

ASEAN COUNTRIES SYARIAH BANK INDUSTRY EFFICIENCY LEVEL ANALYSIS USING DATA ENVELOPMENT ANALYSIS (DEA) APPROACH

(Indonesia Syariah Bank Industry Readiness Measurement Analysis in Facing AEC)

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Abstract

The study aims to analyze syariah bank industry efficiency level of ASEAN countries using Data Envelopment Analysis (DEA) approach and to assess the readiness of Indonesian Islamic banking in facing the ASEAN Economic Community (AEC). The study uses secondary data which was obtained from annual report and financial statement of 2009-2014 period. It used input variables (Deposit, Labor Cost, Fixed Asset) and output variable (Total of Financing and Operational Income). The research result indicates that on average, ASEAN Islamic Bank countries have high category efficiency. It can be seen in efficiency score of 81.50%. And if it is analyzed per country, Indonesia has the highest efficiency score of 90.70%; Thailand has 90.04%; Malaysia has 81.99%; Philipines has 58.19%; and Brunei Darussalam has 48.35%. Indonesia Islamic bank actually is able to face free competition in AEC. Meanwhile, it still needs to support with a stronger capital in order to make it more competitively.

Keywords: Syariah bank industry efficiency level, DEA approach

Rationale

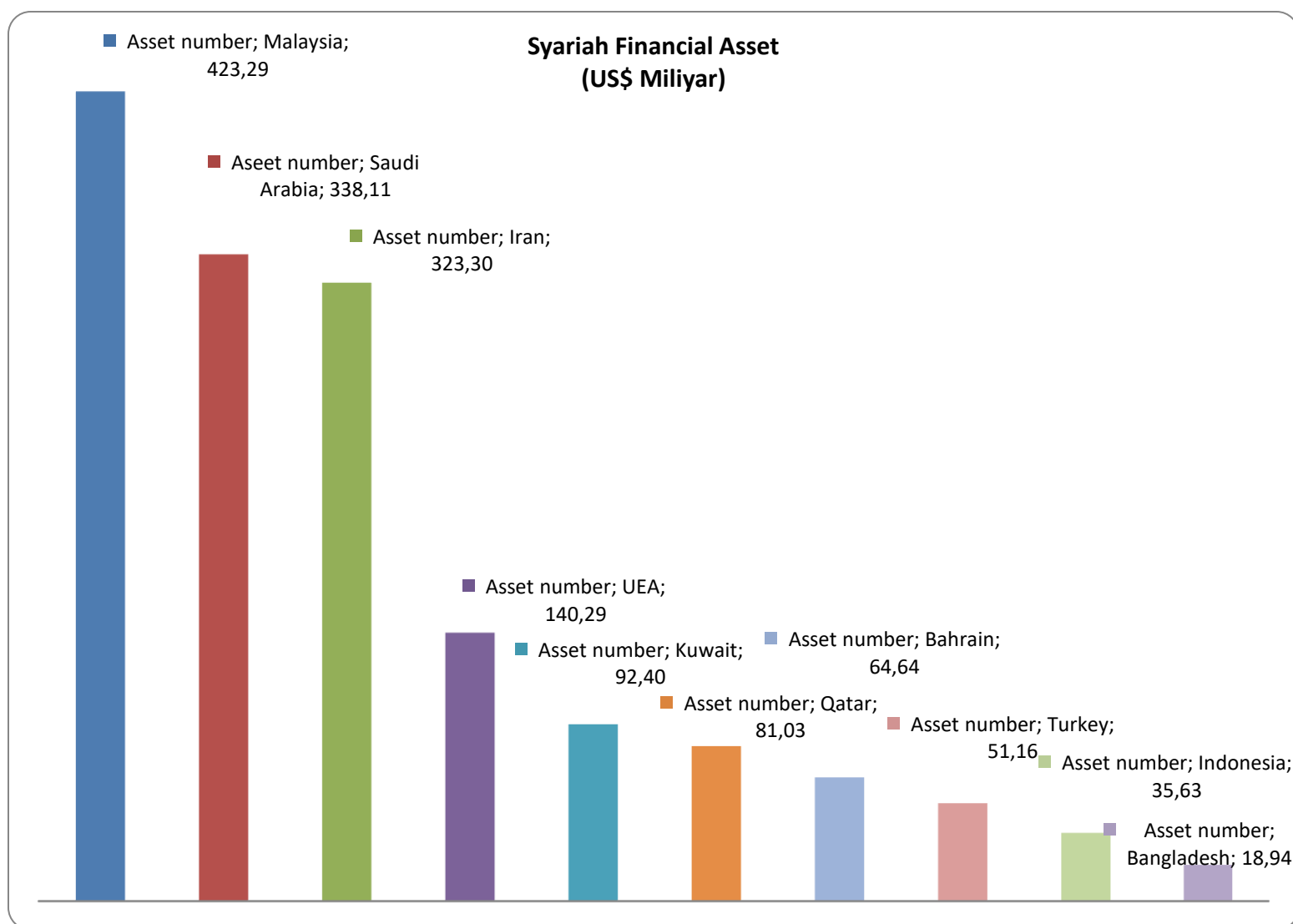
AEC had been legally implemented in 2016. It was being a pillar of ASEAN countries commitment in Bali Concord II in 2003. In the commitment, ASEAN countries hoped they can form a market and production base in the region. This means that the goods movement, service, investment, and labors will be opened dan full liberalization. The implementation of AEC of course has opportunity, challenges, and threat to Indonesia. By AEC implementation is hoped the Indonesian economic condition will be better. One of its opportunity is because of Indonesian products can be larger the market to other ASEAN countries without any limitation. The other positive impact is to improve the investment climate, because of the investors will be easy to invest in ASEAN countries.

The threat of AEC implementation to Indonesia is the human resources competition will be higher, while the education mutual is still low based on the 64% of Indonesian labors are in secondary level. And then the infrastructure problem is being low comparing to Malaysia, Singapore, Brunei Darussalam, and Thailand based on the Global Competitiveness Index data in 2014. The problem of energy service, local industry raw material, and the problem of do not hand of import goods from out of Indonesia of course can dead the internal industry which will be the threat to Indonesia. In other words, AEC is a big opportunity to Indonesia if the nation has had preparation to face the implementation. And if it has not had preparation, it will be challenging and threatment to Indonesia. Largely, talking about AEC, it is not talking only about

the human resources competition, industrial goods, and service. The AEC implementation will be laso impact to the financial industry and national banking. The conventional bank and syariah bank will be the object of this study. So, is the Indonesian Syariah bank industry ready to face the AEC implementation?

Based on Global Islamic Financial Report (GIFR) in 2011, Indonesia is in the level of the fourth nation which has conducive potentiality in developing Syariah industrial financial under Iran, Malaysia, and Saudi Arabia. And based on the total asset, according to GIFR in 2015, Indonesia is only in the ninth position in the world with US\$ 35.629 Million. The first position is Malaysia with US\$ 423.29 Million. The second position is Saudi Arabia with total asset of US\$ 388.11 Million. The third position is Iran with US\$ 323.3 million. The fourth position is Arabia Emirate Union with US\$ 140.29 Million. The fifth position is Kuwait with US\$ 92.4 million. The sixth position is Qatar with US\$ 81.03 million. The seventh position is Bahrain with US\$ 64.64 million. The eighth position is Turki with US\$ 51.16 million. The ninth position is Bangladesh with US\$ 18.94 million. For more clearly, it is described in the following graph.

Figure 1. Syariah Financial Asset score of G



The other condition is the biggest Syariah Banking of Indonesia today only able to book the asset of US\$ 5.7 million, that is the Mandiri syariah bank. This is still under than the other countries, so the Indonesia Syariah banking today cannot yet go to 25th position in the total asset in the world. It is different with Malaysia which had been booked as the third Syariah banking in the 25th position. This shows in economic of scale which related to an entity efficiency level. Then, this will be the threat to Indonesia, particularly the Syariah banking industry, because of Malaysia is being the one of the main competitor of Indonesia if AEC is implemented.

Indonesia is in 4th position as the country which has conducive climate and potentiality in Syariah bank industry development based on the GIFR in 2011. This is under of Iran, Malaysia, and Saudi Arabia. Halim (2012, p.1) stated that seeing to some aspects in index counting, such as the score of Syariah bank, the score of non syariah bank institution, and the syariah financial asset measurement, it is in progression that Indonesia will be able to be in the first position as the country which has conducive climate of syariah financial potentiality development. According to him the strength of Indonesia syariah bank is more to be the market driven and button up motivation in fulfilment of the community need depend on the real sector. It is different with in Iran, Malaysia, and Saudi Arabia, the development more depend on the financial sector not on the real sector and the most government dominant role. The role is not only in the form the regulation, but also in putting of government budget and the county's enterprise in syariah financial institution. This is making syariah bank asset in the countries improve significantly.

Syariah bank strenght depend on the real sector can be seen on its performance based on the GIFR statistical data. Syariah bank development in 2012 is 20.20% and Indoensia syariah bank development is 34.10%. It is upper than the global development. And actually in 2010 it was on 46.10%, upper than the global development of 9.9%. This makes the Moslem econom being optimistic of Indonesian syariah bank prospective.

In the context of the regulatory ragam, in Indonesia, the policy of making syariah financial regulation is in the hand of Dewan Syariah Nasional (DSN) and Majelis Ulama Indonesia (MUI) which are the independent institutions. While in other countries, the regulation is making of individually Ulama, so the chance to be difference and being the conflict is enough bigger. And then in Malaysia, the regulation organization structure is under the Bank Negara Malaysia (BNM). It is not stand alone independently, and so the independent of the organization is still be asked longerly.

Based on the above description, Indonesia has to be ready to face AEC in 2015, particularly of the syariah financial industry competition. The reason is characteristically, Indonesia syaraih banking has to operate effectively and efficiently which impact to the syariah bank performance itself. So this study is meant to measure and analyze Indonesian Syariah efficiency level comparing with the other ASEAN countries using Data Envelopment Analysis (DEA). Furthermore, the study is meant to know about what factors which effects the syariah bank efficiency level. This is important to be the information bases by the banks, particularly the national syariah bank in making policies. And so, the research question is "How is the syariah bank efficiency level in ASEAN countries in 2009-2014 period? And How is the Indonesia Syariah bank efficiency level, if comparing with other ASEAN countries in the period?"

Research Methodology

The study used secondary data (financial report and annual Syariah bank publication report in 2009-2014 period). It is accessed from the internet of the legal web of each syariah bank which will be the study object. The general syariah bank in ASEAN countries are being the population of the study. The sample of the study is getting from the following criteria (1) General syariah bank which had been operated from 2009; (2) the general syariah bank has financial report or annual financial report along of 2009-2014 period; and (3) it has book period of per December of the year. The following is the sample list used in the study.

Tabel 1. Research Sample

No.	Nama Bank	Negara
1	Bank Syariah Mandiri	Indonesia
2	Bank Muamalat	Indonesia
3	BRI Syariah	Indonesia
4	BNI Syariah	Indonesia
5	Bank Mega Syariah	Indonesia
6	Bank Islam Malaysia Berhad	Malaysia
7	CIMB Islamic Bank Berhad	Malaysia
8	Affin Islamic Bank	Malaysia
9	Maybank Islamic Berhad	Malaysia
10	Bank Islam Brunei Darussalam Brhad	Brunei
11	Islamic Bank of Thailand	Thailand
12	Al Amanah Islamic Investment Bank	Philippines

Variable operational definition

In order to measure of the bank efficiency level using DEA needs output and input variables. The output variable used in the study is the financial total (Y1) and Operational income total (Y2). And the input variable consists of saving total (X1), the labor budget (X2), and fixed active (X3). The financial total (Y1) is financial operation product of syariah bank which involves general Syariah bank and Syariah business unit to community, otherwise individually or enterprise which used Muamalah akad in one current money. The operational income total (Y2) is the result of income from syariah bank operational (general syariah bank and syariah business unit). And the syariah bank activities are (1) income from financial operation (income from buying and selling of Mudharabah, Salam, and Istishna), Ijarah and result divided (mudharabah and musyarakah), and so on; and (2) other operational income (administration service income, ATM transaction service, specific budgeting, commission service, profit of other countries current transaction, and fee system online-payment point).

Saving total (X1) is individual or enterprise community financial score which was successfully collected by the syariah bank through financial product collection in a million rupiah. Labor budget (X2) is the salary, education budget, and the employee incentive which measure from million rupiah. And fixed active (X3) is stated based on getting budget minus missing budget, actually the building and land belonging which was valued again with market price based on government regulation. The missing budget is counted based on the straight line method. The fixed active (X3) which belong to the syariah bank in a certain period is got from

the bank balanced report. Land, building, office facilities, mobile aids, machine, and others are involved as fixed active (X3).

Data Analysis method

DEA is a systematic programming technique used for evaluated relative efficiency from the unit groups of policy maker or decision making units (DMUs in organizing human capital (input) with the same kinds until to be the result (output) with the same kinds also, where the relation of input and output are not known. The formula is as the following.

Efficiency = input score/ output score:

$$\text{Efficiency of DMU}_o = \frac{\sum_{k=1}^p \mu_k y_{ko}}{\sum_{i=1}^m v_i x_{io}}$$

DMU: Decision Making Units, *k*: DMU score which will be evaluated, *m*: Input score, *n*: Output score, *x_{io}*: input value to DMU_{o-i}, *y_{ko}*: output value to DMU_{o-k}, *μ_k*: DMU value-k to DMU which will be evaluated and *v_i*: DMU-i value for DMU which will be counted.

DEA model used in the study is *Constant Return to Scale* (CRS). It is developed by Charnes, Cooper, and Rhodes (CCR model) in 1978. This model assumed that the ratio between input plus output are the same (constant return to scale). It means that, if there is input plus of X times, so the output will improve to X times also. Other assumption which is used in the model is that each enterprise or unit of decision maker operates on the optimal scale.

In this study, the criterion for evaluating efficiency level based on the research result done by Santoso (2010) who decided to be six categories as the following.

Tabel 2. The score divided and efficiency category

Number	Efficiency Score Value (%)	Efficiency category	Score
1	100%	Efficiency	5
2	≤ 100 - 80	High	4
3	≤ 80 - 60	Middle up	3
4	≤ 60 - 40	Middle	2
5	≤ 40 - 20	Meddle low	1
6	≤ 20	low	0

Analysis and Discussion

1. ASEAN countries Syariah bank efficiency level

Based on the data analysis by using *Banxia Frontier Analyst 4*, it was got the result analysis as the following.

Table 3. Syariah Bank Efficiency Technical value of 2009-2014

Bank	2009	2010	2011	2012	2013	2014	Mean	Ranking
	Score (%)	Score (%)	Score (%)	Score (%)	Score (%)	Score (%)	2009-2014	
Maybank Islamic Berhad (MIB)	99.95	100.00	100	100	98.47	100	99.74	1
CIMB Islamic Bank Berhad (CIMBIB)	92.6	100.00	96.79	100	100	100	98.23	2
Bank Mega Syariah (BMS)	89.87	100	90.39	91.22	100	100	95.25	3
BRI Syariah (BRIS)	100	94.10	83.12	90.73	95.9	90.81	92.44	4
Islamic Bank of Thailand (IBANK)	82.76	93.69	90.3	95.01	92.32	86.16	90.04	5
Bank Muamalat Indonesia (BMI)	98.06	88.37	81.06	86.29	93.98	87.38	89.19	6
BNI Syariah (BNIS)	100	76.14	94.23	82.61	92.46	89.1	89.09	7
Bank Syariah Mandiri (BSM)	84.23	86.74	85.54	96.18	90.72	81.88	87.55	8
Affin Islamic Bank (AIBB)	63.31	73.54	74.22	82.81	74.23	76.48	74.10	9
Al Amanah Islamic Investment Bank (AAIIB)	37.22	26.47	64.33	83.87	66.63	70.61	58.19	10
Bank Islam Malaysia Berhad (BIMB)	40.42	48.07	56.1	61.36	62.4	67.05	55.90	11
Bank Islam Brunei Darussalam Berhad (BIBD)	58.23	50.57	37.97	46.82	52.06	44.36	48.34	12
Mean score	78.89	78.14	79.50	84.74	84.93	82.82	81.50	
Maximum score	100.00	100.00	100.00	100.00	100.00	100.00	99.74	
Minimum score	37.22	26.47	64.33	82.61	66.63	70.61	58.19	

Source : Data analyzed with Frontier Analysis 4

Based on the DEA analysis result, it can be known that Islamic bank average mean in ASEAN region had had high efficiency level caused averagely along 2009-2014 period of 81.50%. And then, if it was analyzed individually, the banks categorized go to high efficiency category, arranges based on the level, such as Maybank Islamic Berhad (1st level) with the efficiency score of 99.74%. CIMB Islamic Berhad (2nd level) with the efficiency score of 98.23%. Bank Mega Syariah (3rd level) with efficiency score of 95.25%. BRI Syariah (4th level) 92.44%. Islamic Bank of Thailand (5th level) with efficiency score of 90.04%. Bank Muamalat Indonesia (6th level) with efficiency score of 89.19%. BNI Syariah (7th level) with efficiency score of 89.08%, and Bank Syariah Mandiri (8th level) with efficiency score of 87.55%. And then the four banks which are in efficiency score of lower are Affin Islamic Bank (9th level) with efficiency score of 74.10% from Malaysia. Al- Amanah Islamic Investment Bank (10th level) with efficiency score of 58.19% from Philippine. Bank Islam Malaysia Berhad (11th level) with efficiency score of 55.90% which is being one of the biggest Islamic bank in Malaysia. The last is Bank Islam Brunei Darussalam (12th level) with efficiency score of 48.34%.

For the highest maximum efficiency was got by BNI Syariah and BRI Syariah. They got the score of 100% in 2009. In 2010, the highest score was got by two banks from Malaysia and one from Indonesia, they are Maybank Islamic Berhad, CIMB Islamic Berhad and Bank Mega Syariah. In 2011, the highest score was got by Maybank Islamic Berhad. In 2012, it was also got

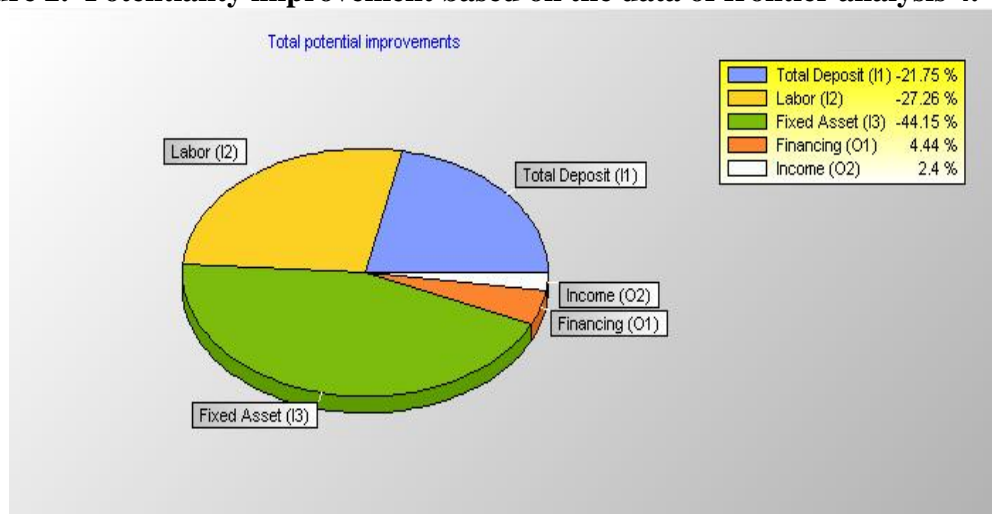
by Islamic bank of Malaysia, they are Maybank Islamic Berhad and CIMB Islamic Berhad. In 2013, there was one Bank of Malaysia and one of Indonesia, they are CIMB Islamic Berhad and Bank Mega Syariah. And at the end of the period, that is in 2014, the highest score was got by Maybank Islamic Berhad, CIMB Islamic Berhad, and Bank Mega Syariah.

Based on the observation, it was got the result that there were three banks which had the highest level of stability, two bank are Islamic bank of Malaysia, they are Maybank Islamic Berhad and CIMB Islamic Berhad. One Islamic Bank of Indonesia, it was Bank Mega Syariah. The other experienced unstability, e.g. BRI Syariah and BNI Syariah which in 2009 the two banks had the highest efficiency level, and the next years experienced undevelopment.

2. Total potentiality improvement (TPI)

After knowing the efficiency score of each DMU of general Syariah banks. We can understand that the strength of data envelopment analysis (DEA) also gives output which can be used by DMU as input in making policy for applying changes which can effect to the DMU efficiency improvement. The following figure shows the total potentiality improvement based on the data of frontier analysis 4.

Figure 2. Potentiality improvement based on the data of frontier analysis 4.



TPI is a graph which was resulted or being one of output from efficiency measurement by using DEA model. It shows the presentage number in positive value or negative value. If it shows positive value, it means that DEA suggests the variable has to be minus as the percentage value in order it can get the optimal efficiency value. Based on the above figure 2. It was got the percentage value of each variable was the total deposit was -21.75%, the labor was -27.26%, the fixed asset was -44.15%, financing was 4.44%, and income was 2.40%. Torm this analysis, it can be described that the DMU of the general syariah banks in ASEAN countries reached to the highest efficiency level, if refered to DEA result. And of course, it has to improve in the way to minus the total deposit of 21.75%, minus the labor of 27.26%, minus the fixed asset collection of 44.15%, improve the implementation of financial of 4.44%, and improve the operational income number of 2.40%.

The total deposit is the community total financial saving to individual or enterprise which successfully collected by the bank through financial collection product which it was always called the third party financial. Theoritically, total saving number must be effected positively to

the bank performance level, because of the more the third party financial will effect to bank liquidity level (the ability to share its financial in the form of budgeting). In this context, the analysis result shows that minus of total deposit is being one way to make correction of the syariah bank efficiency level in ASEAN countries. This is done if the big total deposit which belong to a bank does not follow by its ability to share its financial in the form of budgeting. That is why, the third party financial which was collected is only being idol or the asset is not productive and maybe it can be burdan to the bank, because of the bank responsible to give back result to customers based on their saving accounts.

The ability level of a bank in sharing its third party financial in the form of budgeting is measured with Financing to Deposit Ratio (FDR) based on the data from 12 General Syariah Banks (GSB) in this study. The mean of FDR for GSB of Indonesia along 2009 until 2014 was 89.40%, and for GSB mean score of other ASEAN countries (Malaysia, Brunei Darussalam, Thailand, and Philipines was 68.96%. This means that the DEA analysis result can be supported because of the average mean score level of GSB FDR in ASEAN countries relatively still low, it caused of much of customers financial sorbed did not shared maximaly and this much impacts to minus of the bank efficiency level.

Continously, DEA analysis also suggested there was minus of labor budget of 27.26%. This was meant to get high efficiency level. Labor related to productivity and it is part of input which will be compared with output (the number of budgeting and operational income). So, labor lower can be meant two things (there is minus of salary or labor incentive and improvemnt of productivity). According to DEA analysis, it was founded that the labor budget is not balance with output gathering, so bank did not work efficiently. In the other side, labor minus is being solution of efficiency level to optimalize labor productivity in order the output target can be reached.

Beside minus of total deposit and labor budget, DEA also suggested that general syariah banks in ASEAN countries minus the fixed asset usage which are very high in implementing their business operation. The percentage of fixed asset is being 44.15%. and the usage of fixed asset realated to the enterprise cash flow and gathering budget for the enterprise. Generaly, total asset consists of land and building, mobile vehicles, and office inventories. And because of the fixed asset is coterogized non productive asset, of course the high usage will impact negatively to bank efficiency. That is why, it must be minus suitable with DEA suggestions. Beside that, from this result we can know that averagely the genaral syariah banks in ASEAN countries are low effective in using fixed asset.

The other total potentiality improvement is financing improvement and operational income which each of 4.44% and 2.40%. Nevethless, its value is not significant, but from DEA analysis it needs to improve in order the bank efficiency level more being maximum. From this result, it can be known that potentiality improvement which is very dominant is in the part of input variable which consists of total deposit, labor budget, and fixed asset usage.

3. Syariah bank efficiency level comparison among ASEAN countries

After talking about general syariah bank efficiency level in ASEAN countris, it will describe also the bank efficiency condition based on each country. So that, we can see the strengths and weaknesses of each general syariah bank. And the more important also is to see the Indonesia position, "Are the general syaraiah banks in Indonesia had been ready to compete with other general syarih banks in other ASEAN countries?"

a. Syariah bank efficiency level in Malaysia

Table 4. Malaysia syariah bank efficiency mean score

No	Bank	2009	2010	2011	2012	2013	2014	Mean
		TE Score (%)	TE Score (%)	TE Score (%)	TE Score (%)	TE Score (%)	TE Score (%)	2009-2014
1	Maybank Islamic Berhad (MIB)	99.95	100.00	100	100	98.47	100	99.74
2	CIMB Islamic Bank Berhad (CIMBIB)	92.6	100.00	96.79	100	100	100	98.23
3	Affin Islamic Bank (AIBB)	63.31	73.54	74.22	82.81	74.23	76.48	74.10
4	Bank Islam Malaysia Berhad (BIMB)	40.42	48.07	56.1	61.36	62.4	67.05	55.90
	Mean score	74.07	80.40	81.78	86.04	83.78	85.88	81.99

Source : Analyzed from Banxia Frontier Analyst 4

Based on the above table 4, averagely the syariah banks in Malaysia are still categorized efficiency, because of they have the mean score of 81.99%. But, if we see from the figure of efficiency level per bank, we can see that there is not averaging of efficiency level. From the four banks, there are two of them come to the high efficiency level and the other two are categorized middle efficiency level and maybe low. And the bank in low category is being the big one belong to the nation (Malaysia Islamic bank berhad). It is different between Indonesia, averagely the mean score of the efficiency level is the same, it is not far different among the others. This was shown that the climate of Syariah banks in Malaysia is more high than the competition of syariah banks in Indonesia.

Beside the efficiency score, DEA gives also information about potentiality improvement which inform of correction in order the efficiency level score can be improved. The following is the potentiality improvement of Malaysia syariah bank.

Table 5. Malaysia general syariah bank potentiality improvement

	Varibel	Actual	Target	Improvement
Input	Total Deposito (I1)	10,550,503,210	9,313,744,009	-18.08%
	Labor (I2)	43,787,001	28,680,873	-21.38%
	Fixed Asset (I3)	22,316,497	12,893,286	-22.95%
Output	Financing (O1)	8,893,771,619	8,969,680,843	4.14%
	Income (O2)	521,912,848	524,483,893	1.14%

Source : Analyzed from Banxia Frontier Analyst 4

Based on the above table 5, the total improvement analysis for the general syariah bank in Malaysia is known that in order to reach the maximum bank efficiency, it must be making correction to minus the input variable such as to minus the total deposit of 18.08%, labor budget of 21.38%, and the usage burdan of fixed asset of 22.95%. And for the output variable, it was suggested by DEA that to improve the financial score of 4.14% and the operational income of

1.14%. Nevertheless, Malaysia average syariah bank efficiency level is under of Indonesia, but Malaysia has two representative banks which in the position of the 1st and 2nd level as the bank which the highest efficiency level (Maybank Islamic Berhad and CIMB Islamic Berhad). Beside that, the capital of both banks are far up of Indonesian syariah banks. And then, the asset of both banks if combined, they will get more total asset combination from the government banks. Of course, this condition is being the threat and challenges to Indonesia bank sector, particularly syariah banks. And it still develop with total market share of under 5%.

b. Syariah bank efficiency level in Indonesia

The following table 6 describes of DEA analysis result for general syariah banks in Indonesia.

Table 6. The means score of Indonesia syariah bank efficiency

No	Bank	2009	2010	2011	2012	2013	2014	Mean
		TE-Score (%)	TE-Score (%)	TE-Score (%)	TE-Score (%)	TE-Score (%)	TE-Score (%)	2009-2014
1	Bank Mega Syariah (BMS)	89.87	100	90.39	91.22	100	100	95.25
2	BRI Syariah (BRIS)	100	94.10	83.12	90.73	95.9	90.81	92.44
3	Bank Muamalat Indonesia (BMI)	98.06	88.37	81.06	86.29	93.98	87.38	89.19
4	BNI Syariah (BNIS)	100	76.14	94.23	82.61	92.46	89.1	89.09
5	Bank Syariah Mandiri (BSM)	84.23	86.74	85.54	96.18	90.72	81.88	87.55
	Mean score	94.43	89.07	86.87	89.41	94.61	89.83	90.70

Source : Analyzed from Banxia Frontier Analyst 4

Based on DEA analysis result, it can be seen in above table 6, it was got technical efficiency score for Indonesian Islamic banks of 90.70%. This means that averagely the general syariah banks in Indonesia had had the high technical efficiency level. In this case, Bank Mega Syariah and BRI Syariah are syariah banks with the highest efficiency level. The following is the reaching performance of syariah banks and the total improvement which must be done.

Table 7. Indonesia general syariah bank potentiality improvement

	Varibel	Actual	Target	Improvement
Output	Total Deposit (I1)	1,847,678,314.48	1,642,635,032.47	-9.29%
	Labor (I2)	43,496,099.03	38,033,687.56	-11.54%
	Fixed Asset (I3)	24,743,512.96	9,769,126.80	-38.98%
Input	Financing (O1)	1,644,163,595.34	1,644,498,250.51	0.10%
	Income (O2)	217,316,039.52	217,316,039.52	0

Source : Analyzed from Banxia Frontier Analyst 4

Based on the above table 7, for Indonesia, in order to reach maximum efficiency level, the best main potentiality improvement is making correction in input variable, where the community DEA analysis result maybe minus on total deposit, labor budget, and fixed asset usage. The minus of fixed asset usage must be priority because of it has the biggest improvement score. Beside that, the general syariah bank of Indonesia has good result from other country, especially Malaysia which is being the big competitor in syariah bank industry. Based on DEA analysis result also, averagely Malaysia Islamic bank efficiency level is on 81.99%. This result suitable with the research result done by Ascarya et.al (2008) which was done the study comparing Indonesian Islamic bank efficiency level with Malaysia using DEA and SFA approach. The result showed that if by DEA approach, Malaysia Islamic bank relatively low in technical efficiency. For Indonesia, Islamic bank has positive trending and high overall efficiency. The study done by Miftahurrohman (2016) found that Indonesia syariah bank efficiency level technically was better than Malaysia by using research data in 2009-2014.

The study result also suitable with what was presented by Alamsyah (2012) which stated that Indonesia had potentiality as the country with very conducive climate and potential in financial development of syariah. According to Alamsyah, the strenght of Indonesia syariah bank was more market driven and motivated by bottom up in fulfilling community needs as it more depend on the real sector. It was different of Iran syariah bank development, Malaysia and Saudi Arabia, the syariah bank development was more depend on financial sector not to real sector and the government role was very dominant. The dominant role was not only in the form of regulation, but also in putting government budget and the country's enterprises in syariah finance. This was made syariah banks in the countries improve significantly. The strenght of syariah bank which depend on the real sector can be seen in its performance based on the statistical data of 2012 GIFR, the development of syariah bank in 2012 was 20.20%. And at the moment, the Indonesian syariah bank development reached to 34.10% above on the global developmental. And in 2010, Indonesian syariah bank development ever reached 46.10%, while the global development was 9.9%. This makes the Muslim econom optimistic the prospectus of syariah bank in Indonesia.

Beside the more of what were discussed above, there was the strenght of Indonesia compare with the other countries, it was the regulatory ragim. In indonesia, the policy of syariah financial is under of Dewan Syariah Nasional (DSN) and Majelis Ulama Indonesia (MUI) which are the independent institutions. While in the other countries, policy was made by Ulama invidually, so it can reach enough big defferencies and conflict. In Malaysia, the organization structure of policy is under of Bank Negara Malaysia (BNM). It is not stand alone as independent institution, and so the level of independency is still questionated?

The same thing was also stated by Al-Mansury (2015) which stated that Indonesia had more potentiality comparing with other ASEAN countries. This was based on the reasons (1) syariah accountancy standard at now in ASEAN countries is still Indonesia which had had syariah standard accountancy which was known as PSAK syariah; and (2) syariah risk related to syariah products of a country. Some syariah products of Malaysia and Brunei Darussalam were not recieved in East middle countries and Indonesia. It means that syariah bank in Indonesia is more universal because of it can be recieved in all countries. And so Indonesia has large market in ASEAN region.

Nevertheless the study result showed the general syariah bank technically efficiency score in Indonesia is better than Malaysia, this is not meant that the general syariah bank in

Indonesia is more competitiveness compare with in Malaysia. It is because the technical efficiency in analyzing how effective and efficient of a bank in managing bank operational of input and output belonging to. To see the bank competitiveness level is also effected by other factors, such as capitalization factor. Capital relates to the economics of scale where the entities belong to capitalist who are bigger and tend to have more competitiveness. Capitalization related also to the cost of fund, the more of capitalization of a bank, the more of its cost of fund will more lower, so the credit interest is also low. With this low credit interest, it will impact to high competition.

Based on the data of Global Islamic Financial Report in 2015, today Malaysia written as the country with the biggest syariah financial asset in the world with total asset of US\$ 423.20 million. And Indonesia has only US\$35.60 million. This means that Malaysia syariah financial has 10 times from Indonesia. And if we see to the capitalization per bank such as shown in table 8 and 9, it is clearly compared to the bank measurement based on total asset score, where Malaysia bank asset is far more high than in Indoensia. And if the all total asset in Indonesia is combined, its value is still lower than in Malaysia (Maybank Islamic Berhad). Maybank Islamic Berhad total asset in 2014 is of US\$ 41 million, while the combination of the five syariah banks in Indonesia (Bank Muamalat, Bank Syariah Mandiri, BNI Syariah, BRI Syariah and Bank Mega Syariah) is of US\$ 14.16 million.

Table 8. Indonesia syariah bank asset score in 2011-2014 (US\$ '000)

No	Bank	Asset			
		2011	2012	2013	2014
1	Bank Syariah Mandiri	5,310,638	5,607,963	5,247,764	5,381,190
2	Bank Muamalat Indonesia	3,543,863	4,571,412	4,407,579	5,017,147
3	BRI Syariah	1,222,130	1,456,971	1,427,592	1,635,309
4	BNI Syariah	923,828	1,100,860	1,206,703	1,566,890
5	Bank Mega Syariah	607,164	844,226	748,345	566,116
	Total	11,607,625	13,581,432	13,037,983	14,166,652

Source : Financial report 2011-2014

Table 9. Malaysia syariah bank asset score in 2011-2014 (US\$ '000)

No	Bank	Asset			
		2011	2012	2013	2014
1	Maybank Islamic Bank	26,194,440	28,937,728	33,729,006	41,099,800
2	CIMB Islamic Bank Berhad	13,556,091	16,737,530	15,033,704	14,277,413
3	Bank Islam Malaysia Berhad	10,136,616	12,236,864	13,030,157	13,122,225
4	Affin Islamic Bank	3,312,489	3,830,781	3,751,007	3,643,039
	Total	53,199,635	61,742,904	65,543,873	72,142,477

Source : Financial report 2011-2014

And then, if we see to the field fact, it was sure to see that there is bank industrial competition between Indonesia and Malaysia. Today Malaysia has had syariah bank in Indonesia. There are three syariah banks, they are CIMB Niaga, BII-Maybank, and Maybank Syariah. The three banks are the banks which have the highest efficiency level based on the DEA analysis. This must be known seriously because of free market of ASEAN has been implemented. It needs planned policies of Indonesia bank industry in order it is not missing of the competition. Based on the management bank system, Indonesia had been good and high comparing with ASEAN countries. The Indonesia missing is syariah asset capitalization which is still miss far from Malaysia and Brunei darussalam.

That is why, Otoritas Jasa Keuangan (OJK) as the government institution which has the capacity in making strategic policies must to take hand related to this issue. OJK can do merger of syariah banks belong to government and it will be suitable policy to prepare itself for facing ASEAN economic community. This merger policy such as Bank Syariah Mandiri, BNI syariah, BRI syariah, and BTN syariah, can be combined to stand a new syariah big bank for being the needs to realization. It is one of the big way to our syariah bank industry which can competitively face the AEC, and it is the realistic way for the banks belong to the government.

c. Syariah bank efficiency level in Brunei Darussalam

Based on the DEA analysis result to Brunei Darussalam Berhad (BDB), it was got the mean score along 2009-2014 of 48.34%. This showed that BDB mean efficiency score was relatively low. But it was not fully figured the bank condition of Brunei Darussalam. This condition showed about the syariah bank industry in Brunei Darussalam because of the sample used was the biggest Syariah bank in Brunei Darussalam. Based on DEA analysis, the potentiality improvement is as the following.

Table 10. General syariah bank potentiality improvement in Brunei Darussalam

	Variable	Actual	Target	Potentiality Improvement
Output	Total Deposito (I1)	3,200,457,604.55	1,519,044,923.05	-51.65 %
	Labor (I2)	29,938,011.63	14,288,056.65	-51.65 %
	Fixed Asset (I3)	22,131,063.61	5,144,429.39	-74.30 %
Input	Financing (O1)	1,553,657,536.36	1,553,657,536.36	0.00%
	Income (O2)	132,929,823.22	132,929,823.22	0.00%

Source : data analyzed from Banxia Frontier Analysis 4

From that analysis result, it can be known that the low of efficiency level was caused by the problem in efficiency financial share of fixed activa and the labor budget of -51.65% for deposit. From this score, it was known that Brumei Darussalam syariah bank must minus the deposit score in order to reach better efficiency level. By minus of this core, it was known that there was a problem in community financial share, that is the bank did not maximized the third party financial which had been saved in order to share again in the form of financial facilities. So, the third party budget is only being idol or the asset is not productive and then it is being the burdan to the bank, because of it responsible to give some profit again to the customers under their saving accounts. To see this, it was shown that the financial level comparison ratio toward

third party financial score (deposit) or it was known as Financing to Deposit Ratio (FDR). The following figures the FDR ratio along 2009-2014.

Table 11. Brunei Darussalam FDR statistical Data in 2009-2014 period

Bank	Year	FDR
Islamic bank of Brunei Darussalam Berhad	2009	63.31%
	2010	55.00%
	2011	37.89%
	2012	44.96%
	2013	52.81%
	2014	44.88%
FDR mean score		49.81%

Source : Analyzed data

The above data supports DEA analysis result which we can see based on the FDR mean score of 49.81%. It means that from total deposit belong to the bank, there was only 49.81% which can be shared again in the form of financial, beside more than 50% was being not productive asset and then makes the bank was not efficient. And if compare with Indonesia based on the collected data, the FDR mean score is 89.40%. Beside the deposit level which was minus, DEA was also suggested to minus the labor budget to 51.65% and fixed asset to 74.30% in order the Brunei Darussalam Syariah bank efficiency level will be efficiency.

d. Syariah bank efficiency level in Thailand

Efficiency level analysis was implemented to Islamic bank of Thailand based on the analysis result by using DEA. It was got the mean efficiency score along 2009-2014 period of 90.04%. It showed that Thailand Islamic bank has high operational efficiency level. It has too consistency in keeping the bank efficiency level. This can be seen from the score per year which tends to be stability in 2009 was up to 82.76%, in 2010 was up to 93.69%, in 2011 was up to 90.30%, in 2012 was up to 95.01%, in 2013 was up to 92.32%, and in 2014 was up to 86.16%. And the information of potentiality improvement shown as the following.

Table 12. Thailand general bank syariah potentiality improvement

	Variable	Actual	Target	Potentiality Improvement
Output	Total Deposito (I1)	2,952,165,053.43	2,681,754,175.35	-9.95%
	Labor (I2)	26,467,452.84	24,086,898.63	-9.95%
	Fixed Asset (I3)	29,250,272.56	19,898,933.89	-30.47%
Input	Financing (O1)	3,046,834,184.78	3,046,834,184.78	0.00%
	Income (O2)	167,412,255.90	192,675,412.17	19.90%

Sumber : data analysis of Banxia Frontier Analystis 4

Based on the analysis result, the implemented improvement to optimized the bank efficiency level was to minus the fixed asset usage of 30.47% and improve the bank operational income of 19.90%. This means that syariah bank in Thailand (Islamic bank of Thailand or Ibank)

had applied its capacity action in efficient with high category. Ibank is in the position of the 5th level after Maybank Islamic Berhad, CIMB Islamic Berhad, Bank Mega syariah, and BRI syariah and of course it must be attention to all, while this country is not the Muslim Majority. There was only 10% of its population who are Muslem. But this country are able to hand business of syariah bank better than the countries of majority Muslem, such as Brunei Darussalam which has only got efficiency score level of 48.34%.

Syariah financial had been in Thailand from 1984 in the form of cooperation saving account in the name of Pattani Saving Cooperative (PSC) which objected to financial collecting from the community, particularly who live in south Thailand. Until 2001, PSC asset had reached to US\$ 2.75 million, and then in 2004 there were four cooperations bases of new syariah banks which established in other region, such as Koperasi Tabungan Ibu Affan, Koperasi Tabungan As-Siddiq, Koperasi Tabungan Tsaqaffah, and Tabungan Koperasi Al-Islamiyah. The, first syariah bank was established in 2003 in the name of Islamic Bank of Thailand (Ibank) which was directly control by Thailand ministry of finance affairs. Now, Thailand Islamic bank belong to government. It had more than 130 brances which separated in Thailand country. Beside syariah bank system, Thailand government also develop syariah capital market which had been lounced Idex Syariah FTSE SET in 2009 (Rama, 2015). This showed that Thailand is very serious in developing syariah bank industry financial in it country. Based on the analysis result, in facing free market competition in ASEAN countries which is now had been implemented, it was naive if we do not pay attention to Tahiland as the Muslem minority, particularly syariah bank industry. In long period, it maybe the country can be the big competitor in ASEAN region.

e. Syariah bank efficiency level in Philippines

Based on the result analysis toward Al-Amanah Islamic Investment Bank which is only one of Islamic bank in the nation and belong to the country. It was got the mean efficiency score level along 2009-2014 of 58.19%. And if we see to each year of the efficiency level, it was experienced fluctuation. According to the analysis by using DEA, the efficiency level score in 2009 was 37.22%, in 2010 was 26.47%, in 2011 was 64.33%, in 2012 was 83.87%, in 2013 was 66.63%, and in 2014 was 70.61%. The result showed that Islamic bank in Philippines was still categorized low efficiency level. The bank performance was inconsistence along 2009-2014 period. But for the potentiality improvement which suggested by DEA was as the following.

Table 13. Philipines General syariah bank Potentiality Improvement

	Variable	Actual	Target	Potentiality Improvement
Output	Total Deposito (I1)	6,460,559.23	3,481,116.85	-41.82%
	Labor (I2)	748,833.47	203,739.36	-73.63%
	Fixed Asset (I3)	303,632.04	105,577.92	-59.53%
Input	Financing (O1)	2,964,534.17	3,354,144.60	28.32%
	Income (O2)	762,102.46	762,102.46	0.00%

Source : data analysis of Banxia Frontier Analyst 4

Based on the above table 13, potentiality improvement in optimalized efficiency score level is to minus the total deposit of 41.82%, labor budget of 73.63%, the fiexd asset of 59.53%,

and improving the financial score of 28.32%. From the all which must be priority, it is the labor budget variable, because of it showed the highest percentage. This result analysis showed that syariah bank efficiency level in Philipines is still categorized low/weak. So that, it must be done some corrections by the government in order the syariah bank in this country can be able to face free market competition in ASEAN economic community.

Just the same with Thailand, Philipines is the country which has minority Muslem. According to Muslem demography data, there are only 8.5% was Muslim and 80% was Christen. The syariah bank development in Philipines started from 1973 which established in the name of Philipines of Amanah Bank (PAB) which was specified to serve Muslem population. PAB faced development in 1989 and changed to be Al-Amanah Islamic Investment Bank. Nevertheless, it is only one and it was only to serve in the region only, the syariah bank of Philipines experienced development significantly along the end of 20 years. Now, it has nine brances in Mindanau (Ala, 2014).

According to Rama (2015), the syariah bank of Philipines has some challenges: (1) unsuitable of regulation framework which can fully support the establishment of the number of banks and syariah financial products more. It was because of the now regulation was specifically made for Al-Amanah bank only; (2) the syariah bank financial experts were still minus, because of in Philipines, there is not one of High Education which offered financial programs of syariah bank; (3) the weak of Muslem economic condition in Philipines (now, Mindanau region is being the central of syariah Al-Amanah bank which was being the conflict region and the population was in the poor line); and (4) the weak of the population attention about syariah bank system.

Conclusion

Based on the results analysis of ASEAN countries syariah bank efficiency level by using Data Envelopment Analysis (DEA), it can be concluded that the syariah bank technical efficiency in ASEAN countries (Malaysia, Indonesia, Brunei Darussalam, Thailand, and Philipines) along 2009-2014 was 81.50%. This means that averagely the syariah bank mean score in ASEAN countries was categorized high technically or operationally efficiency). And then in order to see the potentiality improvement according to DEA, it was found that the total deposit was -21.75%, labor was -27.26%, fixed asset was 44.15%, financing was +4.44%, and income was +2.40%. This tells us that in order to get the maximum efficiency, the Syariah banks must priority to the input aspects (deposit, labor, and fixed asset). These aspects are being very dominant which have to be managed because of these was very big impact to the burdens which affect to not reaching the maximum efficiency of the countries.

Based on the result analysis of syariah banks efficiency per each country, it was found that from the five countries, Indonesia has the highest efficiency level mean score, it was 90.70%. Thailand was 90.04%, Malaysia was 81.99%, Brunei Darussalam was 48.34%, and Philipines was 58.19%. This showed that Indonesia has the best efficiency level among the ASEAN countries. This was caused by some factors, such as Indonesia syariah banks financial was more being market driven and bottom up, and then the management of the banks was in regulatory ragam. In other words, in handling the banks daily operational activities, the management had worked effectively and efficiently. But this not means that syariah banks of Indonesia is more competitively than the other countris in ASEAN region. The technical efficiency is only to see how effective and efficeince of a bank in handling the bank operationality of input and output which belong to them. While, to see the competitiveness level, the bank is also affected by other factors, e.g. the capitality factor. This related to the theory of

economics of scale, where the entities which have better capitality tends to have better competitiveness power. Capitality connected to cost of fund. The more the capitality of a bank, the lower of its cost of fund, so the credit interest is also lower. With the lower of credit interest, it will impact to the high competitiveness power.

The highest technical efficiency belong to syariah banks of Indonesia is being very important modality and it will be maximally following by strong capitality. And then, with both combination, it can be stated that Indonesia syariah banks will be more competitiveness domestically than other ASEAN countries. That is why, the planning of Otoritas Jasa Keuangan (OJK) who will merger the syariah banks in Indonesia is being the right policy in preparing Indonesia to face AEC. And if the government syariah banks (BNI syariah, BTN syariah, BRI syariah, and Bank syariah Mandiri were merger, it will be the strong bank in capitality and operationally. Now, establishing the big syariah bank is needed for realization. This is being the way for our syariah bank industry to competitive with facing AEC.

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