

Comparative Efficiency Analysis Of Sharia Insurance And Conventional Insurance In Indonesia

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Abstract

Sharia insurance companies and conventional insurance require efficiency measurements to determine the ability to survive and compete in strong competition between companies. The purpose of the study was to compare the efficiency of Sharia general insurance companies and conventional general insurance in Indonesia in 2018-2020 and find differences in the efficiency of Sharia and conventional general insurance companies. This research is quantitative descriptive research with data sourced from the company's official website or related websites. The research was conducted by the Development Envelopment Analysis (DEA) method with the CCR model. Input variables include assets, capital, operating expenses, administrative and general operating expenses, claims expenses, and commission expenses, while for premium output variables, tabarru' funds, investment income. It was found that the efficiency value of Sharia general insurance during encroachment was higher compared to conventional general insurance with a significant difference in efficiency value.

Keywords: Efficiency, Sharia Insurance, Conventional Insurance, DEA

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1. INTRODUCTION

Globalization brings more modern progress accompanied by advances in science and technology, the development of the number of economic actors, the number of needs and services, and the growth of economic transactions (Nanda, 2019). However, Hasanatina et al. (2021) said that U.S. and European states that use conventional systems still dominate the world economy, so other countries participate in the conventional economic system that is implemented and provide uncertainty and injustice in the transactions carried out. Siregar, (2020) said that the current economic uncertainty in Indonesia also could not be separated from the world economy caused by the Covid-19 pandemic.

Based on the OECD (Organization for Economic Co-operation Development) report, the outbreak of Corona Virus Disease-19 disease that occurred caused an economic-financial downturn characterized by a halt in industrial activities and product creation in many parts of the world, loss of consumers, use and

needs in the community fell, loss of confidence, stock market falls, and most severely caused economic uncertainty (Pakpahan, 2020). Siswanto, (2021) said that the Covid-19 pandemic in Indonesia since the beginning of 2020 had a tremendous impact, especially on human health, the financial crisis, and the financial services industry, such as insurance companies.

As intermediary financial institutions integrated into the financial industry, insurance companies have an essential role in economic-based services (Malik, 2011). Insurance performance is present not only in the business sector but also in the household sector with superior services in the form of minimizing the risk of loss of life, property, business, and so on (Baroroh, 2021). In addition, the public widely relies on insurance companies for protection, tranquillity, and a sense of security (Zakaria et al., 2016). Furthermore, Rahman (2019) said that the level of awareness of the Indonesian people about the importance of insurance has increased in line with the

public's understanding that insurance is critical to reducing risks to a minimum in the future.

The data from the Indonesian Financial Services Authority report for insurance companies stated that the information published as of March 2020 states that in the insurance premium record, there has been a depreciation of income of 13.8 percent. We can see the growth of insurance in Indonesia from the increasing number of insurance companies and those listed in the Financial Services Authority (OJK), as many as 195 companies, consisting of 60 sharia insurance companies and 135 conventional insurance companies (www.ojk.go.id, 2021).

Along with the current economic growth, insurance consists of two types, namely conventional insurance, and sharia insurance, but this type of insurance is not much different even though some things are opposite (Hasanatina et al., 2021). For example, Puspitasari, (2015) explained that the concept used by conventional insurance is risk transfer or moving risks from participants to insurance companies, while the use of the sharia insurance concept is risk-sharing or mutual assistance between insurance participants to cover and share the risks faced from several premiums (*tabarru funds*).

In achieving success in carrying out its operational activities, it is vital for insurance companies to calculate carefully, as well as carefully and precisely, and to measure the company's success rate using efficiency (Hasanatina et al., 2021). Karim (2007) explained that efficiency could be optimal when companies with the same inputs can make the maximum possible output, or to achieve the same output can minimize the inputs used.

Therefore, efficiency measurement is needed to determine the insurance industry's ability to survive and compete in intense competition between companies (Sunarsih & Fitriyani, 2018). Therefore, one of the important things to evaluate the performance of insurance companies to compete in the industry and how companies respond to challenges and survive in industrial competition is to be able to carry out measurements of efficiency assessments (Antonio et al., 2013).

Wangi dan Darwanto (2020) analyses insurance companies in Indonesia by combining sharia and conventional insurance companies to find out the output generated from the inputs managed. Although the method used uses Stochastic Frontier Analysis (SFA), the results found revealed that the superior

efficiency value between the two types of insurance companies is conventional general insurance.

Ade & Suryani, (2018) conducted a study on conventional and sharia insurance companies to find out the differences in efficiency levels. The variables in this study are using claim payments, as well as expenses and assets as their input variables. For the investment gain variable and the premium for the output variable. This study obtained the first two results for the assumption that conventional insurance's CRS (Constant Return Scale) is superior. In contrast, the VRS (Variable Return Scale) assumption of sharia insurance is superior.

Ahmad et.al. (2013) compared general insurance companies and life insurance companies in Malaysia using the SFA method using 13 samples of life insurance companies and general insurance companies totaling 26. The output variable used is the Profit account. For the input variables used, namely total investment and assets, claim reversal, management fee assets, insurance premiums, and claim payments, the conclusion was reached that compared to the two types of insurance in Malaysia, every year, it experiences efficient efficiency value addition.

From some of the problems that have been described, a study will be carried out to measure how efficient an insurance company is in Indonesia with observations in 2019-2020 and to find out the significant differences between the two. Data Envelopment Analysis (DEA) is the method used in this study. Based on the background of the problems that have been described related to the efficiency of insurance companies, this study formulated a hypothesis as follows:

H1: Sharia general insurance companies and conventional general insurance companies found differences in efficiency levels.

2. RESEARCH METHODOLOGY

The population in this study will use all sharia and conventional general insurance companies registered by the Financial Services Authority institution from 2012-2016. The samples in the study were 24, using 12 companies each for sharia and for conventional. For samples in research, the collection was carried out using purposive sampling techniques. The type of data used in this study is quantitative using secondary data. The data itself comes from the annual financial information of each company after it is

published on the official website of each company or through the official website of the Financial Services Authority for the 2019-2021 period.

Furthermore, in this study, the data were analyzed using output orientation using a non-parametric approach to DEA CCR. Based on research by Zahara & Saputra, (2020), during the 4-year observation period from 2012-2016, there was no significant difference in efficiency between the two companies. Be it sharia and conventional insurance companies. The CCR model assumes that efficiency is not affected by the scale of production, while BCC assumes that through existing technology, efficiency is not affected by the production scale. For this reason, this study only uses the CCR model. The model used in testing hypotheses uses a non-parametric technique as a Mann-Whitney U-Test difference test. The different tests carried out aim to determine whether or not there are differences in the types of the two insurance companies.

3. RESULT AND DISCUSSION

DEA Processing Results

Efficiency Value of Sharia General Insurance Company

After calculating the efficiency value of the twelve sharia general insurance companies and using the Data Envelopment Analysis (DEA) method, the CCR model obtained efficiency for each company which can be seen in the following table:

Table 1. Efficiency Percentage of Sharia General Insurance Companies in 2018 – 2019

No	Insurance Company	Year		
		2018	2019	2020
1	PT Asuransi Chubb Syariah	100%	80%	100%
2	PT Tugu Pratama Indonesia Unit Syariah	100%	100%	100%
3	PT Asuransi Umum Mega Unit Syariah	100%	100%	100%
4	PT Sinar Mas Unit Syariah	100%	86%	88%
5	PT Asuransi Jasindo Syariah	64%	100%	100%
6	PT Asuransi Astra Buana	100%	95%	87%
7	PT Bumi Saputra Unit Syariah	100%	100%	62%

No	Insurance Company	Year		
		2018	2019	2020
8	PT Asuransi Bringin Sejahtera Artamakmur	100%	100%	100%
9	PT Asuransi Tri Prakarta Unit Syariah	99%	79%	88%
10	PT Asuransi Sonwelis Takaful	42%	85%	49%
11	PT Asuransi Allianz Utama Indonesia	100%	77%	77%
12	PT Sampo Insurance Indonesia	100%	100%	100%
Average Efficiency		92%	92%	88%

Source: Processed data (2022)

Based on table 1 above, it can be seen that from a sample of 12 sharia insurance companies, four companies consistently have an efficiency level value of 100 percent during the observation period of 2018-2020. These companies include PT Asuransi Bringin Sejahtera Artamakmur, PT Tugu Pratama Indonesia Unit Syariah, PT Asuransi Umum Mega Unit Syariah, and PT Sampo Insurance Indonesia. If we look back at the table, it is found that 8 sharia general insurance companies did not consistently achieve efficiency of 100 percent, including PT Asuransi Chubb Syariah, which only achieved efficiency levels in 2018 and 2020, PT Sinar Mas Unit Syariah, PT Asuransi Allianz Utama Indonesia, PT Asuransi Astra Buana which only achieved 100 percent efficiency in 2018, PT Bumi Saputra Unit Syariah only achieved efficiency levels in 2018 and 2019. In addition, there were 2 companies whose 100 percent efficiency value was not achieved during the observation period: PT Asuransi Tri Prakarta Unit Syariah and PT Asuransi Sonwelis Takaful. If the average percentage of efficiency of sharia general insurance companies with the CRR model in 2018 and 2019, sharia general insurance companies achieved efficiency of 92 percent, and in 2020 experienced a decrease in the efficiency level to 88 percent.

Efficiency Value of Conventional General Insurance Companies

The results of processing data on conventional general insurance companies using the Development Envelopment Analysis method of the CRR model are in the table below:

Table 2.

Efficiency Percentage of Conventional General Insurance Companies in 2018-2020

No	Insurance Company	Year		
		2018	2019	2020
1	PT AIG Insurance Indonesia	48%	48%	59%
2	PT Asuransi Artarindo	64%	57%	65%
3	PT Asuransi Etiqa Internasional Indonesia	100%	66%	100%
4	PT Asuransi Central Asia	77%	95%	68%
5	PT BRI Asuransi Indonesia	60%	50%	57%
6	PT Asuransi Umum Mega	65%	56%	45%
7	PT Asuransi Tri Prakarta	79%	67%	69%
8	PT Asuransi Jasa Raharja Putera	60%	54%	59%
9	PT Asuransi Sinar Mas	32%	39%	44%
10	PT Tugu Pratama Indonesia	100%	100%	100%
11	PT MNC Asuransi Indonesia	61%	49%	43%
12	PT Sarana Lindung Upaya	100%	100%	100%
Average Efficiency		70%	65%	67%

Source: Processed data (2022)

From table 2, it can be seen that the efficiency value of 12 samples of conventional general insurance companies with the CCR model shows that 2 conventional general insurance companies are achieving 100 percent efficiency, namely PT Tugu Pratama Indonesia and PT Sarana Lindung Upaya. From the table above, it can also be seen that PT Asuransi Etiqa Nasional Indonesia only got 100 percent efficiency in 2018 and 2020, while the other 9 conventional general insurance companies have not been able to achieve a 100 percent efficiency level during the observation period of 2018 - 2020, including PT BRI Asuransi Indonesia, PT Asuransi Antarindo, PT AIG Insurance Indonesia, PT MNC Asuransi Indonesia, PT Asuransi Jasa Raharja Putera, PT Asuransi Umum mega, PT Asuransi Central Asia, PT Asuransi Tri Pakarta, PT Asuransi Sinar Mas. Based on the table, we can also see that the average efficiency value of conventional general insurers in 2018 was at the level of 70 percent, in 2019 it

decreased by 65 percent and increased in 2020 by 67 percent, although it was still low from 2018.

Efficiency Comparison of Sharia General Insurance Companies and Conventional General Insurance Companies

After calculations are carried out using the DEA-CRR method, information is obtained that sharia general insurance companies for a better level of efficiency when compared to conventional general insurance companies. For example, of the 12 samples of sharia general insurance companies consisting of 4 companies managed to get efficiency up to 100 percent, and 12 samples of conventional general insurance companies achieved a perfect efficiency value at a value of 100 percent consisting of only 2 companies.

To find out more about the comparison of the efficiency of general insurance companies, both sharia and conventional, after being averaged during the period 2018 - 2020, one can see the following table.

Table 3. Comparison of average efficiency value of Sharia General Insurance Companies and Conventional General Insurance 2018 – 2020

Year	Sharia General Insurance	Conventional General Insurance
2018	92%	70%
2019	92%	65%
2020	88%	67%

Source: Processed data (2022)

From table 3 above, it can be seen that in 2018, sharia general insurance for the average efficiency obtained was 92 percent compared to conventional general insurance, which was smaller by 70 percent. For 2019, the average percentage of sharia general insurance efficiency has a percentage of 92 percent, remaining at an average efficiency value greater than conventional general insurance of 65 percent. This also happened in 2020, the average percentage of sharia general insurance was 88 percent and greater than conventional general insurance, which was 67 percent.

Based on the data processing results using the DEA method during the period 2018 - 2020, it can be seen that sharia general insurance with an average efficiency percentage is higher than the average efficiency value of conventional general insurance. The results of discovering the efficiency level after conducting research align with the findings presented by Khan & Noreen, (2014), namely, sharia insurance is more efficient than conventional insurance. When

viewed from the system run on sharia general insurance, every member who has a common attachment helps each other, guarantees, and raises funds together for everyone in need. That way, the existing risks will not be charged to one person alone, but by insurance companies that make the sharia general insurance system better than conventional insurance (Rahman, 2013).

Hypothesis Testing Results

To test the hypothesis later, it is necessary to test it with normality and homogeneity tests. Then the

Table 4. Kolmogorov-Smirnov and Shapiro Wilk Normality Test

Test Group	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Sharia General Insurance	.289	36	.000	.690	36	.000
Conventional General Insurance	.272	36	.000	.835	36	.000

Source: Processed data (2022)

In table 3, it can be seen that two types of insurance, sharia and conventional general insurance, are valued at 0.00 and smaller than the significance of α 0.05. That way, conclusions can be drawn, namely that the two data groups are not distributed normally.

Homogeneity Test Results

This test is used to determine whether the data variance of the two groups used is homogeneous or not. The results after the homogeneity test were decomposed in table 4 below in this study.

Table 5. Homogeneity Test

CRR			
Statistik Levene	df1	df2	Sig.
2.629	1	69	0.109

Source: Processed data (2022)

Suppose you look at it from table 4. The test above that the significance is $0.109 > 0.05$. The test shows that the variance of the two groups of efficiency values of each company is homogeneous. From the analysis tests with the two tests, both normality and homogeneity can be known that the data group is not normally distributed and has homogeneous properties. Thus it can be assumed that the conditions for the use of the analysis of the test of different statistical models, namely the Mann-Whitney U-Test, have been allowed to continue.

Mann-Whitney U-Test Different Test Results

Testing with the Mann-Whitney Difference Test was carried out to determine whether or not there is a significant difference in the efficiency of the two

Whitney U-Test difference test is carried out to obtain information on whether or not there is a difference in efficiency between the general insurance companies studied.

Normality Test Results

This test is carried out to find out about the data collected in distribution and whether it has been distributed normally or not. The results of the normality test that has been carried out are presented in table 3 below:

insurance companies, be it sharia general insurance companies and conventional general insurance that are being studied. The following are the results of the different tests carried out:

Table 6. Mann-Whitney U-Test Difference Test

CRR	
<i>Mann-Whitney U-Test</i>	285.00
Wilcoxon W	951.00
Z	-4.214
Asymp. Sig. (2-tailed)	.00

Source: Processed data (2022)

From table 5, it can be seen that the efficiency of the two companies with the CRR model gets a significance of 0.00 and is smaller than the value of 0.05, then H1 is accepted. From some of the test results that have been carried out, it can be concluded that there is a significant difference in the efficiency level between the two types of insurance companies in Indonesia, both sharia general insurance and conventional general insurance. After obtaining the results, the findings in the study were also in line with the research by Wangi & Darwanto, (2020), which concluded that the efficiency scores between the two types of general insurance and sharia studied in Indonesia there were different.

4. CONCLUSIONS

After conducting research and discussing data processing results, several conclusions can be drawn, including.

- a. From the observations of 12 samples of the sharia general insurance industry, 4 sharia insurance companies always get 100 percent perfect efficiency during observations made from 2018-2020.
- b. From the observations made on 12 conventional general insurance industries, which obtained 100 percent perfect efficiency, there were 2 companies from the observations of 2018-2020.
- c. From the results of the comparison that has been carried out between the two types of insurance industries above, it is known that the average value of 12 sharia insurance companies is higher than the average value of 12 conventional insurance companies during the observation period of 2018-2020.
- d. After the Mann-Whitney U-Test, a conclusion can be drawn between the percentage of efficiency of sharia general insurance companies and the efficiency of conventional general insurance companies, significant differences were found.

Based on the research and discussion that has been carried out, there are several suggestions that this researcher conveys:

- a. Companies can pay further attention to input and output variables to make an optimal contribution in carrying out the operational activities of the insurance company so that it can achieve the efficiency of the company itself.
- b. Investors can further study and consider the insurance company that will be used as an investment destination to make the right decision and be able to choose a general insurance company with optimal and good performance.
- c. Researchers can conduct research with samples and even larger observation periods to provide more valid research data results.

5. REFERENCES

- Ade, P., & Suryani, S. (2018). Analisis Perbandingan Efisiensi pada Perusahaan Jasa Asuransi Umum Syariah dan Konvensional di Indonesia dengan Pendekatan Two-Stage Data Envelopment Analysis. 29(2), 10.
- Ahmad, dkk. (2013). Relative efficiency analysis industry of life and general insurance in Malaysia using stochastic frontier analysis (SFA). *Applied Mathematical Sciences*, 7, 1107–1118. <https://doi.org/10.12988/ams.2013.13100>
- Antonio, M. S., Ali, M. M., & Akbar, N. (2013). A Comparative Analysis of the Efficiency of Takaful and Conventional Insurance in Malaysia. *The International Journal of Excellence in Islamic Banking and Finance*, 3(1), 1–13. <https://doi.org/10.12816/0001416>
- Baroroh, H. (2021). Asset Growth In Sharia Insurance: Macroeconomic and Internal Factors of Sharia Insurance Companies in Indonesia. *Al-Amwal: Jurnal Ekonomi Dan Perbankan Syari'ah*, 13(2), 227. <https://doi.org/10.24235/amwal.v13i2.9018>
- Coelli, T. (Ed.). (2005). *An Introduction to Efficiency and Productivity Analysis (2nd Ed)*. Springer.
- Hasanatina, dkk. (2021). Perbandingan Efisiensi pada Industri Asuransi Jiwa Syariah dan Konvensional dengan Data Envelopment Analysis (DEA). *EKUITAS (Jurnal Ekonomi dan Keuangan)*, 4(4), 503–521. <https://doi.org/10.24034/j25485024.y2020.v4.i4.4004>
- Hasanatina, dkk. (2021). Two Stage Analysis: Analisis Technical Efficiency pada Perusahaan Asuransi Jiwa Konvensional dan Syariah 2012-2020. *IHTIFAZ: Islamic Economics, Finance, and Banking* 28 June 2021.
- Khan, A., & Noreen, U. (2014). Efficiency Measure of Insurance v/s Takaful Firms Using DEA Approach: A Case of Pakistan. *Islamic Economic Studies*, 22(1), 139–158. <https://doi.org/10.12816/0004133>
- Malik, H. (2011). Determinants of Insurance Companies Profitability: An Analysis of Insurance Sector of Pakistan. *Academic Research International* 1 (3).
- Nanda, T. (2019). Data Envelopment Analysis. 2019, 102.
- Pakpahan, A. K. (2020). COVID-19 dan Implikasi Bagi Usaha Mikro, Kecil, dan Menengah. *Jurnal Ilmiah Hubungan Internasional*, 59–64. <https://doi.org/10.26593/jihi.v0i0.3870.59-64>
- Puspitasari, N. (2015). Hybrid Contract and Funds Efficiency Management of Islamic General Insurance Company (Study In Indonesia). *Procedia - Social and Behavioral Sciences*, 211, 260–267. <https://doi.org/10.1016/j.sbspro.2015.11.033>
- Rahman, M. A. (2013). Comparative Study on the Efficiency of Bangladeshi Conventional and Islamic Life Insurance Industry: A NonParametric Approach. *Journal Asian Business Review*, Vol.2 No.3/2013(5).
- Rahman, R. (2019). Analisis Faktor-Faktor yang Mempengaruhi. 8, 14.

- Shafique, M. N., dkk. (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>
- Siregar, H. A. (2020). Syariah and Conventional Shares Index Comparison During the Covid-19 Pandemic in Indonesia. *Jurnal Ilmiah Akuntansi*, 4(3), 9.
- Siswanto, D. (2021). Dampak Resiko Keuangan Dalam Bisnis Jasa Keuangan Perusahaan Asuransi Jiwa di Era Pandemi Corona. KarismaPro. *Kajian dan Riset Manajemen Profesional Nomor XXIII Volume 1*. <https://doi.org/10.53675/karismapro.v2i1.71>
- 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>
- Wangi, D. M. (2020). Analisis Efisiensi Asuransi Umum Syariah Dan Konvensional Di Indonesia. *HUMAN FALAH: Jurnal Ekonomi dan Bisnis Islam* 7(1), 18.
- Zahara, N., & Saputra, M. (2020). Analisis Perbandingan Efisiensi Perusahaan Asuransi Jiwa Konvensional dan Perusahaan Asuransi Jiwa Syariah Di Indonesia dengan Metode Data Envelopment Analysis (DEA). *Jurnal Ilmiah Mahasiswa Ekonomi Akuntansi*, 5(2), 229–238. <https://doi.org/10.24815/jimeka.v5i2.15558>
- Zakaria, Z., dkk. (2016). The Intention to Purchase Life Insurance: A Case Study of Staff in Public Universities. *Procedia Economics and Finance*, 37, 358–365. [https://doi.org/10.1016/S2212-5671\(16\)30137-X](https://doi.org/10.1016/S2212-5671(16)30137-X)