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EFFICIENCY ANALYSIS OF SHARIA COMMERCIAL BANK (BUS) 2012-2016 USING DATA ENVELOPMENT ANALYSIS (DEA) METHOD

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ABSTRACT

This research is descriptive quantitative research. The purpose of this research is to measure the level of efficiency review Islamic Banks with using Data Envelopment Analysis (DEA) Method. The population of this research are all of the Islamic Banking of Indonesia that listed on the Financial Services Authority (FSA) as of December 2016. And the sample in this research are a part of the Islamic Banking in Indonesia which Islamic commercial banks and published on Financial Statements during period 2012-2016. This variable of this research is consists from two kinds of variables, which is the input variables and output variables. The input variables are cost sharing ratio, personnel expenses and other operating expenses. Meanwhile, the output variable are the main operating income and other operating income. This study uses the production approach with input orientation and uses three types of measurements are the measurement of the efficiency of overall technical efficiency, pure technical and scale. The results of this study that there were 3 Islamic Banks that achieve optimal efficiency levels in the three types of measurements or 50% of total Islamic Banks sampled.

INTRODUCTION

The banking industry is a very important supporting factor in increasing the economic growth and development of a country. Intermediation, which is the main function of the banking industry, is a very important factor in a country's economy. (Prasetya & Diendtara, 2011, p. 119). According to Banking Law No. 10 of 1998, types of banking consist of Commercial Banks and Rural Banks (BPR). Meanwhile, in Sharia banking, the BPR in question is the Sharia People's Financing Bank (BPRS). (Firmansyah, 2014).

The existence of sharia banking in Indonesia experienced significant development after the promulgation of Law Number 10 of 1998 concerning Amendments to Law Number 7 of 1992 concerning Banking which was more accommodating and provided opportunities for the

development of sharia banking. The presence of this law was further strengthened by the issuance of Law Number 21 of 2008 concerning Sharia Banking which explicitly recognizes the existence of Sharia banking and differentiates it from the conventional banking system (Kara, 2013).

Sharia banks are banks that carry out business activities based on Sharia principles, namely the rules of agreements based on Islamic law between banks and other parties for the storage of funds and/or financing of business activities, or other activities that are declared to be by Sharia. In carrying out their business, Islamic banks use a profit-sharing pattern which is the main basis for all their operations, both in funding products, financing, and other products (Ascarya, 2008).

National Sharia banking in the last decade has continued to show positive and quite encouraging growth, which is reflected in the continuing growth in business volume, investment funds, and funds entrusted to the community as well as the distribution of financing which continues to increase (Department of Sharia Banking, 2015).

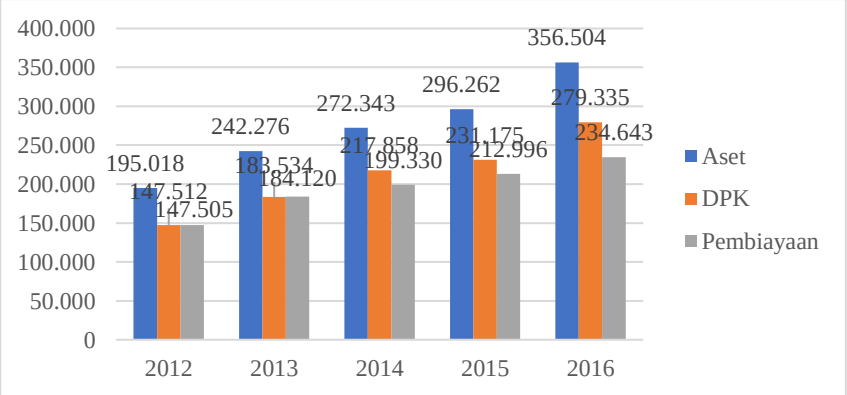
The number of assets, Third Party Funds (DPK), and financing in Sharia banking continue to increase, but when compared with Conventional Commercial Banks (BUK) in terms of interest rates or profit sharing given to customers, Sharia banking is still inefficient.

It is known that the average TPF interest rate for savings at BUK is smaller, namely 2.01%, compared to the profit-sharing rate at BUS, namely 5.66%. This has resulted in many people preferring to save their funds in Sharia Commercial Banks (BUS). Meanwhile, the average interest rate for credit for working capital at BUK is 12.14%, which is smaller than the average margin for financing for working capital at BUS, namely 14.33% (Rahmawati, 2015).

This will make people prefer to borrow funds from BUK. In this way, BUS will be burdened by the accumulation of deposits which will also increase BUS's obligation to pay profit sharing. However, the biggest source of bank income, namely credit/financing, is still small for BUS.

This phenomenon can be seen in graph 1.1 below where DPK and financing in 2012-2013 were still balanced. However, in 2014-2016 DPK experienced rapid growth but the financing disbursed did not increase significantly. It can be said that growth in financing distribution is slowing.

Figure 1. Amount of Assets, DPK and BUS Payment, and UUS Year of 2012-2016 (in Billion Rupiah)



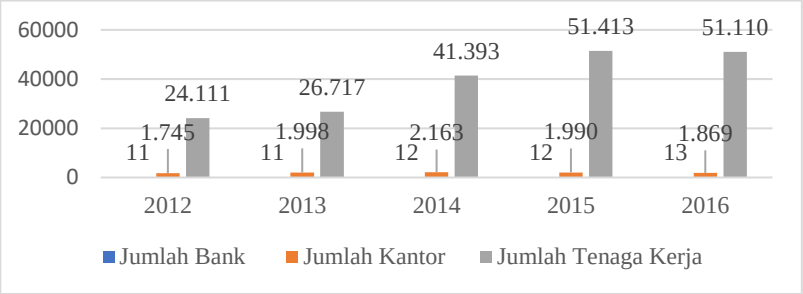
Sources: Otoritas Jasa Keuangan (2015) dan (2017), data diolah.

In the midst of the positive growth of the sharia banking industry which is quite encouraging with an average increase of 33.2% in the last 10 years, there is a phenomenon of slowing business volume growth in development in the last three years so that at the end of 2014 it only recorded growth of 12% (Department of Sharia Banking, 2015).

It can be seen in graph 1.2 below, where the growth in the number of sharia banks from 2012-2016 only increased by two banks, namely to 13 banks. Judging from the number of offices, in 2012-

2014 there was an increase. However, in 2015 and 2016 there was a significant decline. Likewise, the number of workers in 2012-2015 increased, but in 2016 there was a decrease to 51,110 people.

Figure 2. Amount of Banks, Offices, and Labors of Bank Umum Syariah 2012-2016



Sumber: Otoritas Jasa Keuangan (2015) dan (2017), data diolah.

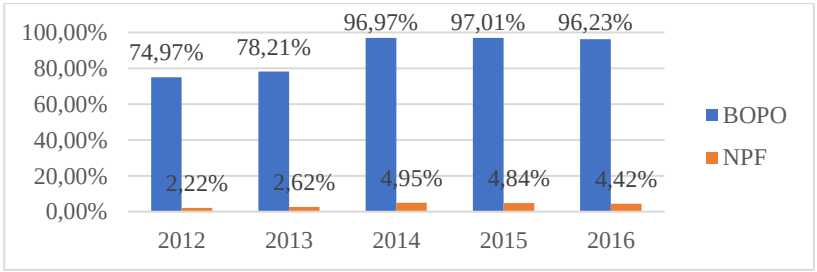
Therefore, BUS must be able to manage funds efficiently to compete with BUK. With BUS efficiency, BUS will be able to provide a smaller percentage fee or margin for borrowers of funds at BUS, so this is the main attraction for customers who want to borrow funds at BUS. With efficient fund management, BUS will be able to compete. This way, sharia banks' market share can increase (Rahmawati, 2015).

Ascarya and Guruh (2008) in Anwar, Edward, & Zainul (2015) stated that to increase the share of Sharia banking, it is necessary to measure performance, including efficiency measures so that the goals of Sharia banking can be achieved.

Efficiency indicators can be seen by paying attention to the ratio of operational expenses to operating income (BOPO) and the Non-Performing Financing (NPF) ratio. Banking performance can be said to be efficient if the BOPO and NPF ratios decrease. Apart from that, efficiency can also be seen by paying attention to the growth in the level of bank performance indicators such as total deposits, financing, and total assets. The greater the amount of deposits, financing, and total assets, the better and more productive the bank is in its operational activities (Fadhlullah, 2015).

It can be seen in graph 1.3 below that the BOPO ratio on BUS experienced a significant increase in 2014-2015. The BOPO ratio in 2012 and 2013 were classified as efficient, namely 74.97% and 78.21%, while in 2014-2016 it experienced a significant increase, reaching 96.23%. Likewise, the NPF ratio, which initially in 2012 and 2013 was 2.22% and 2.62%, experienced an increase in 2013 to 4.95% and began to decline again until 2016 to 4.42%.

Figure 3. BOPO Ratio and NPF of Bank Umum Syariah (BUS) 2012-2016

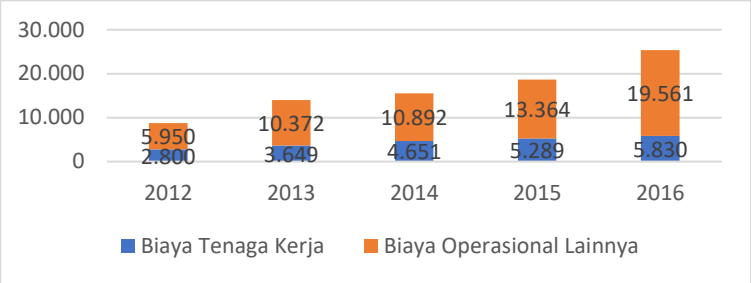


Sumber: Otoritas Jasa Keuangan (2015) dan (2017), data diolah.

Based on the BOPO ratio above, it can be seen that the burden is increasing every year, where labor costs in 2012 were 2,800 billion, increasing in 2013 to 3,649 billion, increasing in 2014 to 4,651 billion, increasing in 2015 to 5,289 billion and increasing again in 2016 to 5,830 billion. Likewise, other expenses (apart from labor expenses) increase every year. Other expenses in 2012 were 5,950 billion, increased in 2013 to 10,372 billion, increased in 2014 to 10,892 billion, increased in 2015 to

13,364 billion and also increased in 2016, namely to 19,561 billion. This can be seen in graph 1.4 below:

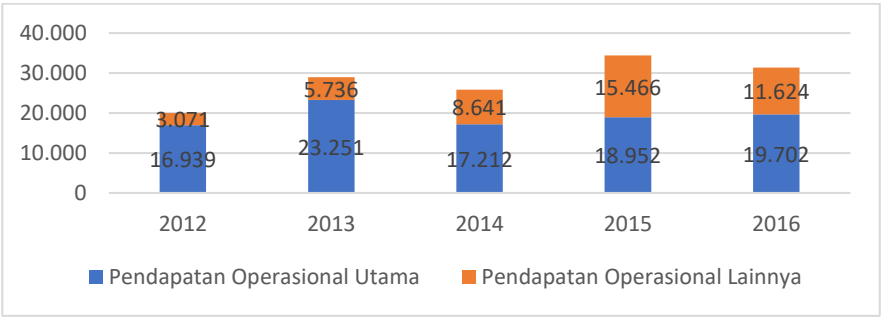
Figure 4. Amount of Labors Payment and Others Operational Payment Tahun 2012-2016 (in Bilion Rupiah)



Sources: Otoritas Jasa Keuangan (2015) dan (2017), data diolah.

Based on the graph below, it shows that income in 2016 decreased from the previous year. This is inversely proportional to the increasing load. Where in 2012 the main operating income was 16,939 billion, increasing in 2013 to 23,251 billion, decreasing in 2014 to 17,212 billion, increasing in 2015 to 18,952 billion, and also increasing in 2016, namely to 19,702 billion. Meanwhile, other operating income (apart from main operations) in 2012 amounted to 3,071 billion, increasing in 2013 to 8,641 billion, increasing again in 2014 to 8,641 billion, and increasing in 2015 to 15,466 billion. However, in 2016 other operating income decreased, namely to 11,624 billion. Overall, Sharia Bank's operational income is still unable to maintain its increase in income. This can be seen in graph 1.5 below:

Grafik 5. Total Operating Income and Other Operating Income of Sharia Commercial Banks 2012-2016 (in Billions Rupiah)



Sumber: Otoritas Jasa Keuangan (2015) dan (2017), data diolah.

Measuring banking efficiency performance is useful as a basis for calculating banking health and growth. The phenomenon of the emergence of large banks and banking mergers is also aimed at gaining efficiency. Abidin and Endri (2009) in Pratikto & Sugianto (2011) state that there are two components used in measuring efficiency performance, namely technical efficiency (the company's ability to use the maximum possible output from several inputs and efficiency, and allocative (the company's ability to use inputs in the optimal proportions possible at a certain input price level).

METHOD

Based on the formulation of the problem to be researched, the type of research that is appropriate for this research is quantitative descriptive research. Descriptive research is research conducted to determine the value of each variable, whether one or more variables are independent without making relationships or comparisons with other variables (Sujarweni, 2014). On the other hand, the data source for this research is secondary data obtained from OJK publication reports, annual reports of each BUS, journals, books as theories, and so on. For analysis technique data, this

research uses secondary data from BUS in Indonesia which was registered with the Financial Services Authority (OJK) in 2015. The data used is in the form of profit and loss financial reports of Sharia Commercial Banks from 2012-2016. The data source comes from the respective websites of Sharia Commercial Banks and OJK.

RESULT AND DISCUSSION

DEA Processing Result

Sharia Commercial Bank is one of the Sharia Financial Institutions in Indonesia. The most important part of the banking industry is its function as an intermediary institution. In carrying out its business, a bank must be able to maximize income and minimize costs. From data processing of the financial reports of six Sharia Commercial Banks in Indonesia which were used as research samples, the author carried out overall efficiency measurements to compare the level of efficiency between Sharia Commercial Banks.

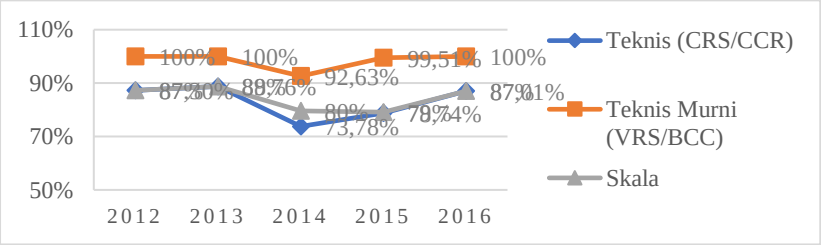
The level of BUS efficiency in this study was measured in three measurements, namely technical efficiency, pure technical efficiency, and scale efficiency. The approach used in this research is a production approach and input orientation. The choice of input orientation (minimize input) is because banks are better at optimizing their companies so that they can work optimally in their market share. Because when a company is operating optimally, it will be easier to compete with other companies. The results of processing using the DEA method at Sharia Commercial Banks for the 2012-2016 period will be analyzed based on each bank.

1. Trends in the Level of Technical Efficiency, Pure Technical Efficiency and Scale Efficiency in Each Sharia Commercial Bank

Each Sharia Commercial Bank will be measured using 3 measurements, namely technical efficiency (CRS/CCR), pure technical efficiency (VRS/BCC), and scale efficiency. Technical efficiency measures the ability of a company to achieve maximum output levels from the input components used. Pure technical efficiency measures a company's ability to avoid waste by producing as much output as possible using little input, and scale efficiency is a measurement that refers to the exploitation of economies of scale by operating at a point where the production frontier is in a Constant Return to Scale condition. (Hassine & Limani, 2014).

a. PT Bank Syari'ah Mandiri

Figure 6. Efficiency Trend at PT. Bank Syariah Mandiri 2012-2016



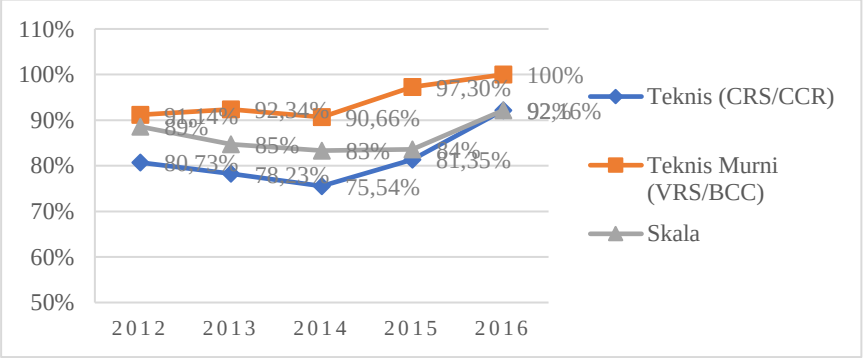
Sumber: Software Banxia Frontier 3, data diolah.

The graph above shows that BSM efficiency trends in 2012-2016 in three measurements show different results. The trend of PT Bank Syariah Mandiri in 2012-2013 was an increase in efficiency in both technical, pure technical and scale measurements with scores of 87.30%, 100% and 87% respectively, namely to 88.76%, 100% and 89%. However, in 2014 the three trends decreased, namely to 73.78%, 92.63% and 80%. In 2015 and 2016 it can be seen that BSM was able to improve its efficiency level in three measurements, namely in 2015 the respective efficiency scores were 78.74%, 99.51%, and 79%, experiencing an increase in efficiency scores in 2016, respectively 87, 01%, 100%,

and 87%. In general, in 2016 BSM improved its efficiency level compared to the previous year.

b. PT. Bank Rakyat Indonesia Syariah (BRIS)

Figure 7. Efficiency Trend at PT. Bank Rakyat Indonesia Syariah 2012-2016

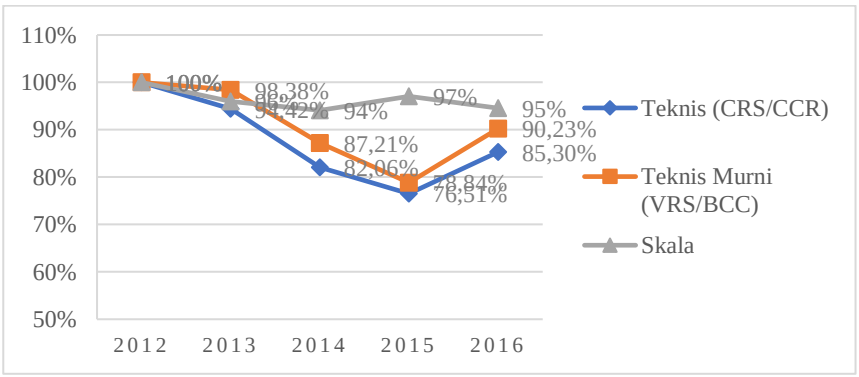


Sumber: Software Banxia Frontier 3, data diolah.

The graph above shows that BRIS efficiency trends in 2012-2016 in three measurements show different results. In 2012-2014, seen from technical measurements and scale, there was a decline, namely in 2012 the efficiency scores were 80.73% and 89% respectively, decreasing in 2013 to 78.23% and 85% respectively. Meanwhile, purely technical measurements experienced an increase in efficiency scores in 2012-2013 from 91.14% to 92.34%. In 2014 the efficiency scores in 3 measurements decreased respectively, namely 75.54%, 90.66%, and 75.54%. In 2015 and 2016 it can be seen that BRIS was able to improve its efficiency level in three measurements, namely in 2015 the respective efficiency scores were 81.35%, 97.30%, and 84%, experiencing an increase in efficiency scores in 2016, respectively 92, 16%, 100%, and 92%. In general, in 2016 BRIS improved its efficiency level compared to previous years.

c. PT Bank Mega Syariah

Figure 8. Efficiency Trend at PT. Bank Mega Syariah in 2012-2016



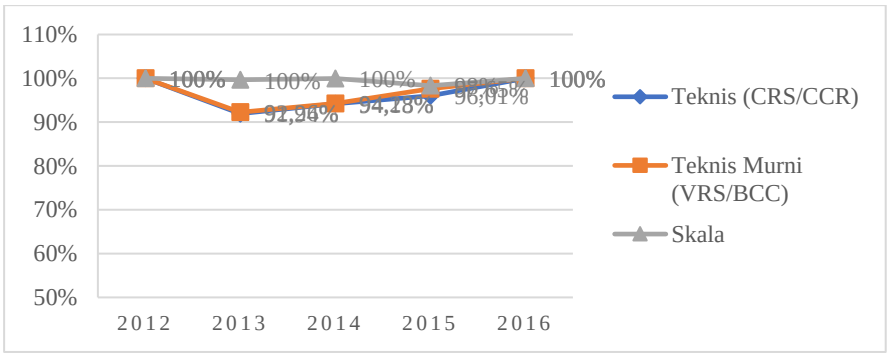
Sumber: Software Banxia Frontier 3, data diolah.

The graph above shows that the BMS efficiency trend in 2012-2016 in three measurements shows different results. In 2012 BMS had a maximum efficiency level in three measurements, namely 100%. However, the level of BMS efficiency in general experienced a significant decline from 2013-2015, namely in 2013 the respective efficiency scores, namely 94.42%, 98.38% and 96%, decreased respectively in 2014 to 82.06%. , 87.21% and 94%. In 2015, the technical and pure technical measurements also experienced a decrease in the efficiency score to 76.51% and 78.84%, only scale

measurements experienced an increase in the efficiency score, namely to 97%. In 2016, the technical and pure technical measurements also experienced an increase in the efficiency score to 85.30% and 90.23%, only the scale measurement experienced a decrease in the efficiency score, namely to 95%. In general, in 2016 BMS has improved its efficiency level compared to previous years.

d. PT. Bank Negara Indonesia Syariah (BNIS

Figure 9. Efficiemcy Trend at PT. Bank Negara Indonesia Syariah in 2012-2016

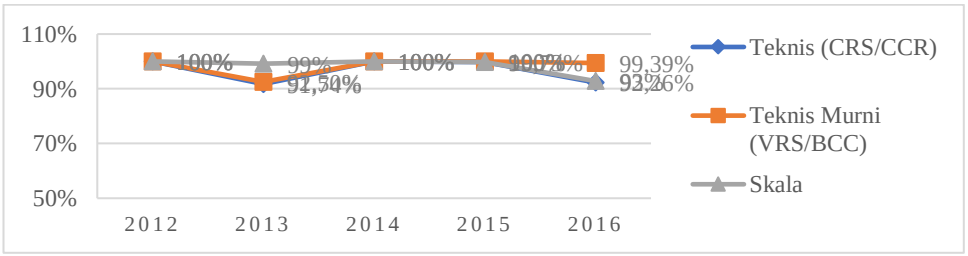


Sumber: Software Banxia Frontier 3, data diolah.

The graph above shows that BNIS efficiency trends in 2012-2016 in three measurements show different results. In 2012, looking at the 3 methods of measuring efficiency, BNIS has shown the maximum level of efficiency as seen from the achievement of scores from the three measurements, namely 100%. However, in 2013 BNIS experienced a decrease in efficiency in technical and pure technical measurements, namely with scores of 91.94% and 92.26% respectively. This is a motivation for BNIS to increase its efficiency again with the efficiency improvements carried out by BNIS from 2013-2016. In 2014 the efficiency scores in three measurements were respectively 94.18%, 94.23% and 100%, increasing in 2015 to 96.01%, 97.65% and 98%. Then in 2016 the score also experienced an increase so that it achieved maximum efficiency, namely with a value for each measurement of 100%. In general, in 2016 BNIS has improved and maintained its level of efficiency compared to previous years.

e. PT. Bank Panin Dubai Syariah (BPDS)

Figure 10. Efficiency Trend at PT. Bank Panin Dubai Syariah in 2012-2016



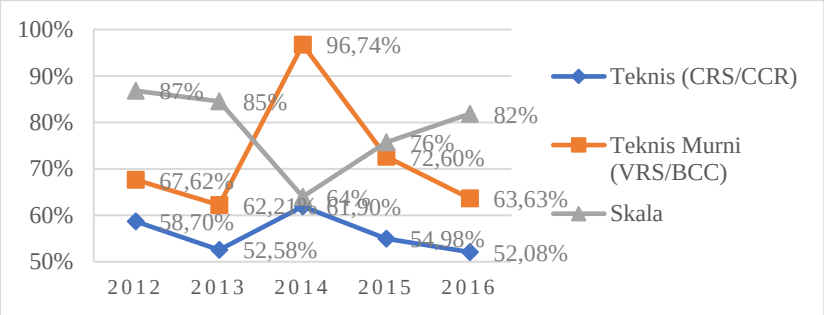
Sumber: Software Banxia Frontier 3, data diolah.

The graph above shows that the BPDS efficiency trend in 2012-2016 in three measurements shows different results. In 2012, in three efficiency measurements, BPDS has shown the maximum level of efficiency as seen from the achievement of scores from all three measurements, namely 100%. However, in 2013 BPDS experienced a decrease in efficiency in three measurements, namely with scores of 91.74%, 92.50% and 99% respectively. In 2013 BPDS has improved its efficiency level so that it can achieve the maximum efficiency score in three measurements, each with a value of 100%. However,

in 2015 BPDS experienced a slight decrease in efficiency in technical measurements, namely with a score of 99.73%. However, in 2016 there was a decline in all three measurements with respective efficiency scores of 92.26%, 99.39% and 93%. In general, in 2016 BPDS experienced a slight decline in efficiency levels. Therefore, improvements still need to be made to maximize and maintain efficiency scores like in previous years.

f. PT. Bank Muamalat Indonesia (BMI)

Figure 11. Efficiency Trend at PT. Bank Muamalat Indonesia in 2012-2016



Sumber: Software Banxia Frontier 3, data diolah.

The graph above shows that the BMI efficiency trend in 2012-2016 in three measurements shows different results. In 2012-2013, in three efficiency measurements, BMI experienced a decrease in efficiency, namely in 2012 the efficiency score for each measurement was 58.70%, 67.62% and 87%, decreasing in 2013 to 52.58%, 62, 21% and 85%. In 2014, the level of efficiency in technical and purely technical measurements increased to 61.90% and 96.74% respectively. Meanwhile, in measuring on a scale, efficiency decreased to 64%. In 2015-2016 the level of efficiency in technical and purely technical measurements decreased again with the respective scores in 2015 being 54.98% and 72.60%. Meanwhile, in scale measurements, efficiency increased to 76%. In 2016 there was also a decrease in efficiency in technical and pure technical measurements, namely with scores of 52.08%, 63.63%, and 82% respectively. In general, BMI's efficiency level must be improved again to reach an optimal level of efficiency because, during the 2012-2016 period, it has never experienced the level of efficiency that it should have.

Based on the results of the analysis of each Sharia Commercial Bank show that 3 banks can achieve optimal levels of efficiency in 3 measurements. The three banks are PT. Bank Mega Syariah which was able to be optimally efficient in 2012. The second is PT. Bank Negara Indonesia Syariah which was able to be optimally efficient in 2012 and 2016. And finally, PT. Bank Panin Dubai Syariah was able to reach optimal levels of efficiency in 2012 and 2014.

Return to Scale

Apart from looking at the efficiency level of each BUS and knowing which companies are used as references, the DEA method can also measure and ensure whether the DMU (Decision Making Unit) has increased its production capacity or not. In this case, each DMU will be in one of three Return to Scale (RTS) conditions, namely Increasing Return to Scale (IRS), Constant Return to Scale (CRS), and Decreasing Return to Scale (DRS).

In the 2012 period there were 4 efficient banks or 67% of the total DMU (Decision Making Unit) of Sharia Commercial Banks in that period, which were in the Constant Return to Scale (CRS) condition, namely BSM, BMS, BNIS and BPDS. In 2013, the number of BUS that were in CRS condition decreased from the previous year, namely there was only 1 bank, namely BSM, which was able to be in CRS condition this year or 17% of the number of Sharia Commercial Bank DMUs in that period.

In 2014 and 2015, the number of BUS that were in CRS condition was stagnant from the previous year, namely there was only 1 bank, namely BPDS, which was able to be in CRS condition in 2014 and 2015, which was 17% of the number of Sharia Commercial Bank DMUs in that period. . In 2016 the number of BUS in CRS condition increased from the previous year, namely there were 3 banks or 50% of the number of Sharia Commercial Bank DMUs in that period. The three banks are BSM, BRIS and BNIS.

Meanwhile, DMUs that are in a Decreasing Return to Scale (DRS) condition need to improve their input so they can be more efficient. The DRS condition during the 2012-2016 period was only found in 2013 and 2014, namely 1 bank or 17% of the total DMU of Sharia Commercial Banks in that period that needed to improve its input, namely BNIS. However, in the following year, namely 2015-2016, BNIS began to improve its input.

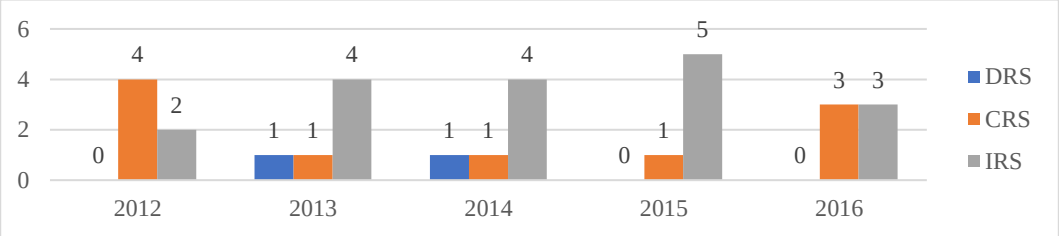
The third condition is Increasing Return to Scale (IRS), where DMUs experiencing this condition can expand to increase the amount of output they have. In 2012, there were 2 companies or 33% of the total DMU of Sharia Commercial Banks in that period that needed to expand or increase their output, namely BRIS and BMI.

Then in 2013 the number of companies in this condition increased, namely to 4 banks or 67% of the number of Sharia Commercial Bank DMUs in that period which needed to increase output so that they could be more efficient. These banks are BRIS, BMS, BPDS and BMI. Furthermore, in 2014 the number of banks that were in a stagnant IRS condition or the same as the previous year was 4 banks or 67% of the total DMU of Sharia Commercial Banks in that period. BUS that need to increase output are BSM, BRIS, BMS and BMI.

Then in 2015 the number of companies in this condition increased, namely to 5 banks or 83% of the number of Sharia Commercial Bank DMUs in that period which needed to increase output so they could be more efficient. These banks are BSM, BRIS, BMS, BNIS and BMI.

Furthermore, in 2016 the number of companies in this condition decreased to 3 banks or 50% which needed to increase their output so that they could be more efficient, namely BMS, BPDS and BMI. The conditions of CRS, DRS, and IRS at Sharia Commercial Banks in Indonesia in this research can be seen in the graph below:

Figure 12. *Return to Scale* Bank Umum Syariah in Indonesia 2012-2016



Sumber: Software Banxia Frontier 3, data diolah.

From this graph, it can be seen in general the three conditions of BUS Return to Scale (RTS) in Indonesia. In CRS conditions or conditions where companies are said to be relatively efficient, the most occurred in 2012, namely 4 out of 6 banks or 67%. And the DRS condition only occurred in 2013 and 2014. This shows that more and more BUS have started to improve their input.

The final condition is that the IRS shows a more fluctuating trend where 2015 is the year with the largest number of BUS requiring an increase in output production compared to other years. From this it can be seen that on average BUS needs to improve its input and increase its output, so that an optimal level of efficiency can be achieved.

Sources of Inefficiency and Potential Improvements

Apart from measuring the level of efficiency and Return to Scale (RTS) in the previous section, the DEA method used can determine the potential improvement (Potential Improvement) of each inefficient DMU. It can be seen as follows:

Tabel 1. *Potential Improvement* of Bank Umum Syariah di Indonesia

Minimize input					
	2012	2013	2014	2015	2016
Biaya Nisbah Bagi Hasil (X_1)	-12	-14,2	-18	-16,4	-12,5
Biaya Personalia (X_2)	-6,88	-12,2	-9,22	-9,23	-7,8
Biaya Operasional Lainnya (Diluar Biaya Personalia) (X_3)	-8,03	-15,7	-6,43	-15,6	-17,7
Pendapatan operasional utama (Y_1)	0	0	0	0,8	0,3
Pendapatan operasional lainnya (Y_2)	3,2	12	24	24	11
Maximize output					
	2012	2013	2014	2015	2016
Biaya Nisbah Bagi Hasil (X_1)	-4,7	-7,77	-13,4	-11,4	-8,98
Biaya Personalia (X_2)	0	-1,93	-3,22	-0,57	-0,95
Biaya Operasional Lainnya (Diluar Biaya Personalia) (X_3)	-1,18	-4,53	0	-8,08	-10,8
Pendapatan operasional utama (Y_1)	16,9	12,5	5,73	9,53	8,83
Pendapatan operasional lainnya (Y_2)	13	23,8	33,5	35,1	19,4

Sumber: Software Banxia Frontier 3, data diolah.

From this table it can be seen that the sources are inefficient (inefficiencies) both in terms of input and in terms of output on the BUS. By knowing the source of inefficiency and how big the level of inefficiency is, banks can know how much potential each BUS needs to do. From 2012 to 2016 BUS experienced weaknesses in all its input variables. And in terms of optimizing the level of efficiency by maximizing output where all input variables are considered correct. From 2012 to 2016 BUS also experienced weaknesses in all its output variables. From this table, both in terms of minimizing input and maximizing output, in general, all variables in the BUS still need improvement. These variables are profit-sharing ratio costs (X1), personnel costs (X2), other operational costs (X3), main operating income (Y1), and other operating income (Y2).

To achieve this level of efficiency, the 2016 profit-sharing ratio needs to be improved by reducing the reduction by 8.98%-12.5%. Personnel costs in 2016 need to be improved by reducing deductions by 0.95%-7.8%. Other operational costs in 2016 need to be improved with a reduction of 10.8%-17.7% to minimize input to achieve efficiency levels.

The main operating income in 2016 also needs improvement with an increase of 0.3%-5.16%. The final variable is other operating income which also requires an increase of 11% -19.4% to achieve efficiency. Based on the data presented above, every bank should prioritize improving these sources of inefficiency. By minimizing costs incurred or maximizing output.

During the observation period from 2012 to 2016, the variable that caused inefficiency with the greatest improvement value was Other Operating Income. The value of improvements in Other Operating Income is greater than the value of improvements in Main Operating Income. Other Operational Income in BUS is also something important because it can provide additional Business Profit (Loss) such as bonuses for Bank Indonesia Syariah savings facilities, sukuk profit sharing, profit

sharing from placements with other banks (current accounts, savings, deposits, financing, Mudharabah Investment Certificates Interbank (SIMA) and so on).

With improvements to this variable, it is hoped that the level of production efficiency in BUS can be achieved. However, apart from improvements in the Other Operating Income variable, during the observation period other variables also need improvements in both the minimize input and maximize output approaches. On the other hand, After looking at the level of BUS efficiency from three types of measurements and also knowing the source of the inefficiency, in this section the author will give a ranking to each DMU of Sharia Commercial Banks. The ranking is given based on the average efficiency score obtained by each DMU. The BUS ranking in Indonesia can be seen in the following table:

Tabel 2. The Ranks of Bank Umum Syariah di Indonesia

Bank	Rank	Average of 3 Efficiency Measurement
2012 Bank Mega Syariah	1	100,00%
2012 Bank Negara Indonesia Syariah	2	100,00%
2012 Bank Panin Dubai Syariah	3	100,00%
2014 Bank Panin Dubai Syariah	4	100,00%
2016 Bank Negara Indonesia Syariah	5	100,00%
2015 Bank Panin Dubai Syariah	6	99,82%
2015 Bank Negara Indonesia Syariah	7	97,33%
2013 Bank Mega Syariah	8	96,26%
2014 Bank Negara Indonesia Syariah	9	96,12%
2016 Bank Panin Dubai Syariah	10	94,83%
2016 PT Bank Rakyat Indonesia Syariah	11	94,77%
2013 Bank Negara Indonesia Syariah	12	94,62%
2013 Bank Panin Dubai Syariah	13	94,47%
2013 Bank Syariah Mandiri	14	92,51%
2012 Bank Syariah Mandiri	15	91,53%
2016 PT Bank Syariah Mandiri	16	91,34%
2016 Bank Mega Syariah	17	90,02%
2014 Bank Mega Syariah	18	87,79%
2015 PT Bank Rakyat Indonesia Syariah	19	87,42%
2012 PT Bank Rakyat Indonesia Syariah	20	86,82%
2015 Bank Syariah Mandiri	21	85,79%
2013 PT Bank Rakyat Indonesia Syariah	22	85,10%
2015 Bank Mega Syariah	23	84,13%
2014 PT Bank Rakyat Indonesia Syariah	24	83,17%
2014 Bank Syariah Mandiri	25	82,02%
2014 Bank Muamalat Indonesia	26	74,21%
2012 Bank Muamalat Indonesia	27	71,04%
2015 Bank Muamalat Indonesia	28	67,77%
2013 Bank Muamalat Indonesia	29	66,44%
2016 Bank Muamalat Indonesia	30	65,85%

Sumber: Software Banxia Frontier 3, data diolah.

So, with this ranking, each bank can find out in which year the BUS had the best level of efficiency to be used as a reference in making decisions about using inputs and maximizing output in the following period. The BUS can also be used as a reference for other banks to increase the bank's efficiency score.

CONCLUSION

The conclusion from the research on the efficiency level of Sharia Commercial Banks using the Data Envelopment Analysis (DEA) method during the 2012-2016 observation period is that of the 6 banks used as research samples, there were 3 banks (BMS, BNIS, and BPDS) or 50% of banks were able to reach this level. optimal efficiency in managing bank income and expenses.

The results of the analysis from this research are that the biggest source of inefficiency in the six BUS in Indonesia that were sampled is other operating income variables. The following are details of the sources of inefficiency contained in five variables, namely profit sharing ratio costs (improvements with a reduction of 8.98%-12.5%), personnel costs (improvements with a reduction of 10.8%-17.7%), costs other operations (improvement with a reduction of 9.7%-12.14%), main operating income (improvement with an increase of 0.3%-5.16%) and other operating income (improvement with an increase of 11%-19 .4%).

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