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DOES ISLAMIC MORE EFFICIENT THAN CONVENTIONAL LIFE INSURANCE PERFORMANCE DURING 2014-2021?

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Abstract

The research aims to analyze and comparisons of the efficiency of islamic and conventional life insurance in Indonesia. The research method uses a quantitative Data Envelopment Analysis (DEA) non-parametric approach to an assumption of Constant Return to Scale (CRS) and Variable Return to Scale (VRS) with input-output orientation. The sample used is three islamic life insurance and three conventional life insurance, which the sample criteria specified during 2014-2021. The input variables used are commissive costs, operating costs, and total equity, while the output variables are premium and investment income. The research results show that the economic efficiency value of Conventional Life Insurance is 64.82 percent, the technical efficiency is 72.22 percent, and the efficiency scale is 81.4 percent. While in Islamic Life Insurance, the economic efficiency value is 17.26 percent, the technical efficiency was 53.71 percent, and the efficiency scale was 47.41 percent. The different factors of efficiency level between conventional life insurance companies and islamic life insurance companies are the consumer's ease of use of the insurance products supported by optimal input to output management. The results of this research must be the main topic by islamic life insurance companies in planning the economic efficiency values and the company's technical operations in the future.
Keywords: Efficiency, Conventional Life Insurance, Islamic Life Insurance, Data Envelopment Analysis..

INTRODUCTION

The world economy is still dominated by European countries and the United States with their conventional economic systems and forces other developed countries, including developing countries, to implement the same interest-based economic system, including the insurance industry, which often creates its problems in the form of anxiety, uncertainty, and injustice to the public customers (Puspitasari, 2011). Since the 1998 crisis, various financial institutions have begun to pay attention and be interested in the islamic economy implemented by Bank Muamalat. So that in the 20th century, Islamic financial institutions began to develop, both banks and non-banks, it is proven that there has been islamic insurance, islamic pawnshops, islamic capital markets. Furthermore, since then, the topic of Islamic economics has become a hot discussion and shows that the Indonesian people are interested in Islamic economics (Effendi, 2018). It turned out that this positive response did not only come from the people of Indonesia. The United States has also become interested in islamic-based business methods, especially islamic insurance, as indicated by the purchase of AmLife and AmTakaful islamic insurance shares from Malaysia by an American insurance company, Metlife.

The signing of the cooperation in America was witnessed by the President of the United States, namely Barrack Obama, and the Prime Minister of Malaysia, Nazib Razak, on 28 April. Metlife deposited nearly US$ 250 million to buy AmLife and AmTalkaful shares. This event is history for the United States because it was the first time to enter the Malaysian Islamic insurance business. From 2003 to 2013, the US has invested more than US$ 13 billion in Malaysia, and in the last decade, US exports to the country reached US$ 246.5 billion, while imports amounted to US$ 173.3

billion. The higher the level of world public trust in islamic insurance, the growth of the islamic insurance industry is targeted to reach 35% per year. As in the 2014 Global Takaful Insight report, the global Islamic insurance sector is expected to grow 14% in the year. Furthermore, for the growth of islamic insurance in the Southeast Asia region, Indonesia is one of the countries that dominate the islamic insurance market with a market share of 23%, the second-highest after Malaysia, which has a market share of 71% (Purani, 2017).

Insurance financial management has specificity or characteristics that are different from the others. This is because insurance companies must be able to maintain their financial condition to provide high trust to the public. This trust is important because insurance companies are risk managers from other parties (Batool & Sahi, 2019). According to Law No. 40 of 2014 concerning Insurance, an insurance company is an agreement between two parties, whereby the insurer binds himself to the insured, by receiving insurance premiums, to provide compensation to the insured due to loss, damage, or loss of expected profits or liability. To third parties that may be suffered by the insured, rise from an uncertain situation, or provide a payment based on the death or life of an insured person (Effendi, 2018).

In January 2020, 151 insurance industries in Indonesia were divided into 138 conventional insurance industries and 13 Islamic insurance industries. Based on statistical data from the Non-Bank Financial Industry (IKNB) released by OJK, in 2012 - 2019 the total assets of conventional insurance continued to increase from 239.790 trillion in 2012 to a value of 586.166 trillion in 2019, as well as the total assets of islamic insurance which continues to increase from year to year. However, the amount is still far when compared to conventional insurance. In 2012 the total assets of islamic insurance were worth 13.240 trillion and continued to increase to reach Rp. 44.212 trillion in 2019. The growth of life insurance assets dominated the growth of these assets. When viewed in 2019, conventional life insurance assets were 92.99 percent of total insurance assets, and islamic life insurance assets were 7.01 percent of total insurance assets (Rosidah, 2014). The growth of total assets shown by conventional and islamic insurance from year to year from 2012 to 2019 can be seen from the following table:

Table 1. The Asset of Conventional and Islamic Life Insurance Companies

(in IDR trillion)								
Description	2014	2015	2016	2017	2018	2019	2020	2021
Total Asset of Conventional Life Insurance Companies	239,790	253,210	318,210	318,490	327,680	512,940	580,820	586,166
Growth		5,30%	20,4%	0,09%	2,80%	36,1%	11,6%	0,91%
Total Asset of Islamic Life Insurance Companies	13,240	16,650	22,380	26,690	33,120	33,490	39,759	44,212
Growth		20,48%	25,60%	16,15%	19,41%	1,10%	15,77%	10,07%

Source: Financial Fervices Authority (2021).

The table above can be seen to compare the total assets of conventional life insurance and islamic insurance. In its growth, the total assets of both conventional life insurance and islamic life insurance continue to increase quite rapidly compared to other insurance types. Apart from the number of assets, it can be identified that the growth of the gross contribution to the country's economy in conventional life insurance has increased significantly compared to islamic general insurance, and the value also has a very significant difference. The gross contribution of islamic insurance to the Indonesian economy can be seen in the table below:

Table 2. Islamic Insurance Gross Contribution Growth in Indonesia

Description	Islamic Life Insurance	Islamic General Insurance
2014	5,2	1,74
2015	7,19	1,82
2016	8,39	1,61
2017	8,27	1,96
2018	9,44	2,87
2019	9,98	2,94
2020	10,505	3,57
2021	11,36	4,06

Source: Financial Fervices Authority (2021).

From the table above, it can be seen that the gross contribution growth in islamic life insurance is more significant than in islamic general insurance, which shows that islamic life insurance has a significant role in the development of the islamic insurance industry in Indonesia. This is because people need insurance more on the condition of their souls compared to other things. Assessment of the level of efficiency in the insurance industry, both conventional and islamic, aims to determine how Shia life insurance companies manage their companies' managerial ability. In addition, the measurement of efficiency is fundamental in seeing the ability of islamic life insurance to survive and face intense competition in the islamic life insurance industry and the conventional insurance industry. By knowing the level of efficiency, islamic life insurance customers can assess the performance of the islamic life insurance company to increase customer confidence.

Research conducted by Hardi (2016) shows that efficiency measurements are needed to evaluate the performance of the Islamic insurance industry and will determine the competitiveness of the industry compared to conventional industries. In addition, the results of this study also prove that the Islamic insurance industry has a relatively high technical performance compared to the conventional industry, but the level of operational cost efficiency still requires improvement. Furthermore, research conducted by Abduh et al. (2017) related to the performance of insurance companies by comparing Islamic insurance companies and conventional insurance companies in Malaysia. The results show that conventional insurance is slightly more efficient than Islamic insurance. The contributing factor is because islamic insurance products still depend on conventional insurance in terms of their operations and financial system.

The research conducted by Gerić et al. (2016) in Croatia and Germany related to efficiency by using a non-parametric approach to conventional life insurance companies compared to Islamic life insurance companies. The result is that islamic insurance or takaful is better in terms of operational efficiency compared to conventional insurance. Other research supporting the results that the islamic insurance industry has better efficiency than conventional insurance was obtained by Endraswati & Cahya (2020) because the islamic insurance industry can optimally utilize the inputs used.

A study conducted by Suryoaji & Cahyono (2019) with the object of the 2014-2017 research year shows that conventional life insurance companies that have consistently experienced efficiency are only 6 out of 19 companies, while islamic life insurance companies are only 2 out of 10 companies. Research conducted by Tuffahati, Mardian, & Suprapto (2019) with the object of the research year 2012-2014 shows that islamic life insurance companies that have consistently experienced efficiency are only 2 out of 7 companies. Furthermore, research from Sunarsih & Fitriyani (2018) with the object of the 2014-2016 research year shows that islamic life insurance companies that experience efficiency is consistently only 4 out of 7 companies. This study aims to analyze the efficiency level of the life insurance industry in Indonesia and how to compare the efficiency level of conventional life insurance and islamic life insurance. Based on the background,

researcher wants to compare the effectiveness of conventional life insurance companies with Islamic life insurance companies during the 2014-2021 period.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Efficiency

Efficiency theory is closely related to consumption theory and production theory in microeconomics. Efficiency in consumption theory is where consumers can maximize utility or satisfaction that will be fulfilled (Utama et al., 2016). Whereas in production theory, a company can generate maximum profit on the production carried out. In conventional literature, production theory will describe the company's treatment of buying and using inputs for production and selling outputs in the form of products produced (Pottier et al., 2017). The explanation of efficiency in the economic concept refers to concepts related to the use, maximization, and utilization of all available resources to carry out the production process in the form of goods and or services (O'Sullivan et al., 2014). In comparison, the explanation of efficiency in the production concept will refer to the extent of the technical relationship with the implementation of operational activities in a production process, such as converting input variables into outputs (Dewi & Siauwijaya, 2016).

The efficiency of a company consists of two components, namely technical efficiency, and allocative efficiency. Technical efficiency is an efficiency that describes a company's ability to achieve an optimal output level by using a certain level of input. Allocative efficiency describes a company's ability to optimize the use of its inputs with its price structure and technology. Economic efficiency describes the company's ability to minimize production costs to produce specific outputs with a level of technology that is generally used and the prevailing price (Rusydiana & Nugroho, 2017). The Frontier approach to measuring efficiency is divided into two types: Frontier Parametric (SFA and DFA) and nonparametric (DEA) approaches. In running a business, Islam requires kaffah in carrying out every activity but does not violate the limits set by Allah SWT so that the results obtained will be optimal. The analysis in this study is to compare the efficiency of conventional life insurance management with life insurance. The determining input and output variables will then produce the efficiency value of each life insurance so that later it can be analyzed the difference in efficiency between conventional life insurance and islamic life insurance (Xong & Kang, 2019).

Islamic Insurance

According to DSN Fatwa No. 21/DSN-MUI/2001 concerning general guidelines for islamic insurance, islamic insurance (Ta'min, Takaful, or Tadhamun) is an effort to protect and help each other among several people/parties through investment in the form of assets or tabarru' that provides a pattern of returns to face certain risks through a contract (commitment) that is following islamic. The contracts used in islamic insurance are tijarah contracts and tabarru contracts. Tijarah contracts are all forms of contracts carried out for commercial purposes (mudharabah). Meanwhile, tabarru 'are all forms of contracts carried out with the aim of benevolence and mutual assistance, not merely for commercial purposes (grants). Insurance companies in the concept of islamic insurance only act as managers of tabarru funds or participant contributions, not as owners of contributions (Faruk & Rahaman, 2015). The mechanism for managing tabarru funds in islamic insurance is divided into two systems, including a system that contains savings and a system that does not contain savings (Angima & Alfred, 2018).

The provisions of Islamic Insurance to have legal force, it is necessary to establish regulations that include the existing laws and regulations in Indonesia even though it is felt that they do not provide more substantial legal certainty and these regulations are the Decree of the Minister of Finance of the Republic of Indonesia No. 426/KMK.06/2003, Decree of the Minister of Finance of

the Republic of Indonesia. RI Finance No. 424/KMK.06/2003 and Decree of the Directorate General of Financial Institutions No. 4499/LK/2000. All of these decisions mention the regulation of the Islamic-based insurance system (Rusydiana & Nugroho, 2017). Shahibul maal asked the mudharib to manage funds, but the profit-sharing ratio condition to be generated was divided by 90% for the shahibul maal and 10% for the mudharib. The mudharabah contract carried out by the two parties above is valid in fiqh because it has fulfilled all the mudharabah contracts (Batool & Sahi, 2019). However, the contract is flawed in terms of "value" because it does not provide a fair share of the burden mudhari. Mudharib only gets 10% profit while shahibul maal 90%. For this reason, in running a islamic insurance business, it is also essential to uphold islamic values so that islamic insurance operations genuinely reflect the true islamic spirit (Angima & Alfred, 2018).

Conventional Insurance

According to Law no. 2 of 1992 Chapter 1, insurance or coverage is an agreement between the insurer who binds himself to the insured by receiving insurance premiums to provide compensation to the insured because to loss, damage, or loss of expected profits or legal liability to third parties that the insured may suffer, rise from an uncertain situation or provide a payment based on the death or life of the insured person (Putra et al., 2020). Meanwhile, the scope of the Insurance Business is a financial service business which by collecting public funds through the collection of insurance premiums, protects members of the public using insurance services against possible losses due to an uncertain event or the life or death of a person (Amron & Mahmud, 2017).

The Difference of Islamic and Conventional Life Insurance

Concept

Islamic life insurance has the concept of managing its business with a process where a group of people help each other, guarantee each other, and cooperate by issuing tabarru funds. Whereas conventional life insurance is managed by agreement between two or more parties, the insurer binds himself to the insured by receiving insurance premiums to compensate the insured.

Maghrib (Maisir, Gharar, and Riba)

The difference between islamic and conventional life insurance management is that the islamic industry is formed and implemented without the nature of maisir, gharar, and usury. Meanwhile, in the conventional system, these three vices are not regulated and even occur.

Islamic Supervisory Board (DPS)

In islamic life insurance, a DPS functions to oversee the implementation of company operations so that they are free from muamalah practices that are contrary to islamic principles. Whereas in conventional life insurance, there is no DPS, so that in many practices, it is contrary to the rules of syara'.

Guarantee/risk

The technical guarantee/risk management in islamic life insurance is sharing risk where there is a mutual sharing process between one participant and another (ta'awun). Whereas in conventional life insurance, the guarantee/risk scheme is a transfer of risk where there is a transfer of risk from the insured to the insurer.

Previous Research

Many studies have been carried out to analyze the efficiency comparison of islamic insurance with conventional insurance. Some research results state that Islamic insurance is more efficient than conventional insurance, while other studies show the opposite. The results of these studies are summarized in the table below:

Table 3. Previous Research

No	Researcher	Title	Result
1	Ulansari & Septiarini (2020)	A Comparative Study Of The Efficiency Of Conventional And Islamic Insurance In Indonesia	The efficiency of islamic insurance companies is better than conventional
2	Agustin (2020)	Perbandingan Pengembangan Asuransi Syariah dan Asuransi Konvensional di Indonesia dan Malaysia (Analisis Aliran Mazhab Sejarah dan Law as a Tool of Social Engineering)	The efficiency of islamic insurance companies is better than conventional
3	Suryoaji & Cahyono (2019)	Komparasi Efisiensi & Produktivitas Perusahaan Asuransi Jiwa Konvensional Dan Syariah Di Indonesia Pada Tahun 2014 – 2017 Dengan Pendekatan DEA & Indeks Malmquist	Islamic insurance companies and conventional insurance are experiencing inefficiency conditions
4	Shafique et al. (2015)	A Comparative Study of the Efficiency of Takaful and Conventional Insurance in Pakistan	The efficiency of islamic insurance companies is much better than conventional
5	Hidayat & Abdulla (2015)	A Comparative Analysis on the Financial Performance between Takaful and Conventional Insurance Companies in Bahrain during 2006 - 2011	The efficiency of islamic insurance companies is not better than conventional

RESEARCH METHODS AND DATA ANALYSIS TECHNIQUES

This type of research is quantitative, using secondary data during the period 2014-2021. The sample of this research is six life insurance companies in Indonesia consisting of conventional life insurance companies and islamic life insurance companies which are not business units of conventional companies. The sampling technique in this study uses non-probability sampling with purposive sampling with several predetermined criteria, including: Samples are Islamic and Conventional Insurance Companies registered with the Financial Services Authority; Present a complete financial report for the 2014-2021 observation period published in the Financial Services Authority; The sample has met the requirements required in the DEA method (positivity, isotonicity, number of DMUs, window analysis, determination of weights, homogeneity).

Based on the results of sampling, there are three conventional life insurance companies, namely PT. Asuransi Jiwasraya (Persero), PT. Prudential Life Assurance Insurance, and PT. Axa Life Indonesia. Meanwhile, the three islamic life insurance companies consist of PT. Family Takaful Insurance, PT. Al-Amin Islamic Life Insurance, and PT. Islamic Life Insurance Amanah Jiwa Giri Artha. This study uses the Data Envelopment Analysis (DEA) method. DEA is a linear program application technique that measures the relative efficiency of each production unit compared to other production units that have the same goal (Irkhami, 2017). The production unit used in this method is called the Decision-Making Unit (DMU). The DEA method is designed to measure the relative efficiency of DMUs compared to other DMUs in the sample using the same types of inputs and

outputs. The Data Envelopment Analysis method is also a non-parametric method based on a linear program that measures the efficiency ratio between input and output in the Economic Activity Unit (UKE) (Chiu & Choi, 2016).

DEA produces efficiency scores ranging from 0-100 percent, and DMUs with less than 100 percent are considered relatively inefficient units. The DEA model is divided into the CRS model developed by Gerić, Smajla, & Klasic (2016), better known as the CCR model. This model assumes that the ratio between the addition of inputs and outputs is the same, which means that if there are additional inputs, the output will also increase. Each DMU in this model operates at an optimal scale. Measurement of efficiency using the CRS model is a measurement of overall technical efficiency (OTE) or a measurement of gross efficiency (gross efficiency), which is a combination of technical efficiency and scale (Galal & Kabbashi, 2017).

Table 4. The Research Input Variable

Input Variable	Definition	Reference
Commission Cost	Fees for services rendered to agents or brokers by insurance companies	Saad, *et al* (2006), Tuffahati, *et al* (2016), Rahman (2013), Abduh, *et al* (2012), Mandal (2014)
Operational Cost	Continuing costs of an insurance company's business activities. That is the day-to-day costs required to run the company, including license fees, and office fees	Hu, *et al* (2009), Mandal (2014)
Equity	Equity capital represents money not paid out to investors. This represents the risk capital at stake by investors through the purchase of the company's common stock	Hu, *et al* (2009), Borges (2008), Eling (2008), Mandal (2014)

Table 5. The Research Output Variable

Output Variable	Definition	Reference
Total Premium	The total amount of premium that is the obligation of the insurance participant for the risk and ujrah portion paid to the insurance company	Saad, *et al* (2006), Tuffahati, *et al* (2016), Rahman (2013), Abduh, *et al* (2012), Hu, *et al* (2009), Mandal (2014)
Investment Income	The results obtained from investment activities on assets owned	Tuffahati, *et al* (2016), Rahman (2013), Abduh, *et al* (2012), Mandal (2014)

DEA works to compare input and output data from one organization to other input and output data from the same Economic Activity Unit (UKE). According to the DEA method, efficiency is a relative value and not an absolute value achieved by a unit. UKE with the best performance will achieve 100% efficiency. However, UKE with a value below 100% will have varying efficiency. The stages to efficiency analysis using WDEA software are as follows (Aliyu & Yusof, 2016): Collect and sort data as needed; Confirming data on input and output variables are available for the entire UKE; Ensure that the data meet the assumptions; Inputting the selected data into Microsoft Excel Workbook; Perform the process of running data with WDEA software; Interpret and present research results.

RESULT AND DISCUSSION

Data processing to obtain efficiency scores from DMU using MaxDEA Software. DMU can be declared to have achieved relative efficiency if it can reach a 1 or 100 percent score and is increasingly inefficient if it is less than 1 or 100 percent. Based on the results of data processing using MaxDEA software, the results obtained with the assumption of CRS and VRS, therefore it can be concluded that the performance of conventional and islamic life insurance in Indonesia during 2014-2021 has not been efficient, both economically, technically, and in scale. Of the 48 DMUs measured and consisting of 24 DMUs for conventional life insurance and 24 DMUs for islamic life insurance. In conventional life insurance, there are six economically efficient DMUs, 12 technically efficient DMUs, and six scalable efficiency DMUs. The rest show moderately mixed and inefficient scores: 18 DMUs economically, 12 DMUs technically, and eight DMUs at scale. When viewed in islamic life insurance, only four DMUs are technically efficient. There is no DMU that is efficient both in terms of economy and scale.

Table 6. Distribution of Conventional and Islamic Life Insurance Efficiency (in units)

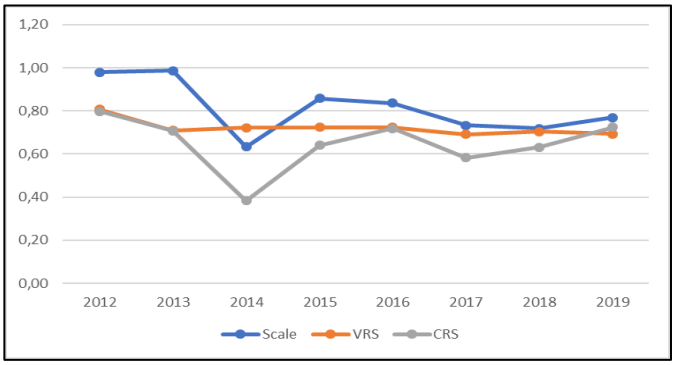
Efficiency Score	Conventional Life Insurance			Islamic Life Insurance		
	CRS	VRS	Scale	CRS	VRS	Scale
1	6	12	6	0	4	0
0,0001-0,9999	18	12	18	24	20	24
Total	24	24	24	24	24	24
Average	0,648209	0,7222005	0,814473	0,172613	0,474148	0,537069

Source: Data Processed, 2021.

Based on the explanation above, it can be concluded that some life insurance, both conventional and islamic, are still not efficient. The average value of economic efficiency of conventional life insurance is 64.82 percent, technically 72.22 percent, and on a scale of 81.44 percent. The average value of islamic life insurance economic efficiency is 17.26 percent, technically 47.41 percent, and on a scale of 53.71 percent. The source of the inefficiency of conventional and islamic life insurance companies is caused by the management of inputs and outputs and the suboptimal business scale. If viewed from the trend of the average efficiency score both in CRS, VRS, and Scale in terms of input orientation, then at the level of output (premiums and investment income), the inputs can still be reduced and when viewed from the output orientation, then by inputs (commission costs, operating costs, and equity) owned by each DMU, the output should be higher than the current premium and investment income. When viewed from the trend of the average efficiency of conventional life insurance from 2012, the score of economic efficiency of conventional life insurance (CRS) tends to fluctuate with a positive trend for the study period. This result can be seen from the movement of the CRS curve, which decreased quite profoundly in the initial period of the study by 79.83 percent (2012) to touch 38.62 percent (2014), then increased over the following two periods to 64.09 percent (2015) and 71.89 percent (2016), then in 2017 it decreased again to 58.19 percent, and the last two periods experienced an increase of 63.17 percent (2018) and 72.30 percent (2019).

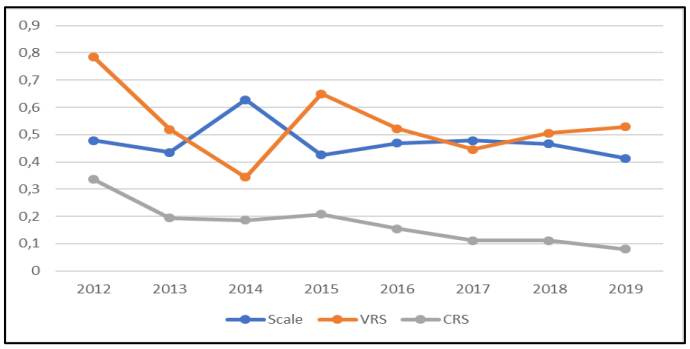
Meanwhile, the technical efficiency score (VRS) during the study period has a negative slope and tends to be stable, where in the first two periods it tends to decrease relatively deeply from 80.79 percent (2012) to 70.98 percent (2013), then increases in the previous two periods. The following two periods to 72.17 (2014) and 72.43 percent (2015), in the two periods it decreased again with an efficiency value of 71.90 (2016) and 69.18 percent (2017) and the last two periods returned with a similar trend—positive 69.37 percent (2018) and 70.44 percent (2019). The efficiency score on a scale during the study period also fluctuated, at the beginning of the period, the efficiency score increased from 98.02 percent (2012) and 98.67 percent (2013), then 2014 experienced a sharp decline to 63.33 percent (2014), in the next period it increased again to 85.52 percent

(2015), then the efficiency score showed a decrease over the following three periods to 83.57 percent (2016); 73.36 percent (2017) and 71.83 percent (2018), but in the last period it increased to 76.94 percent (2019).



Picture 2. The Average Trends of Conventional Life Insurance Efficiency between 2014-2021

When viewed from the average trend of islamic life insurance efficiency over the research period, the economic efficiency of islamic life insurance (CRS) shows a declining trend, in the first two periods, it decreased relatively profoundly, namely 33.56 percent (2012); 19.44 (2013); and 18.57 percent (2014). In 2015 the efficiency score again increased to 20.76 percent, for the last four periods, the decline returned from 15.68 percent (2016) to 8.04 percent (2019). For technical efficiency scores (VRS) fluctuate, which has a negative trend. This result is indicated by the VRS curve, which decreased relatively profoundly in the first three periods, namely 83.57 percent (2012); 73.36 percent (2013); and 34.30 percent (2014), but in 2015 the efficiency score again increased to 64.99 percent, in the two subsequent periods it decreased again by 52.15 percent (2016) to 44.51 percent (2017) and while the last two periods experienced an increase from 50.48 percent (2018) and 52.85 percent (2019). The efficiency score on a scale during the study period also fluctuated with a decreasing trend, at the beginning of the period, the efficiency score decreased from 47.82 percent (2012) to 43.45 percent (2013), then 2014 experienced a relatively high increase to 62, 76 percent (2014), but in the next period the efficiency score again decreased to 42.59 percent (2015), the following two periods showed an increase of 46.90 percent (2016) and 47.89 percent (2017), but in two periods last decreased to 46.62 percent (2018) and 41.26 percent (2019).



Picture 3. The Average Trends of Islamic Life Insurance Efficiency between 2014-2021

When comparing trends, the average efficiency level of Islamic life insurance is relatively lower than conventional life insurance. Overall, however, the average efficiency trend illustrates that the performance of life insurance, both conventional and islamic, economically, technically, and on a scale tends to decline despite an increase. The following is a list of efficient conventional and islamic life insurance companies during 2014-2021:

Table 7. The Efficient Company List

	CRS (Economy) dan Scale Efficiency	VRS (Technique)
Conventional Life Insurance	PT Asuransi Jiwasraya (Persero) and PT Asuransi Prudential	PT Asuransi Jiwasraya (Persero) and PT Asuransi Prudential
Islamic Life Insurance	-	PT Asuransi Jiwa Al-Amin

Source: Data Processed, 2021.

The composition of the number of economically efficient DMUs in each conventional life insurance company is four in Asuransi Jiwasraya and two in Prudential Life. There is no efficient DMU for Axa Life insurance. In islamic life insurance companies, including Family Takaful Insurance, Al-Amin Life Insurance, and Giri Artha Amanahjiwa Insurance, there are no economically efficient DMUs. For the composition of the number of DMUs that are efficient in scale, each conventional life insurance company is four in Asuransi Jiwasraya and two in Prudential Life. There is no scalable, efficient DMU for Axa Life insurance. Meanwhile, in islamic life insurance companies, including Family Takaful Insurance, Al-Amin Life Insurance, and Giri Artha Amanahjiwa Insurance, there are no efficient DMUs on a scale. The composition of the technically efficient DMU in each conventional life insurance company is six in Jiwasraya Insurance and six in Prudential Life Insurance. There is no efficient DMU for Axa Life insurance. In islamic life insurance companies, one is at Asurasi Al-Amin, and three are at Asuransi Amanahjiwa Giri Artha. There is no efficient DMU on Family Takaful Insurance. The DEA method can also measure and ascertain whether a DMU has optimized its production capacity, namely how optimally the input is used to produce output. In this case, a DMU will have one of three Return To Scale (RTS) conditions, including Increasing Return to Scale (IRS), Constant Return to Scale (CRS), and Decreasing Return to Scale (DRS).

Table 8. The Rate of Return List of Conventional and Islamic Life Insurance

Return To Scale	Conventional Life Insurance	Islamic Life Insurance	Persentase
Incresing Return to Scale	3	24	27 (56,25%)
Constant Return to Scale	10	0	10 (20,83%)
Decreasing Return to Scale	11	0	11 (22,92%)
Total	24	24	48 (100%)

Source: Data Processed, 2021.

The data processing results show that there are 27 DMUs or 56.25 percent consisting of three Conventional Life Insurance DMUs and 24 Islamic Life Insurance DMUs in IRS condition. Then 10 DMUs or 20.83 percent consisting of Conventional Life Insurance who experience DRS conditions. While the remaining 11 DMU or 22.92 percent consisting of Conventional Life Insurance, which is in CRS condition. The condition of the IRS makes it possible to continue to increase the output capacity by maintaining the existing inputs because the addition of inputs is not effective considering the resources used are still not functioning optimally. The DRS condition demands a reduction in inputs because the number of inputs and the resulting output are not ideal. From the results above, it can be seen that islamic life insurance companies have lower efficiency than conventional life insurance companies. This result is due to the lack of ability of Islamic Insurance companies to improve their performance and innovate in their business activities so that they are still inferior to Conventional Life Insurance companies. As described above, the results of the DEA efficiency calculation show that both the input orientation and the output orientation have resulted in relatively different efficiency scores. However, to detect the inefficiency source, both approaches are needed to analyze inputs and outputs that must be increased or decreased in both

approaches. From the average efficiency score of six conventional and islamic life insurance companies, Takaful Keluarga life insurance has the lowest score, making improvements for this company.

The Takaful Family Insurance company has not shown efficiency from 2014-2021, even though this company is a pioneer of Islamic insurance companies in Indonesia. Efficiency results are obtained from Family Takaful insurance must reduce the number of inputs while increasing output to produce the ideal output by DMU in those years. On average, the improvement input-oriented CRS Family Takaful Insurance must reduce commission costs by 57.16 percent, thereby reducing the commission fees given to the agents it is expected to increase output so that the company becomes efficient, 59.63 percent of operating costs, such as with the decrease in commission costs, in order for the insurance company to be efficient, the company must reduce the operating costs incurred by the company, and 50.15 percent in equity, as well as the two input variables above, a decrease in equity is also needed. Meanwhile, on average, the improvement in output-oriented CRS Takaful Insurance must reduce operational costs by 6.08 percent, increase by 282.95 percent in premiums, and 363.63 percent in investment income from the actual average each variable. Increasing the premium and investment income on Takaful Life insurance is expected to achieve the maximum level of efficiency because investment income is an important thing that can add to the report of the Surplus (Deficit) of the Tabarru Fund's Underwriting.

The inefficiency results obtained by islamic life insurance companies in Indonesia during 2014-2021 should naturally be the homework of company leaders in considering accurate strategies in increasing competitiveness in the future. Operational inputs that can be utilized by islamic life insurance companies in increasing output include the marketing sector. Company leaders need to fix the marketing sector, whose goal is to influence the stigma or mindset of public consumption towards the higher benefits of islamic life insurance products than conventional ones. Later, they can determine purchasing decisions from the public and start leaving conventional products. Islamic life insurance companies can include the factor of religiosity in planning strategic marketing programs where the aim other than to influence the community is to educate the importance of understanding as Muslims comprehensively.

Religiosity is a religious value held by a person with rules and teachings to behave in everyday life. Religion can motivate and encourage individuals to carry out an activity according to their beliefs. Religion also teaches its adherents to maintain chastity and obedience, influencing a person to decide action. The higher a person's level of religiosity leads to the orientation of their behavior to switch to islamic products. In addition, the higher a person's religiosity will also affect the community's mindset to be aware that protection from various risks is essential, and people will be willing to invest some funds to get a product that is in line with expectations following the principles of islamic. The success of implementing this strategic program depends on optimism and effective and efficient management of the company's leadership, resulting in a multiplier effect where people no longer hesitate to choose islamic life insurance products, the company is also able to increase its efficiency compared to conventional life insurance and increase its competitiveness in the industry.

CONCLUSION

On average, of the six life insurances, both conventional and islamic, DMU has not shown efficiency. In conventional life insurance, the score of economic efficiency (CRS) is 64.82 percent, technically 72.22 percent, and on a scale of 81.44 percent. Meanwhile, the average economic efficiency of islamic life insurance is 17.26 percent, technically 47.41 percent, and on a scale of 53.70 percent. Then from the trend of efficiency of both conventional and islamic life insurance, it shows that the management is still fluctuating, so it still needs to be improved to be more efficient.

The comparison of efficiency between conventional and islamic life insurance is that the composition of the number of economically efficient DMUs in each conventional life insurance company is four in Jiwasraya Insurance and two in Prudential Life. There is no efficient DMU for Axa Life insurance. In islamic life insurance companies, including Family Takaful Insurance, Al-Amin Life Insurance, and Giri Artha Amanahjiwa Insurance, there is no efficient DMU. The composition of the number of efficient DMUs on a scalable basis in each conventional life insurance company is four in Asuransi Jiwasraya and two in Prudential Life. There is no scalable, efficient DMU for Axa Life insurance. Meanwhile, in islamic life insurance companies, including Family Takaful Insurance, Al-Amin Life Insurance, and Giri Artha Amanahjiwa Insurance, there are no efficient DMUs on a scale. The composition of the technically efficient DMU in each conventional life insurance company is six in Jiwasraya Insurance and six in Prudential Life Insurance. There is no efficient DMU for Axa Life insurance. In islamic life insurance companies, one is at Asurasi Al-Amin, and three are at Asuransi Amanahjiwa Giri Artha. There is no efficient DMU on Family Takaful Insurance. Furthermore, the data processing results show that there are 27 DMUs or 56.25 percent consisting of three Conventional Life Insurance DMUs and 24 Islamic Life Insurance DMUs in IRS condition. Then 10 DMUs or 20.83 percent consisting of Conventional Life Insurance who experience DRS conditions. While the remaining 11 DMU or 22.92 percent consisting of Conventional Life Insurance, which is in CRS condition.

REFERENCE

Abduh, M., Omar, M. A., & Tarmizi, R. M. (2017). Measuring the Performance of Insurance Industry in Malaysia: Islamic vis-a-vis Convetional Insurance. *Journal of Islamic Banking and Finance*, *29*(4), 40–49.

Agustin, I. W. (2020). Perbandingan Pengembangan Asuransi Syariah di Indonesia dan Malaysia (Analisis Aliran Mazhab Sejarah dan Law as a Tool of Social Engineering). *Al-Ahkam Jurnal Ilmu Syari'ah Dan Hukum*, *5*(1), 37–57. https://doi.org/10.22515/al-ahkam.v5i1.1963

Aliyu, S., & Yusof, R. M. (2016). Profitability and cost efficiency of islamic banks: A panel analysis of some selected countries. *International Journal of Economics and Financial Issues*, *6*(4), 1736–1743.

Amron, A., & Mahmud, M. (2017). Developing marketing strategy in property insurance business. In *International Business Management* (Vol. 11, Issue 1, pp. 177–182).

Angima, K., & Alfred, W. M. (2018). Risk Management Practices and Marine Premium Growth of Insurance Firms in Kenya. *International Journal Of Creative Research And Studies*, *11*(2), 51–61.

Batool, A., & Sahi, A. (2019). Determinants of Financial Performance of Insurance Companies of USA and UK during Global Financial Crisis (2007-2016). *International Journal of Accounting Research*, *07*(01), 1–9. https://doi.org/10.35248/2472-114x.19.7.194

Chiu, C. H., & Choi, T. M. (2016). Supply Chain Risk Analysis with Mean-Variance Models: A Technical Review. *Annals of Operations Research*, *240*(2), 489–507. https://doi.org/10.1007/s10479-013-1386-4

Dewi, K., & Siauwijaya, R. (2016). Analisis Efisiensi Teknis Perbankan di Indonesia. *Jurnal Manajemen*, *13*(2), 132–148.

Effendi, J. (2018). Islamic Insurance: A Potential Niche Market of Indonesia. *Al-Iqtishad: Jurnal Ilmu Ekonomi Syariah*, *10*(January), 207–230.

Endraswati, H., & Cahya, B. T. (2020). Board Characteristics, Type of Insurance And Performance in Indonesia Islamic Insurance Companies. *IQTISHADIA: Jurnal Ekonomi & Perbankan Syariah*, *13*(2), 258–281.

Faruk, O., & Rahaman, A. (2015). Measuring Efficiency of Conventional Life Insurance Companies in Bangladesh and Takaful Life Insurance Companies in Malaysia : A Non-Parametric Approach. *Management Studies and Economic Systems*, *2*(2), 129–144.

https://doi.org/10.12816/0019398

Galal, F. A., & Kabbashi, N. A. (2017). Islamic Insurance in the Global Economy. *International Journal of Business and Management Invention*, *6*(6), 8–10. https://doi.org/10.13140/RG.2.2.20097.56160

Gerić, K. P., Smajla, N., & Klasic, K. (2016). Analysis and Comparison of Health Insurance Systems in Croatia and Germany. *American International Journal of Contemporary Research*, *6*(3), 32–46.

Hardi, E. A. (2016). Studi Komparatif Takaful Dan Asuransi Konvensional. *BISNIS : Jurnal Bisnis Dan Manajemen Islam*, *3*(2), 422. https://doi.org/10.21043/bisnis.v3i2.1504

Hidayat, S. E., & Abdulla, A. M. (2015). A Comparative Analysis on the Financial Performance between Takaful and Conventional Insurance Companies in Bahrain during 2006 - 2011. *Journal of Islamic Economics Banking and Finance*, *11*(2), 149–163. https://doi.org/10.12816/0024921

Irkhami, N. (2017). A Study on the Implementation of Dual Contracts of Tabarru and Tijarah on Shari'ah Insurance Industries in Indonesia. *Journal of Islamic Finance*, *6*(2), 045–057.

O'Sullivan, A., Sheffrin, S., & Perez, S. (2014). *Survey of Economics. Principles, Applications, and Tools*. Prentice Hall.

Pottier, S. W., Xu, J., & Frederick, J. D. (2017). The Journal of Risk and Insurance: Authors of Influence. *Risk Management and Insurance Review*, *20*(3), 339–362. https://doi.org/10.1111/rmir.12089

Purani, G. (2017). Life Insurance – Growth Engine of Society. *International Journal of Research and Review*, *4*(6), 28–30. http://www.gkpublication.in/IJRR_Vol.2_Issue6_June2015/IJRR0066.pdf

Puspitasari, N. (2011). Sejarah Perkembangan Asuransi Islam serta Perbedaanya dengan Asuransi Konvensional. *Jurnal Ekonomi Akuntansi Dan Manajemen*, *10*(1), 35–47. https://doi.org/10.1016/j.stueduc.2018.05.006

Putra, F. I. F. S., Budiantoro, R. A., Luxfiati, B. A., & Widawati, M. W. (2020). Consumer Satisfaction Behavior Bought Chinese Smartphone In The Official Store And Black Market In Soloraya. *Jurnal Aplikasi Manajemen*, *18*(3), 588–596. https://doi.org/http://dx.doi.org/10.21776/ub.jam.2020. 018.03.19

Rosidah, N. H. (2014). Asuransi Konvensional Dan Asuransi Syariah: Perbedaan Dalam Lingkup Akuntansi. *Jurnal Akuntansi*, *2*(2), 1–18.

Rusydiana, A. S., & Nugroho, T. (2017). Measuring Efficiency of Life Insurance Instution in Indonesia: Data Envelopment Analysis Approach. *Global Review of Islamic Economics and Business*, *5*(1), 12–24. https://doi.org/10.14421/grieb.2017.051-02

Shafique, M. N., Ahmad, N., & Ahmad, H. (2015). A Comparative Study of the Efficiency of Takaful and Conventional Insurance in Pakistan. *International Journal of Accounting Research*, *2*(5), 1–7. https://doi.org/10.12816/0014605

Sunarsih, S., & Fitriyani, F. (2018). Analisis efisiensi asuransi syariah di Indonesia tahun 2014-2016 dengan metode Data Envelopment Analysis (DEA). *Jurnal Ekonomi & Keuangan Islam*, *4*(1), 9–21. https://doi.org/10.20885/jeki.vol4.iss1.art2

Suryoaji, O., & Cahyono, E. F. (2019). Komparasi Efisiensi & Produktivitas Perusahaan Asuransi Jiwa Konvensional Dan Syariah Di Indonesia Pada Tahun 2014 – 2017 Dengan Pendekatan DEA & Indeks Malmquist. *Jurnal Ekonomi Syariah Teori Dan Terapan*, *6*(9), 1877–1893.

Sutawijaya, A., & Lestari, E. P. (2009). Efisiensi Teknik Perbankan Indonesia Pascakrisis Ekonomi: Sebuah Studi Empiris Penerapan Model Dea. *Jurnal Ekonomi Pembangunan: Kajian Masalah Ekonomi Dan Pembangunan*, *10*(1), 49. https://doi.org/10.23917/jep.v10i1.808

Tuffahati, H., Mardian, S., & Suprapto, E. (2019). Pengukuran Efisiensi Asuransi Syariah Dengan Data Envelopment Analysis (DEA). *Jurnal Akuntansi Dan Keuangan Islam*, *4*(1), 1–23. https://doi.org/10.35836/jakis.v4i1.27

Ulansari, D. R., & Septiarini, D. F. (2020). A Comparative Study Of The Efficiency Of Conventional

And Islamic Insurance In Indonesia. *Jurnal Keuangan Dan Perbankan*, *24*(2), 202–213. https://doi.org/10.26905/jkdp.v24i2.3165

Utama, A. P., Wahyono, H., & Witjaksono, M. (2016). Efisiensi Pengambilan Keputusan Sumber Daya Ekonomi Konsumsi Produksi Mahasiswa. *Jurnal Pendidikan : Teori, Penelitian, Dan Pengembangan*, *1*(4), 712–716.

Xong, L. J., & Kang, H. M. (2019). A Comparison of Classification Models for Life Insurance Lapse Risk. *International Journal of Recent Technology and Engineering*, *7*(5), 245–250.