusion above, this study also succeeded in synthesizing the results of Sharia efficiency research in comparison of efficiency and significant and insignificant variables that affect the efficiency of the Sharia insurance industry.

AUTHOR CONTRIBUTIONS

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Formal analysis: Azhar Alam.

Funding acquisition: Azhar Alam, Fauzul Hanif Noor Athief.

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Writing – review & editing: Azhar Alam, Ririn Tri Ratnasari, Fikri' Ainul Qolbi.

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