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The Impact of Spin-off Policy on the Efficiency of Sharia Insurance in Indonesia using DEA approach

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Abstract

This study aims to determine the impact of the spin-off on the level of efficiency of Sharia insurance in Indonesia by using the Data Envelopment Analysis (DEA) method. This study uses data from companies that have undergone a spin-off, namely Jasindo Sharia and Askrida Sharia, both before the spin-off and after the spin-off. Input data are assets, operating expenses, while output data are profit and operating income for a period of 5 years each. From the results of data processing, it shows that the two companies experienced a decrease in their level of efficiency towards profits after spin-off, but the level of efficiency on income, for Jasindo Sharia are relatively stable, while Askrida Sharia has decreased. This inefficiency occurs because administrative expense is relatively larger after the spin-off which causes lower profits, or the value of the assets that used is still not optimally the profit.

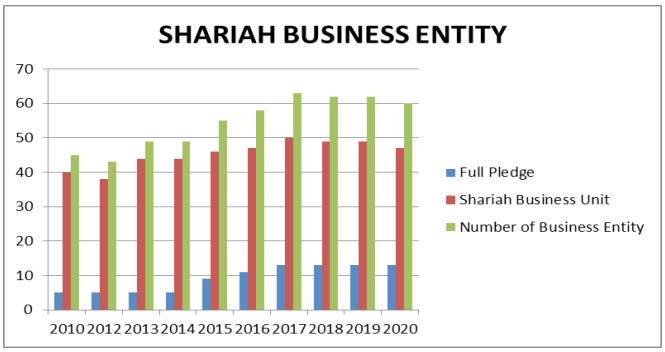
Keywords: Efficiency, Sharia Insurance, Spin-off, DEA

INTRODUCTION

Sharia insurance companies are entities with business activities that include risk cover and management risk services , distribution of insurance products, consulting, reinsurance, and loss assessment based on sharia principles (Agusti, 2017). The growth of the insurance companies increasingly both of life sharia businesses and general sharia businesses (Sunarsih & Fitriyani, 2018). This was also followed by a growth in the total asset value of the sharia insurance industry at the end of 2019 of 8.44%, with details of the growth in Islamic life insurance assets of 8.74% and general insurance of 5.02% (Otoritas Jasa Keuangan, 2019).

The growth of sharia insurance business entities up to 2017 has increased by an average of 4.9% per year. The figure was still higher than that of conventional growth-based insurance entities whose growth range of 0.2% per year (Nizar, 2018). The growth of data on the sharia insurance business entities can be seen in Figure 1 below.

Figure 1. Data of Sharia Insurance Business Entities



Source: OJK 2020

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Based on Figure 1, the growth of the sharia insurance industry from 2010 to 2017 has grown quite significantly, namely in the range of 5%, which is still higher than the growth of conventional insurers. However, from 2018 to 2020 the growth of sharia insurance players has decreased. This decline in growth can be seen in 2018 and in 2019 the number of sharia insurance business entities was 62 and at the end of 2020 it became 60 players. Although this growth has decreased, the number of businesses still larger compared to the period prior to 2017. Total of business entities of sharia insurance at the end of 2020 can be seen in Table 1.

Table 1. Number of Sharia Insurance Business Entities Per 31 Des 2020

Type	*Full Pledge*	Sharia Business Unit	Total
Sharia Life Insurance Business	7	23	30
Sharia General Insurance Business	5	21	26
Sharia Reinsurance Business	1	3	4
TOTAL	**13**	**47**	**60**

Source: Otoritas Jasa Keuangan (OJK) Year 2020

Based on FSA data in 2020 (Table 1), there are 60 Islamic insurance companies in Indonesia which consists of 13 companies fully sharia (full pledge) and 47 still in form sharia business unit (UUS) or about 78% of the number of Islamic insurance company in Indonesia. The value of 78% can be specified as 77% is sharia life insurance and 81% is sharia general insurance. This figure is a sizeable number where the Islamic industry has not separated itself from conventional-based insurance companies.

This condition, if it occurred at the beginning of the development of the Islamic insurance company, might be said to be a natural thing. The beginning of the development of Islamic insurance companies began with the establishment of the first Islamic insurance company in Indonesia, namely the takaful Indonesia 1994 with full pledged which was then followed by the growth of sharia insurance companies is still largely in the form of Islamic business units . The large number of sharia insurance industry in the form of UUS is a natural condition because sharia insurance activity is a new type of business, so that the government really encourages the growth of this sharia insurance industry. The type of government support in this case is to facilitate the formation of the Islamic insurance industry in the form of UUS. In addition, the government also issued Government Regulation (PP) Number 39 of 2008 concerning the Second Amendment to Government Regulation Number 73 of 1992 concerning the Implementation of Insurance Business.

Along with the increasing age of the growth of the sharia industry, which has been more than 10 years, Islamic insurance activity is not a new business activity which of course already has a wide market and is well known to the public (Afina et al., 2019; Jannah & Nugroho, 2019). More and more people in this case have the awareness to protect their assets and lives so as to minimize the risk of loss in the future (Souiden & Jabeur, 2015; Sunarsih & Fitriyani, 2018). Under these conditions, the separation of the UUS (Spin-off) from the conventional-based insurance parent company is something that should be done considering the difference in principle between Islamic insurance and conventional-based insurance. One thing that distinguishes sharia insurance from conventional is the sharia insurance business in carrying out its activities based on sharia principles, namely complying with the principles of usury , maysir , and ghoror and always being supervised by the Sharia Supervisory Board (DPS) in carrying out the business (Akhter et al., 2017; Winarno, 2015).

The obligation to carry out this spin-off is regulated in Law no. 40 of 2014 concerning insurance, more precisely in article 87 of Law no.40 of 2014. In this article it is stated that sharia insurance companies in the form of sharia business units have a value of tabarru 'funds and participant investment funds have reached at least 50% of the total. the value of insurance funds, tabarru ' funds , and participant investment funds in the parent company are obliged to do a spin-off . For UUSs that have not met these requirements, they are still required to do a spin-off no later than 10 years since it was enacted, namely 2024. The implementation of this spin-off aims to provide opportunities for the sharia insurance industry so that it can increase the growth of the sharia industry. This is due to carry out a spin-off, The independence that occurs is expected to be able

to develop a sharia insurance business that has high prospects for growth easily (Nasution, 2019). The implementation of the spin-off can improve corporate value in the form of increasing profit, operational efficiency, and others as suggested by many previous works (Owers & Sergi, 2021; Sapienza et al., 2004; Uddin, 2010).

Implementation of the spin-off is expected to be realized by the end of 2024 and during the period, the Government through Finansial Services Authority(FSA) in this case also requires UUS submit a spin-off business plan of each UUS and report the plan to OJK no later than 2020 . However, until 2020 the number of UUSs that submitted only 20 of the existing 47 UUSs . In addition, up to the end of 2020, UUS has implemented a spin-off since the enactment of Law number 40 of 2014, only two companies, namely Jasindo Sharia and Askrida Sharia. By looking at these conditions, this provides information on the problems faced by sharia insurance business actors which can be in the form of insufficient capital adequacy, inadequate asset value, the value of tabaru funds and contribution funds that are not in accordance with the requirements under Law No. 40, problems related to economic conditions that experience negative growth during a pandemic or other problems. It is feared that this problem will affect the level of profitability and efficiency generated after implementing the spin-off.

Some of these possible problems can be seen from the facts related to the growth of contribution funds and assets that have decreased in growth. This can be seen in the following table and figure 2.

Table 2. Sharia Insurance Financial Highlight 2009 sd 2019

(in billion rupiah)

Remark	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Asset	3.022	3.542	9.152	13.240	16.650	22.380	26.519	33.244	40.520	41.915	45.453
Contribution	2.408	2.787	5.081	6.950	9.000	10.000	10.489	12.028	13.995	15.369	16.704

Source: OJK

Based on the data in table 2, the sharia insurance industry during the last decade has experienced a decline in contribution growth, especially for the sharia general insurance industry, even experiencing negative contribution growth. The average growth in the contribution of the sharia insurance industry (life and general insurance) over the past 10 years is 23%, although the first 5 years from 2009 to 2014 the industry average was 35% higher and the second 5 years from 2014 to 2019 decreased to 11%. Likewise, asset growth has experienced a decline in growth from 2016 to 2019. Growth in asset value from 2017 to 2019 is less than 10%. Although the decline in growth is still double digit, contributed more from the sharia life insurance industry, while general sharia insurance has a negative contribution growth (Table 2 and Figure 2)

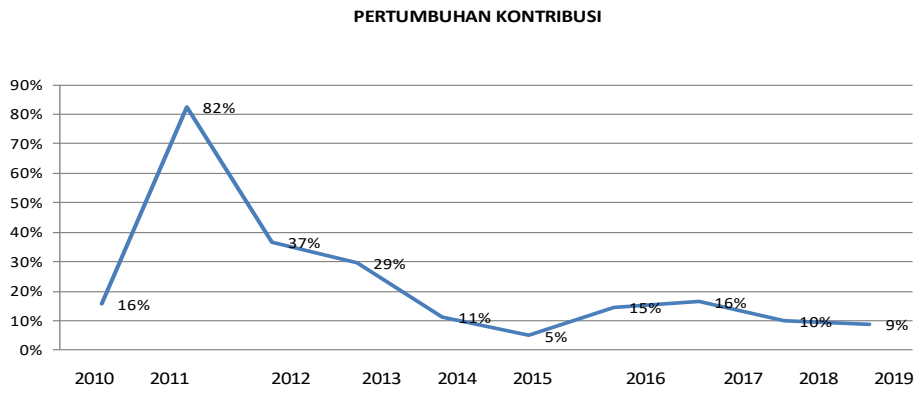

Figure 2 . Growth in Contribution of Sharia Insurance in Indonesia

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Based on Figure 2 above, in 2010 to 2011 there was a significant increase in contribution growth, but after that from 2011 to 2019 there was a small decline and increase, even touching the growth rate of 5%. Especially for sharia general insurance, during the last 3 years, there has been a decline in the growth of negative contributions. The decline in the growth in contribution value and asset value will of course have an impact on the level of profitability and efficiency of the company. A low contribution value has an impact on low test income, as well as a low asset value will have an impact on achieving a low level of profitability.

Based on the conditions described in the previous paragraph, the implementation of Spin-off can be an opportunity and a challenge as well as a consideration for business actors in the form of a sharia insurance business unit whether to carry out the spin-off or otherwise return the sharia license considering the conditions that may be lacking. profitable for the company at a later date. Other considerations faced by industry players are whether or not to the spin-off, that by doing a spin-off the operational costs will be even higher with the formation of complete organization structure as a subsidiary of the parent company, as opposed to just in the form of Sharia business units (divisions), so that the spin-off decision is feared to reduce the profit / level of profitability of the business unit and it may even suffer losses that have an impact on the parent company . In this regard, the implementation of the spin-off had an unfavorable impact on the company (Alexander et al., 1984; Corredor & Mahoney, 2021). Other research also indicated spin-off had no impact on the level of company profitability (Al Arif & Dewanti, 2017).

By looking at the data related to the conditions of sharia insurance growth that have been described in the previous paragraph and also looking at the references regarding the impact of the spin-off , researchers in this case have an interest in conducting research to measure the level of efficiency of UUS for the sharia insurance industry which has implemented a spin-off so as to provide information. which is useful for interested parties. The objectives to be achieved are: (1) To measure the level of efficiency of the sharia insurance industry after spin-off on profit; (2) To measure the level of efficiency of the sharia insurance industry after spin-off on operating income

Research on the spin-off has been done in previous studies, would but have some differences with the research that is being done. Uddin (2010), Hollowell (2009), and Halai (2015) examined the impact of spin-offs on the parent company, which resulted in benefits for the parent company. Sunarsih & Fitriyani (2018) conducted research related to measuring the efficiency of the sharia insurance industry before the spin-off. Al Arif (2015), Pambuko (2019), Taga et al. (2019) and Sihombing & Yahya (2016) also conducted research related to the impact of spin-offs on the financial performance of Islamic banks. Differences of previous research with this study is in the object area and the issues examined, the study measures the efficiency UUS Islamic insurance industry is already doing a spin-off is then compared with the level of efficiency before the spin-off.

LITERATURE REVIEW

Sharia Insurance

Takaful is a way to reduce risk by moving and combining the uncertainty of the financial loss (financially) with car a -way in accordance with sharia (Suma & Amin, 2020). The sharia principle in question is to eliminate the element of uncertainty called gharar, the element of gambling which is called maisir and the element of interest which is called riba (Cattelan, 2009). In sharia insurance , insurance participants enter into an agreement / engagement with an insurance company based on the tabarru contract. Participants deposit an agreed amount of premium / contribution funds. This participant fund will be managed by an insurance company and will be part of the tabarru fund. Contribution funds are not recognized as company revenue. The insurance company only recognizes revenue as much as the amount received from the services of managing these funds . In this Islamic insurance concept, the participants are mutually responsible so there is risk sharing among the participants and companies only function as a manager, whether it manages funds and payment of claims for participants

Efficiency

Efficiency shows the ability of an organization / entity in managing resources to achieve goals or objectives (Rakhmawati, 2017). Efficiency can show the performance results achieved with several

strategies implemented. Efficiency can also be viewed as the ability of an entity to do the job appropriately and in accordance with what is planned, the output produced is more than the input (Niswati, 2014). Efficiency measurement needs to be done to find out whether what is done by an entity is appropriate or not. Related to efficiency measurement, there are several indicators that can be used, one of which is profitability. Profitability affects the efficiency level of a company (Sari & Saraswati, 2017). The elements of the formation of profitability in this case can be in the form of assets that generate income and profit or better known as ROA, elements of income, and expenses as a reduction of income so as to generate profits for the company (Mawaddah, 2015).

Spin-off

Spin-off is a legal action that aims to separate previously from a legal entity and then split or divide themselves (Nasuha, 2012). The spin-off related to insurance companies in accordance with Law number 40 of 2014 article 87 is the separation of the sharia business unit from its parent company into a sharia insurance or sharia reinsurance company. Based on Law number 40 of 2014 article 87, it is stated that in the event that an insurance company or reinsurance company has a sharia unit with the value of the Tabarru 'Fund and participant investment funds have reached at least 50% (fifty percent) of the total value of the Insurance Fund, the Tabarru' Fund, and investment funds participants in the parent company or ten (10) years after the enactment of this Act, p ompany insurance or reinsurance company is obliged to carry out the separation (spin-off) Islamic unit into the company Takaful or Islamic reinsurance company

Data Envelopment Analysis (DEA)

The DEA method is a methodology used to measure the level of efficiency of a Decision Making Unit (DMU). The measurement of efficiency first requires several inputs that will produce the expected output (Niswati, 2014). DEA was first developed by Farell (1957) who measured the technical efficiency of one input and one output, into multi-input and multi-input using the relative efficiency value framework as the ratio of input (single virtual input) to output (single virtual output). Initially, DEA was popularized by Charnes et al. (1978) with the constant return to scale (CRS) method and was developed by Banker et al. (1984) for variable return to scale (VRS), which eventually became known as the CCR and BCC models (Sutawijaya & Lestari, 2009). The DEA method can measure the level of efficiency of several Economic Activity Units (UKE) with many inputs and outputs that can have different units of measurement. So,there is no need to change the unit (Muharam & Pusvitasari, 2007).

Previous Studies

The measurement of the efficiency of the Islamic insurance entity in relation to this spin-off has been carried out by previous researchers. Uddin (2010) stated that the parent company benefits after spin-off in terms of operational efficiency and reducing information asymmetry. Hollowell (2009) found that the spinoff that occurred had an impact on the stock market price of the parent company which was consistently superior for the 4 years since the spin-off was carried out. Halai (2015) also stated that spin-offs have little effect on improving the performance of the parent company.

Sunarsih & Fitriyani (2018) conducted a research on the level of efficiency of sharia insurance players, both sharia general insurance and sharia life insurance in Indonesia using the Data Envelopment Analysis (DEA) method and using general & administrative expense input data, claims and assets, while the output data is investment income. and tabarru' funds. The results of this study indicate that some insurance companies are efficient and some are less efficient. Al Arif (2015) in his research related to spin-offs and the level of efficiency in Islamic banking found that there is a relationship between the spin-off policy on the operational efficiency of banks and banks in Indonesia which are considered less efficient after the spin-off compared to before the spin-off.

Pambuko (2019) in his research on spin-off and efficiency policies in Indonesian Islamic banking, on the other hand, found that the implementation of the spin-off policy significantly increased the operational efficiency of Islamic banking and Return on Assets (ROA) proved to have a significant negative effect on the level of efficiency and the Financing Deposit Ratio (FDR) has no significant effect on the efficiency of Islamic banking in Indonesia. Taga et al. (2010) himself in his research at Bank BNI Sharia shows that the financial performance of Bank BNI Sharia there is a difference

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in financial performance between before and after the spin-off occurs in assets, bank profits, and third party funds (DPK). This can be seen from its development after spin-off. Sihombing & Yahya (2016) in a study on the effect of the spin-off effect on profitability in Indonesia Islamic banking show that spin-off policy and third party funds the bank has no effect on profitability, while variable operating expenses to operating income have a significant effect on profitability .

Conceptual Framework

Based on the theory and purpose of the spin-off, the facts, and the research methods used to obtain the results, a research framework was created which can be seen in Figure 3.

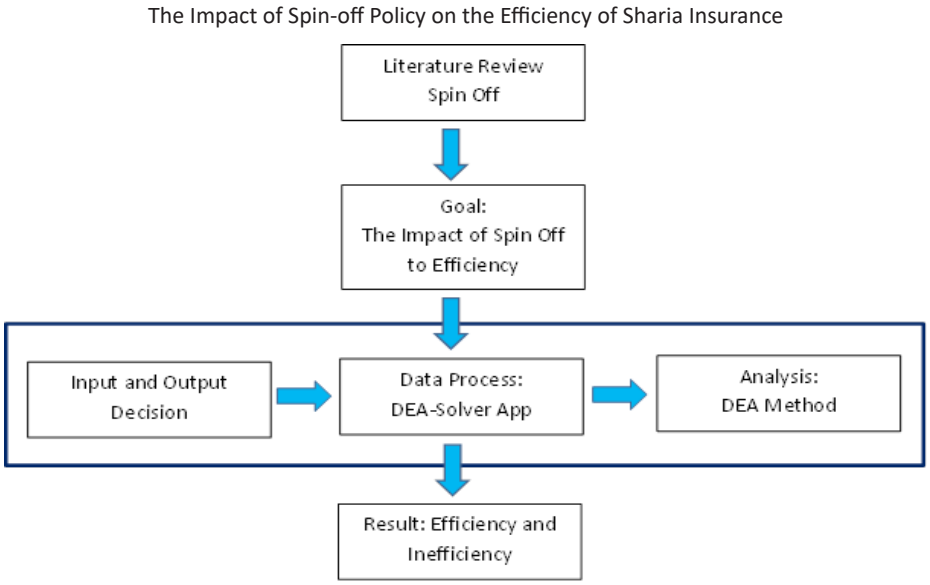

Figure 3. Research Framework

RESEARCH METHOD

The method used in measuring the level of efficiency in this study uses the Data Envelopment Analysis (DEA) method . DEA is a fractional programming model that can include many inputs and outputs, without the need for an explicit explanation of the functional relationship between input and output. DMU in the DEA method can include various entities, such as financial institutions, both banks and insurance businesses, hospitals, retail stores, and anything that has the same operational characteristics (Rifin et al., 2015). The advantages of the Data Envelopment Analysis Method are first, DEA can handle relative efficiency measurements of several similar DMUs by using a lot of inputs and outputs. Second, there is no need to look for assumptions on the form of the relationship function between input and output variables from similar DMUs whose efficiency will be measured. Third, the DMU-DMUs are compared directly with each other. Fourth, the input and output factors can have different units of measurement without the need to make a unit change of the two variables (Muharam & Pusvitasari, 2007). DEA is designed to measure the relative efficiency of an Economic Activity Unit (UKE) that uses more than one input and output, where this combination is not possible (Sutawijaya & Lestari, 2009).

Associated with the data sources used as input and output variables in this study using secondary data, namely the financial reports of the Islamic insurance industry that have implemented a spin-off. The sharia insurance industry, which is the DMU in this research, includes insurance companies Jasindo and Askrida sharia. Although the number of full pledge sharia insurance industries (fully independent companies that are purely sharia) is more than two which can be seen in table 4, but the ones chosen in this study are the general (general) loss sector sharia insurance industry, namely Jasindo Sharia and Askrida Sharia. This is due to the fact that until now only the two companies have made a spin-off from UUS to become a full pledge.

Table 4. Full Pledge Sharia Insurance Company

No.	Insurance Company	Business Type
1.	Takaful Umum	Sharia General Business
2.	Chubb Sharia Indonesia	Sharia General Business
3.	Sonwelis Takaful	Sharia General Business
4.	Jasindo Sharia	Sharia General Business
5.	Askrida Sharia	Sharia General Business
6.	Takaful Keluarga	Sharia Life Business
7.	Jiwa Sharia Al-Amin	Sharia Life Business
8.	Jiwa Sharia Amanahjiwa Giri Artha	Sharia Life Business
9.	Jiwa Sharia Jasa Mitra Abadi	Sharia Life Business
10.	Keluarga Indonesia	Sharia Life Business
11.	Bumiputera	Sharia Life Business
12.	PT Capital Life Sharia	Sharia Life Business
13.	PT Reasuransi Sharia Indonesia (PT ReINDO Sharia)	Sharia Reinsurance Business

Source: OJK Year 2021

Based on table 4, the number of sharia insurance business actors in Indonesia who are fully pledged is 13. However, only two insurers that have a full pledge process from UUS then spin-off into a full pledge , namely Jasindo and Askrida Sharia, while the General Takaful Insurance Company and PT ASuransi Since its establishment, Chubb Sharia Indonesia has a full pledge of pure sharia, PT Asuransi Sonwelis Takaful is a company that converts from conventional to sharia. For Life Insurance, as many as seven sharia life insurance companies and one reinsurance company have been full pledge since their establishment. The financial reporting period used as the data source is the financial statements two periods before the spin-off and three years after the spin-off.

The financial reporting period used as the data source is the financial statements two periods before the spin-off and three years after the spin-off . The data collection method used in this research is the documentation method, which is a method that collects information and data through literature study and exploration of literatures and financial reports. Based on the results obtained by the data collected input data and output data , ie data i nput used is total assets and operating expenses, and the output is the income revenue and operating income. The intermediation approach is used to determine the relationship between input and output .

An intermediation approach is a model approach in explaining the relationship between input and output in the type of business of financial institutions (Muharam & Pusvitasari, 2007). The intermediation approach describes a financial institution as an intermediary or intermediary between surplus and deficit units. Other approaches can be used, ie short- atan assets (the assets approach) and the production approach. The asset approach describes the main function of a financial institution as a lender. In this approach, the output of which is measured actually is de finisikan into assets, production approach depict a financial institution as a manufacturer of account deposits and credit loans, then define the output as the amount of labor, capital expenditure on a set of fixed and other materials (Muharam & Pusvitasari, 2007). Input and output data of the two financial institutions for the insurance industry Jasindo and Askrida can be seen in table 5 , table 6 , table 7, and table 8 .

Table 5 . Data of Total Assets and Operating Expenses (Input) on Jasindo Sharia

Remark	Year 2014	Year 2015	Year 2016	Year 2017	Year 2018
Asset	319.078	353.701	259.049	262.107	256.196
Operating Expenses	34.982	35.768	28.827	34.724	32.621

Source: OJK

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Table 6. Data of Revenue and Profit (Output) on Jasindo Sharia

Remark	Year 2014	Year 2015	Year 2016	Year 2017	Year 2018
Operating Income	75.937	62.516	70.555	60.035	66.706
Profit	38.805	21.302	12.722	10.260	1.142

Source: OJK

Table 7. Data of Total Asset and Operating Expenses (Input) on Askrida Sharia

Remark	Year 2014	Year 2015	Year 2016	Year 2017	Year 2018
Asset	174.611	240.476	439.713	532.259	597.964
Operating Expenses	18.400	24.350	38.018	62.479	62.479

Source: OJK

Table 8. Data of Revenue and Profit (Output) on Askrida Sharia

Remark	Year 2014	Year 2015	Year 2016	Year 2017	Year 2018
Operating Income	66.805	101.570	163.093	218.342	215.412
Profit	13.113	16.176	22.103	25.422	21.701

Source: OJK

Based on the data in tables 5, 6, 7, and table 8, the decision variables that will be used as input and output include:

Jasindo Sharia Companies:

- Operating Income (PU) output weight and Operating Profit (LU) output weight for 2014, 2015, 2016, 2017 and 2018.
- Asset Value (NA) input weight and Operating Expense (BU) input weight in 2014, 2015, 2016, 2017, and 2018

Askrida Sharia company:

- Operating Income (PU) output weight and Operating Profit (LU) output weight for 2014, 2015, 2016, 2017 and 2018.
- Asset Value (NA) input weight and Operating Expense (BU) input weight in 2014, 2015, 2016, 2017, and 2018

Processing of data that has been collected using the DEA - Solver application . Before processing data with the DEA-Solver, the steps taken previously were determining the DEA orientation and selecting the DEA model. At the stage of selecting the DEA orientation, the author will choose the DEA orientation which consists of input oriented and output oriented options . In input oriented, efficiency is seen as reducing the use of input by maintaining its output value , while output oriented, efficiency is seen as adding to output by maintaining the input value (Rakhmawati, 2017). In this study, the selected orientation is output oriented , which is to maintain the input value in accordance with the data to produce output that should be in order to realize efficiency.

At the stage of selecting the DEA model, this study uses the CCR or CRS (Constant Return to Scale) model . This is because each increase in the input value used will cause an increase in output whose value is proportional where the resulting output value is below 10%. Another DEA model is the BCC or VRS (Variable Return to Scale) model, which is a model where each increase in the input value can result in disproportionate output, which can be higher and can be lower.

The analysis technique used to produce a level of efficiency is the DEA model . The DEA model focuses more on its objectives, namely evaluating the performance of an Economic Activity Unit (UKE) or DMU . A DMU is said to be relatively efficient if its dual value is equal to 1 (100 percent efficiency value), on the other hand, if the dual value is less than 1 then the relevant UKE is considered relatively inefficient. The analysis is based on an evaluation of the relative efficiency of DMU comparable, then the DMU-DMU that is efficient, will form the frontier line. If the DMU is in the frontier line, the DMU can be said to be relatively efficient compared to other DMUs in the sample. DEA can also show DMU-DMUs which are references for inefficient DMUs.

RESULTS AND DISCUSSION

The sample data of this study refers to the following criteria: first, sharia general insurance. Second, who has done the spinoff . third, the financial reporting period of 5 years, where 2 years before and after the spin-off year of each sample company. Based on the input and output data of each DMU presented in table 9 and table 10, a linear programming formula can be made (for computer data entry).

Table 9 . Jasindo Sharia Input and Output Data

(in million rupiah)

Year	Asset (NA)	Operating Expenses(BU)	Operating Income (PU)	Profit (LU)
2014	319.078	34.982	75.937	38.805
2015	353.701	35.768	62.516	21.302
2016	259.049	28.827	70.555	12.722
2017	262.107	34.724	60.035	10.260
2018	256.196	32.621	66.706	1.142

From the data table 9, the formula used for data input is generated and the formula for constraints that may be encountered

Input data for 2014 Maximum Z.14 = 75.937PU.14 + 38 LU. 14

Year 2014	75.937PU.14 + 38.805 LU.14 – 319.087NA.14 – 34.982BU.14 ≤ 0
Year 2015	62.516PU.15 + 21.302 LU.15 – 353.701NA.15 – 35.768BU.15 ≤ 0
Year 2016	70.555PU.16 + 12.722 LU.16 – 259.049NA.16 – 28.827BU.16 ≤ 0
Year 2017	60.035PU.17 + 10.260 LU.17 – 262.107NA.17 – 34.724BU.17 ≤ 0
Year 2018	66.706PU.18 + 1.142 LU.18 – 256.1967NA.18 – 32.621BU.18 ≤ 0
	319.087NA.14 + 34.982BU.14 = 1
	PU.14, LU.14, NA.14, BU.14 ≥ 0

Formula for the input of data in 2015, 2016, 2017 and 2018 together with the formula above, differing only in the maximize and its inputs, namely:

- Input data for Year 2015
  Tahun2015 maximum Z15 = 62.516PU.15 + 21.302 LU.15
  INPUT Year 2015 = 353.701NA.15 + 35.768BU.15 = 1
- Input data for Year 2016
  Maximum Z16 = 70.555PU.16 + 12.722 LU.16
  INPUT Year 2016 = 259.049NA.16 + 28.827BU.16 = 1

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- Input data Year 2017
  Maximum Z17 = 60.035PU.17 + 10.260 LU.17
  INPUT Year 2017 = 262.107NA.17 – 34.724BU.17=1
- Input data for Year 2018
  Maximum Z18 = 66.706PU.18 + 1.142 LU.18
  INPUT Year 2018 = 256.1967NA.18 – 32.621BU.18 = 1

Table 10 . Askrida Sharia Input and Output Data

(in million rupiah)

Year	Asset (NA)	Operating Expenses (BU)	Operating Income (PU)	Profit (LU)
2014	176.611	18.400	66.805	13.113
2015	240.476	24.350	101.570	16.176
2016	439.713	38.018	163.093	22.103
2017	532.259	62.479	218.342	25.422
2018	597.964	62.479	215.412	21.701

From the data in table 10, the formula used is the formula for the constraints that may be faced:

- Input data for Year 2014 maximum Z.14 = 66.805PU.14 + 13.113LU.14
- constraint :

Year 2014	66.805PU.14 + 13.113 LU.14 – 176.611NA.14 – 18.400BU.14 ≤ 0
Year 2015	101.570PU.15 + 16.176 LU.15 – 240.476NA.15 – 24.350BU.15 ≤ 0
Year 2016	163.093PU.16 + 22.103LU.16 – 439.713NA.16 – 38.018BU.16 ≤ 0
Year 2017	218.342PU.17 + 25.422LU.17 – 532.259NA.17 – 62.479BU.17 ≤ 0
Year 2018	215.412PU.18 + 21.701LU.18 – 597.964NA.18 – 62.479BU.18 ≤ 0
	176.611NA.14 + 18.400BU.14 = 1
	PU.14, LU.14, NA.14, BU.14 ≥ 0

The formula for data input for 2015, 2016, 2017, and 2018 is the same as the formula above, only differs in maximized and input, namely:

- Input data for Year 2015
  Year 2015 maximum Z15 = 101.570PU.15 + 16.176 LU.15
  INPUT Year 2015 = 240.476NA.15 + 24.350BU.15 = 1
- Input data for Year 2016
  Maximum Z16 = 163.093PU.16 + 22.103LU.16
  INPUT Year 2016 = 439.713NA.16 + 38.018BU.16 = 1
- Input data for Year 2017
  Maximum Z17 = 218.342PU.17 + 25.422LU.17
  INPUT Year 2017 = 532.259NA.17 + 62.479BU.17 =1
- Input data for Year 2018
  Maximum Z18 = 215.412PU.18 + 21.701LU.18
  INPUT Year 2018 = 597.964NA.18 – 62.479BU.18 = 1