Efficiency of Indonesian Islamic People's Financing Banks using Data Envelopment Analysis

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Abstract: An efficient bank will be able to reduce costs and impose a relatively low margin on customers. In the long term, achieving efficiency will significantly increase the market share of Islamic banking. This study aims to measure the efficiency level of Islamic People's Financing Bank (BPRS) in Central Java Province, Indonesia. The method used in this study is Data Envelopment Analysis (DEA) to measure and map the Islamic People's Financing Bank (BPRS) efficiency level. The data used are all BPRS in Central Java during the period of 2010-2016. Data on input and output variables are obtained from the balance sheet and profit and loss statement for each BPRS. Two inputs and two outputs are used to measure the efficiency of BPRS. The input variables are Third Party Funds (X1) and Personnel Costs (X2). Meanwhile, the output variable are Total Financing (Y1) and Operating Income (Y2). The use of deposits and financing in input-output because this study uses an intermediation approach. The results of this study indicate that in general, the average efficiency level of BPRS in Central Java Province during the study period was 75.87%, BPRS that achieved optimal efficiency levels were less than those that were not efficient. Pure technical inefficiency BPRS exceeds the scale inefficiency, which means managerially incompetent are exist in the utilization of input resources even though the BPRS has been operating on a reasonably optimal scale of operation. Based on the analysis of total potential improvement, the results showed that in order to be more efficient, BPRS that are not efficient should be able to optimize the financing level of 98.16% or almost twice the current condition and reduce the operational expense by 0.91%. Similarly, third party funds (DPK) that have not been optimized amounted to 0.91%.

1 INTRODUCTION

An efficient and profitable banking system becomes an indispensable condition for economic growth because of the important role of commercial banking in the financial system and economic development (Dietrich and Wanzenried, 2014). Failures in this sector can lead to financial instability and disrupt the national economy. Bank performance has attracted attention in the literature of economics and finance because of its very important role for the economy. Bank performance can be measured by various terminologies namely efficiency, productivity and profitability (Bikker and Bos, 2008)

Based on profitability measurement, Indonesia has better banking performance compared to neighboring countries classified as ASEAN-5, namely Singapore, Malaysia, Thailand and the Philippines. Meanwhile, if the performance of efficiency is measured using CIR (cost to income ratio), the results are worrying. The results of

efficiency analysis using the Stochastic Frontier Analysis approach conducted by (Alfin Apriyana, Hermanto Siregar, 2015) show that Thai banks have the highest efficiency value (77.7%) followed by Singapore (73.6%), Malaysia (66.9%), Indonesia (66.3%), and the Philippines (61.9%). Based on these efficiency values, Indonesia is in a position that is less efficient compared to ASEAN-5 countries. Figure 1 shows the final position of various measures of banking performance in ASEAN-5.
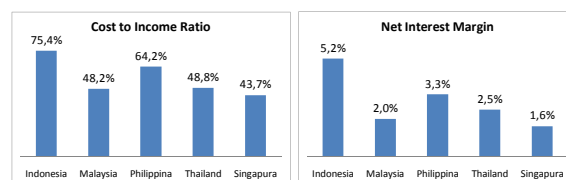
Source: bankscope data for December 2015 except for Malaysia, Singapore Sep 2015

Figure 1: Comparison of ASEAN-5 Banking Performance.

The development of the Islamic banking industry in Indonesia shows a relatively good tendency, although it seems slow. Data in December 2015, based on sharia banking statistics, the number of Islamic banks has reached up to 12 Islamic Commercial Banks, 22 Sharia Business Units and 163 Islamic People's Financing Banks with a total network of 2,301 offices throughout Indonesia (OJK, 2017).

One of the smaller types of Islamic banks is Islamic People's Financing Bank or BPRS. In the past 2 years, Islamic People's Financing Bank also faced significant challenges and obstacles. From 2015 to the end of April 2016 there were 8 rural banks which were liquidated by Indonesia Financial Services Authority where two of them (25%) were Islamic People's Financing Bank. In 2015, there were 3 liquidated rural banks / Islamic People's Financing Bank where one of them (33%) was Islamic People's Financing Bank namely BPRS Hidayah Jakarta located in West Jakarta. Whereas in 2016 until the end of April 2016 there were 5 rural banks / Islamic People's Financing Bank which were liquidated by Indonesia Financial Services Authority where 1 (one) of them (20%) were Islamic People's Financing Bank namely PT. BPRS Al Hidayah located in Pasuruan, East Java.

Based on the data above, it can be seen that in the last 2 years the development of Islamic People's Financing Bank was quite worrying because every year there are Islamic People's Financing Banks that were closed. Nowadays, there are several Islamic People's Financing Bank that has worrying conditions and under the supervision of the Indonesia Financial Services Authority. This Islamic People's Financing Bank is not likely to be liquidated or revoked if the operating time is not able to improve its performance. The revocation of the business license (liquidation) of the Islamic People's Financing Bank which is currently happening is very worrying for sharia banking circles. Initially, Sharia Banking including Islamic People's Financing Bank was considered safe and small, but it was the same as rural banks which had the possibility of being closed or liquidated.

The main motivation for reforming the banking sector including the Islamic People's Financing Bank is to encourage the banking sector in the regulatory and legal framework, monitoring and conducting supervision, financing risk management, liquidity management, auditing and other important aspects. If the banking sector reforms are going well, this will be able to increase the efficiency of the banking sector which has an effect on every aspect of the bank's operations. An efficient bank will be able to reduce costs and apply a relatively low margin to customers. In the long run, the achievement of efficiency will be able to increase market share consistently in the Islamic banking industry.

Indonesian bankers must be able to manage their institutions efficiently, both from technical efficiency and scale efficiency (as a product of economies of scale) in order to compete well. Managerial ability to manage costs is very important to continue to be elaborated so that alternative strategies can be found. Alternative strategies can be implemented by bankers because its possibility of having a greater impact and management is directly in the hands of bank managers.

Study of banking efficiency in Indonesia and several countries showed that although there have been many studies that measure banking efficiency and identify their determinants, there is still a need to add perspectives from two aspects simultaneously, namely efficiency management (technical efficiency) and economies of scale. This is important in a managerial context because the first is more short term (quick wins) while the second is more medium term.

Data Envelopment Analysis (DEA) as one method of efficiency measurement has been widely used by researchers in various countries including (Aghayi, 2017) which measures cost efficiency at Iran's national bank, (Abul et al., no date) which conducts efficiency testing on Malaysian banks, (Imad Bou Hamad, Abdel Latef Anouze, 2016)which examined the efficiency of 151 commercial banks in Middle Eastern and North African countries. Some researchers using the DEA method include (Fallah Jelodar and Bagirov, 2016) in Tanzania, (Yin et al., 2018) in China, (Muhammad Masum et al., 2015) in Bangladesh, (Ohe and Peypoch, 2016) in Japan and (Puri and Yadav, 2015) in India.

2 LITERATURE REVIEW

The concept of efficiency comes from the concept of microeconomics, namely producer theory. Producer theory tries to maximize profits or minimize costs from the manufacturer's perspective. In the producer theory there is a production frontier curve that describes the relationship between input and output of the production process. Production frontier curve represents the maximum level of output for each use of input that represents the use of technology from a company or industry (Ascarya and Yumanita, 2007).
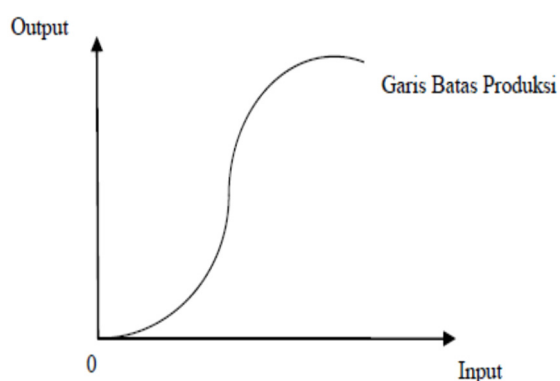
Figure 2: Production Frontier Curve.

Economic theory explains two types of efficiency, namely economic efficiency and technical efficiency. Economic efficiency has a macroeconomic view, while technical efficiency has a microeconomic view. Technical efficiency measurements are only for techniques and operational relationships in the process of using inputs into output. The efficiency term in DEA refers to the definition of technical efficiency, namely the relationship between input and output in a business unit.

Meanwhile, there are three types of efficiency in the company perspective, namely: technical efficiency, allocative efficiency and economic efficiency. Technical Efficiency describes the company's ability to achieve optimal output levels using certain input levels. Technical Efficiency measures the production process in producing a certain number of outputs using minimum input. In other words, production process becomes technically efficient if the output of an item can no longer be increased without reducing the output of other goods.

Furthermore, Allocative Efficiency describes the company's ability to optimize the use of inputs by price structures and its technology. The terminology of Pareto efficiency is often equated with allocative efficiency for honoring the Italian economist Vilfredo Pareto who developed the concept of efficiency inexchange. Pareto Efficiency explains that production inputs are used efficiently if these inputs can no longer be used to increase a business without causing at least the circumstances of another business to get worse. In other words, if inputs are allocated to produce output that cannot be used or unwanted by consumers, these inputs are not used efficiently.

Economic Efficiency describes a combination of technical efficiency and allocative efficiency. Implicitly, economic efficiency is the concept of least cost production. For a certain level of output, a production company is said to be economically efficient if the company uses the cost per unit of the most minimal output. In other words, for a certain level of output, a production process is said to be economically efficient if there is no other process that can be used to produce the level of output at the least cost per unit.

Recently, the frontier efficiency measurement model has improved, both in theoretical and practical concepts. In general, the efficiency level measurement model is divided into two parts, parametric and nonparametric. In a conventional DEA model, all data is known correctly or given a clear value. However, the observed values of input and output data in real world problems are sometimes inaccurate or unclear. In addition, performance measurement in the conventional DEA method is based on the assumption that inputs must be minimized and output must be maximized, a mathematical programming technique that is widely used is the one that compares input and output of DMU by evaluating its relative efficiency (Damghani, 2016). Next, Ebrahimnejad (2014) proposed a three-stage DEA model with two independent parallel stages connected to the third final stage. Calculate the efficiency of the model by considering a series of intermediate steps and constraints, resulting in the effectiveness of the procedure for implementing the proposed model.

Previous Studies

Studies on the efficiency of Islamic banks is supported by Hasan (2003) which describes the cost, profit, revenue, and X-efficiency of Islamic banks throughout the world. First, the study makes a stochastic cost frontier approach to calculate the cost efficiency of Islamic banks during 1996-2002. Second, the study calculating profit efficiency by paying attention to cost and revenue. Third, the study determines revenue efficiency to determine whether Islamic banks innovate banking products to increase their income. Fourth, using the non-parametric Data Envelopment Analysis (DEA) method to calculate overall efficiency, namely technical, pure technical, allocative, and scale efficiency. The result is that, on average, the Islamic bank industry is relatively inefficient compared to conventional banks.

In addition, previous study shows that the efficiency of Islamic banks is increasing in Islamic banks in Malaysia. (Sufian, 2006) measured and analyzed the efficiency of Islamic banks both foreign and domestic in Malaysia during 2001-2004. DEA analysis method is used in this study with input variables consisting of: total deposits, labor costs, and assets. Financing variables and operating

income as output. The results showed that overall the efficiency of Islamic banks in Malaysia has increased. This study revealed that sharia foreign banks were on average lower efficient than sharia domestic banks during the year of observation.

The same study using DEA was carried out by (Dan, Yumanita and Thamrin, 2006) during 2000-2004. The results showed that technically relative efficiency of Islamic banks with an intermediation approach (100%) and production approach (85%) in 2004. Likewise, the relative efficiency on a scale basis from the intermediation approach (87%) and production approach (97%). In general, the in term of production approach, Islamic banks has decreased in technical efficiency, but has increased in scale efficiency because at that time Islamic banks were quite aggressive in expanding opening new offices.

Studies that are relatively relevant to this research are those carried out by (Shawtari, Ariff and Razak, 2015). Using the Data Envelopment Windows Analysis (DEWA) approach, (Shawtari, Ariff and Razak, 2015) tried to analyze the efficiency of the banking industry in Yemen during 1996-2011. The results showed that the banking industry in Yemen generally experienced a downward trend and efficiency instability during the study period. The results of the study also found that the majority of Yemeni conventional banks were relatively more stable although inefficient. Meanwhile, Islamic banks and foreign banks are more efficient from time to time. The state-owned banks and private banks are relatively lagging behind in terms of achieving efficiency. Other studies related to the efficiency of Islamic banks in Indonesia are mostly carried out by (Rusydiana and Al Farisi, 2016), (Zeitun and Benjelloun, 2012), and (Rusydiana and Nugroho, 2017).

(Fallah Jelodar and Bagirov, 2016) examined the performance (efficiency) of banks in Tanzania in several factors, namely management, personnel, finance, and customer segmentation. The results found 28 important factors that affect the performance of banks selected and divided into 4 regions. Then, hierarchical analysis is used to prioritize these factors and the weights obtained from paired comparisons are ranked using the DEAHP integration method. Another study was also conducted by (Kaffash and Marra, 2017) with the DEA method, resulting in a main approach, model and type of efficiency in the banking group, money market funds, and insurance groups by identifying the main pathways, namely the main ideas underlying each research field.

The DEA method is also used by (Tlig and ben Hamed, 2017) which examines PATB (Tunisian Bank professional association) using DEA with three inputs, namely deposits, labor and fixed assets and two outputs, namely loans and portfolio investments. These data sources are fixed assets, deposits, loans and portfolio investments measured in TND (Tunisian Dinar) and labor measured by the number of staff. The data used is inaccurate is the level of innovation as input and customer satisfaction as output. The empirical results showed that large banks are the most efficient because they spend a large part of the total budget on investment in new technology. This is in line with (Wanke, Barros and Emrouznejad, 2016) which states that labor prices, capital prices, and market share were found to be significant factors in measuring bank efficiency.

3 RESEARCH METHOD

Research method used in this study is Data Envelopment Analysis (DEA). DEA is a nonparametric method that uses a linear program model to calculate the ratio of the output and input ratio for all units compared. The advantage of using the DEA is that this approach does not require explicit specifications of the form of function and only requires a little structure to form its efficient frontier. The disadvantage that might appear is the self-identifier and near self-identifier.

There are two model approaches in the DEA method, namely CCR model (Charnes, Cooper and Rhodes), and Banker, Charnes and Cooper (BCC). The fundamental difference between the two models is the assumption of Return to Scale (RTS). CCR model requires the Constant Return to Scale (CRS) assumption, that is, every change in the number of inputs will be followed by changes in the number of outputs with the same proportion. While BCC model requires a Variable Return to Scale (RTS) assumption, where changes in the number of inputs in a certain proportion allow changes in the number of outputs with different proportions, can be larger proportions, equal or even smaller. The condition where it can produce a larger output is called Increasing Return to Scale (IRS). And if it produces less than n times (smaller proportion), it is called the Decreasing Return to Scale (DRS) condition. The efficiency calculated using the VRS assumption is called Pure Technical Efficiency. (Dan, Yumanita and Thamrin, 2006).
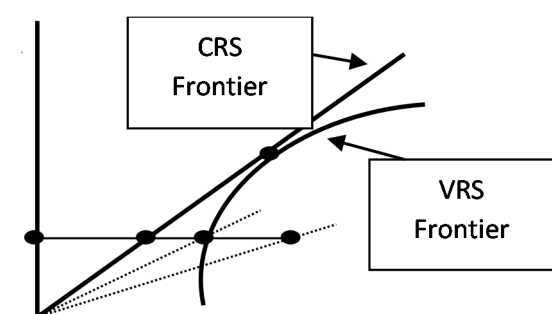
Source: Coelli et al (2005)

Figure 3 Efficiency of CRS and VRS.

The straight center line is CRS describing the performance of companies working on an optimal scale. While the curved line is the VRS line, which explains the technical efficiency of the company working on a different scale between one company and another. Point E shows companies that are technically efficient, but have not worked on an optimal scale. For this reason, the company at points D and E must increase its scale to reach point B, which is efficient in overall.

Furthermore, the DEA method is widely used to measure the level of technical efficiency, scale and industrial economy of banks and financial institutions (Coelli, 2015), and (Charnes, Cooper and Rhodes, 1978)). This is in line with (Hadad et al., 2003), (Ozdemir, 2013), (Tsolas and Giokas, 2012). But now, the DEA is also starting to be widely used in measuring the level of efficiency of non-bank institutions, such as hospitals, universities, tax offices, including non-profit institutions (Slamet Rusydiana, 2013) such as zakat institutions (Rusydiana and Al Farisi, 2016).

The data used in this study are all Islamic People's Financing Banks (BPRS) in the province of Central Java during 2010-2016 with total of 22 banks. Data on input and output variables are obtained from the balance sheet and profit and loss of each bank. Two inputs and two outputs are used to measure efficiency and Islamic People's Financing Banks. Input variables consist of Third Party Funds (X1) and Personnel Expenses (X2). Meanwhile output variable consist of Total Financing (Y1) and Operating Income (X2). Deposits and financing in input-output used because this study uses an intermediation approach.

Tools analysis used in this study is Banxia Frontier Analyst 3 to measure the level of efficiency of all Islamic People's Financing Banks DMUs in Central Java during 2010-2016. Analysis for efficiency measurement will be carried out 2 times. The first calculation of efficiency with the CRS or

CCR approach introduced by (Charnes, Cooper and Rhodes, 1978). Both efficiency calculations using the VRS or BCC approach were first introduced by Banker et.al (1984).

4 RESULT AND DISCUSSION

4.1 Efficiency
4.1.1 Islamic People's Financing Banks (BPRS) Efficiency Score in Central Java

Table 1 shows the efficiency value of each Islamic People's Financing Banks in Central Java, it can be seen that Islamic People's Financing Banks that are efficient (Constant 100%) in 2016 are BPRS Insan Madani, BPRS Sukowati Sragen and BPRS Suriyah. Whereas efficient BPRS in 2015 were BPRS Insan Madani and Mitra Harmoni BPRS. Then in 2014, Islamic People's Financing Banks that are efficient in Central Java i.e. BPRS Artha Mas Abadi, BPRS Buana Mitra Perwira, BPRS Dharma Kuwera and BPRS Insan Madani. Furthermore, in 2013 there were several perfectly efficient Islamic People's Financing Banks namely: BPRS Artha Mas Abadi, Bina Amanah Satria, Buana Mitra Perwira, Dharma Kuwera and BPRS Insan Madani.

Next, Islamic People's Financing Banks that were efficient in 2012 i.e. BPRS Dharma Kuwera, and BPRS Sukowati Sragen. In 2011, efficient Islamic People's Financing Banks were BPRS Dharma Kuwera, and BPRS Sukowati Sragen. In 2010, several Islamic People's Financing Banks in Central Java were: BPRS Khasanah Umat, BPRS Dharma Kuwera and BPRS Gunung Slamet.

It can be concluded that Islamic People's Financing Banks in Central Java which are relatively stable at optimal efficiency levels are BPRS Insan Madani, BPRS Dharma Kuwera and BPRS Sukowati Sragen. BPRS Insan Madani can maintain an efficient level from year to year gradually during 2013-2016 when compared to other Islamic People's Financing Banks in this observation. Meanwhile, BPRS Dharma Kuwera was able to maintain an efficient level from year to year gradually during 2010-2014. BPRS Sukowati Sragen was able to reach efficient levels in 2011, 2012 and 2016.

Based on the table 1, the average efficiency level of Islamic People's Financing Banks in Central Java during the study period was 75.87%. It can be a consideration for Islamic People's Financing Banks that have not been efficient to consider increasing pure technical efficiency.

Table 1: Islamic People's Financing Banks Efficiency Score in Central Java.

DMU Bank	2010	2011	2012	2013	2014	2015	2016
PT BPRS KHASANAH UMAT	1,000	0,911	0,857	0,812	0,653	0,695	0,668
PT BPRS Al Mabrur Babadan	0,789	0,789	0,785	0,879	0,668	0,587	0,593
PT BPRS ARTA LEKSANA	0,776	0,796	0,676	0,708	0,658	0,745	0,838
PT BPRS Artha Amanah Ummat	0,964	0,964	0,948	0,950	0,866	0,874	0,812
PT BPRS Artha Mas Abadi	0,777	0,777	0,797	1,000	1,000	0,838	0,770
PT BPRS Artha Surya Barokah	0,804	0,804	0,818	0,822	0,896	0,864	0,864
PT BPRS Asad Alif	0,674	0,665	0,648	0,648	0,639	0,516	0,509
PT BPRS BINA AMANAH SATRIA	0,672	0,752	0,932	1,000	0,884	0,905	0,814
PT BPRS Buana Mitra Perwira	0,869	0,869	0,893	1,000	1,000	0,967	0,899
PT BPRS Bumi Artha Sampang	0,799	0,682	0,609	0,597	0,636	0,624	0,615
PT BPRS Central Syariah Utama	0,725	0,840	0,583	0,542	0,674	0,502	0,584
PT BPRS Dana Amanah	0,339	0,512	0,765	0,701	0,807	0,839	0,775
PT BPRS Dana Mulia	0,759	0,710	0,820	0,793	0,534	0,472	0,694
PT BPRS Dharma Kuwera	1,000	1,000	1,000	1,000	1,000	0,740	0,707
PT BPRS Gunung Slamet	1,000	0,801	0,953	0,917	0,868	0,925	0,885
PT BPRS IKHSANUL AMAL	0,684	0,573	0,545	0,490	0,413	0,583	0,492
PT BPRS Insan Madani	0,443	0,443	0,872	1,000	1,000	1,000	1,000
PT BPRS MERU SANKARA	0,313	0,499	0,607	0,643	0,549	0,591	0,654
PT BPRS Mitra Harmoni	0,358	0,358	0,491	0,624	0,505	1,000	0,839
PT BPRS PNM Binama	0,537	0,537	0,673	0,609	0,638	0,713	0,672
PT BPRS Sukowati Sragen	0,933	1,000	1,000	0,866	0,679	0,996	1,000
PT BPRS Suriyah	0,822	0,849	0,885	0,856	0,894	0,946	1,000

4.1.2 Islamic People's Financing Banks Efficiency Distribution Score in Central Java

Based on table 1, figure 4 shows the number of efficient and inefficient business units on a particular group scale. Figure 4 shows the Islamic People's Financing Banks that are perfectly efficient (100%) amounted to 21 DMUs (Decision Making Units). Figure 4 also provides information that most business units are in an efficiency condition of 81% -90%, i.e. 33 DMUs, followed by efficiency clusters of 61-70%, i.e. 30 DMUs. While the least are business units with an efficiency level of 31%-40%, i.e. 4 DMUs. Furthermore, there are no Islamic People's Financing Banks that have efficiency levels below 30%.
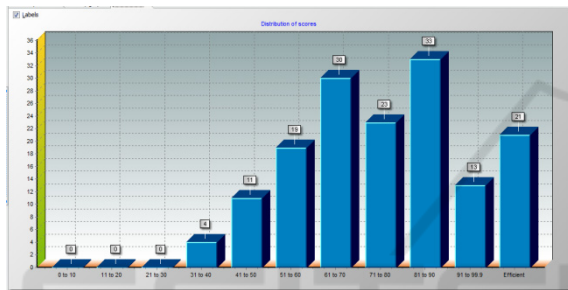

Figure 4: OPZ Efficiency Distribution Score.

4.1.3 Total Potential Improvement of Islamic People's Financing Banks in Central Java

Total Potential Improvement is used to determine Islamic People's Financing Banks inefficiency factors in this study. Figure 5 shows information of total improvement potential which can provide a general picture of Islamic People's Financing Banks inefficiencies in Central Java. Total potential improvement chart shows that in an efficient manner, an inefficient Islamic People's Financing Banks should reduce operating expenses by 0.91%. Similarly, third party funds (DPK) that have not

been optimized amounted to 0.91%. But actually, the main inefficiency is financing variable. In order to achieve an optimal level of efficiency, the level of financing needs to be increased by 98.16%. Likewise, operating income needs to be increased.
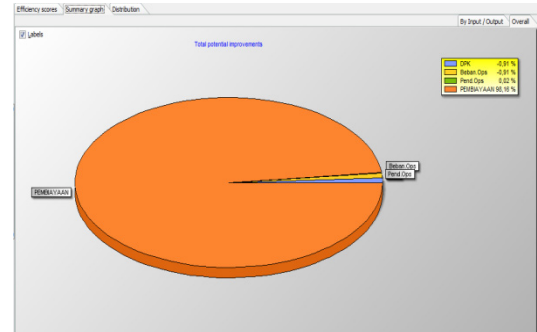

Figure 5: Total Potential Improvement.

4.1.4 Benchmarked BPRS in Central Java

Figure 6 shows Islamic People's Financing Banks that could be used as a reference for other Islamic People's Financing Banks in Central Java that are still in an inefficient condition. Based on the results of the frontier analysis calculation shows that in 2016, Islamic People's Financing Banks that was most referred to was BPRS Suriyah, i.e. 8 DMUs. While in 2015, Islamic People's Financing Banks that was mostly referred to was BPRS Mitra Harmoni Kota Semarang, i.e. 51 DMUs. Whereas in 2014, Islamic People's Financing Banks which was most referred to was BPRS Dharma Kuwera, i.e. 27 DMUs. In 2013, BPRS Insan Madani became a reference for 48 DMUs. Moreover, the highest reference frequency actually occurred in 2012 by BPRS Sukowati Sragen, which was referred to by other inefficient Islamic People's Financing Banks, i.e. 81 DMUs. Similarly, this Islamic People's Financing Banks in 2011 amounted to 58 DMUs. Finally, BPRS Gunung Slamet became a reference for the BPRS in 2010, i.e. 79 DMUs
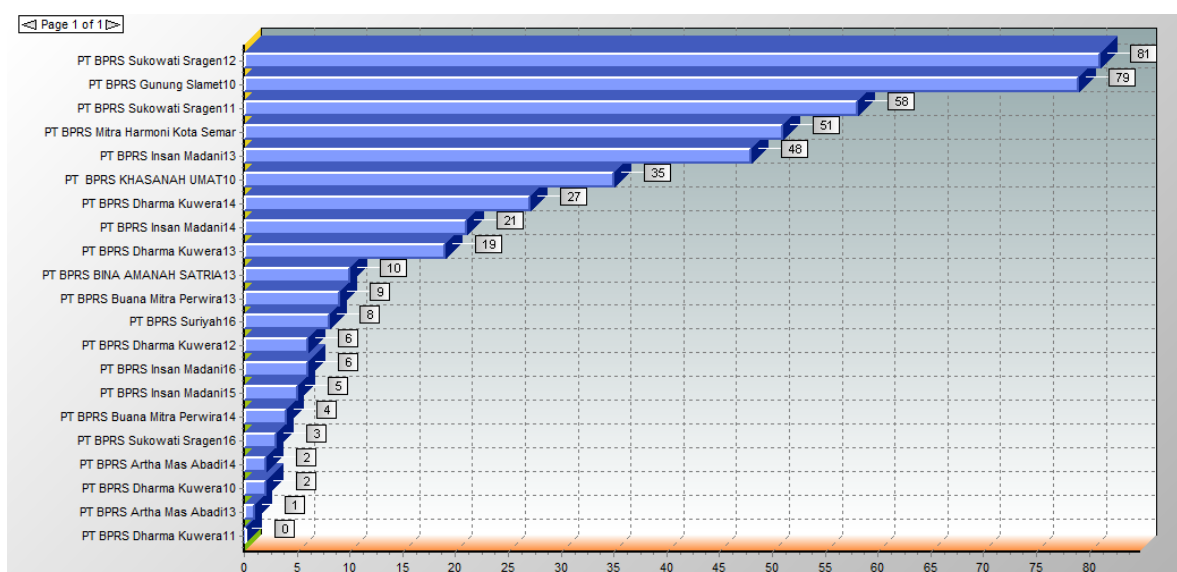
Figure 6: Reference Frequencie.

5 CONCLUSION AND SUGESTIONS

5.1 Conclusion

Based on the results of analysis and discussion, the conclusions in this study are:

1. Based on the selected input and output variables, the level of efficiency of the Islamic People's Financing Bank (BPRS) in Central Java during 2010-2016 was fluctuated. Efficiency fluctuations in Islamic People's Financing Bank industry in Central Java may occur due to internal influences and external impacts such as unstable macroeconomic conditions. This result is in line with (Zeitun and Benjelloun, 2012) who examined the level of banking efficiency in developing economies. (Zeitun and Benjelloun, 2012) concluded that the financial crisis had a significant impact on the level of bank efficiency. The other studies conducted by (Kamarudin, Sufian and Nassir, 2016) concluded that the impact of the financial crisis on the level of banking efficiency actually occurred after the crisis because there is a time lag until the impact begins to be felt in the financial and banking industries, including Islamic People's Financing Bank.

2. In general, the average efficiency level of Islamic People's Financing Bank in Central Java during the study period was 75.87%. This can be a consideration for Islamic People's Financing Bank that are not efficient to be able to increase

pure technical efficiency in the future. The number of Islamic People's Financing Bank that achieved optimal efficiency levels were less than those that were not efficient. This results is relevant to research by (Dan, Yumanita and Thamrin, 2006) which explained that during the 2003-2005, only 24 banks of all 110 commercial banks in Indonesia that were efficient in 2003 and only 9 banks were fully efficient in 2004. The other bank has not yet reached the maximum efficiency level in both the decreasing and increasing return to scale positions.

3. Scale efficiency and pure technical efficiency showed that pure technical inefficiency exceeds scale inefficiency in Islamic People's Financing Bank in Central Java. In general, the findings showed that the Islamic People's Financing Bank in Central Java is managerially incompetent in using input resources effectively even though they have operated on a reasonably optimal scale of operation. In other words, according to (Setiawan and Bagaskara, 2016) and (Setiawan and Sherwin, no date), the conditions that occur in banking are bad management originating from internal bank sources.

4. Total potential improvement analysis showed that in an industrial manner, Islamic People's Financing Bank that are not efficient should be able to optimize the financing variable in order to be more efficient. Based on the calculation results, in order to be efficient. Inefficient Islamic People's Financing Bank should reduce

the operational burden by 0.91%. Similarly, third party funds (DPK) that have not been optimized amounted to 0.91%. But actually, the main inefficiency is the financing variable. In order to achieve an optimal level of efficiency, the level of financing needs to be increased by 98.16%. Likewise, operating income needs to be increased. In other words, it needs to increase efficiency and productivity, especially output.

5.2 Suggestions

There are several recommendations related to the measurement of the efficiency level of Islamic People's Financing Bank in Central Java:

1. Based on returns to scale (RTS) analysis, it is very interesting to observe a decrease in the number of banks operating under the IRS conditions, and the increase in the number of banks operating in DRS conditions is a concern to reduce the scale of operations, by reducing unnecessary costs can increase the level of efficiency. Islamic People's Financing Bank in Central Java is inefficient in monitoring operating costs during 2010-2016. Thus, management performance improvement is needed through better planning and control to achieve optimal management performance. In addition, it is also necessary for Islamic People's Financing Bank to enlarge the assets (size), strengthen capital and also increase the loan portfolio, in order to achieve optimal efficiency levels (Anwar et al., 2016).

2. There are several factors that become obstacles to the development of the Islamic banking industry in Indonesia, namely: 1) Insufficient capital of Sharia Banks; 2) Weak understanding of Islamic banks practitioners; 3) Lack of government support and 4) Public trust & interest in Islamic banks tend to be low (Rusydiana, 2016). Therefore, the related parties need to improveme in terms of capital, quality of Islamic bank human resources, and moreover the government support.

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