

**A COMPARATIVE EFFICIENCY ANALYSIS OF ISLAMIC AND NON ISLAMIC BANK IN
INDONESIA USING FINANCIAL RATIOS**

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Abstract - Islamic Bank grow all over the world, with first existence of Islamic bank in Middle East in 1970s and continue to grow. According to Islamic Financial Services Board 2015, the industry's assets are estimated to be worth USD1.87 trillion as at 2014 and total Islamic Banking asset worldwide is estimated to be worth USD 1.47 trillion as at 2014. The first sign of Indonesia Islamic Banking begin appeared in 1992 which is Bank Muamalat Indonesia and continue to develop. As the Banking Industry in Indonesia keep growing, the Bank have to maintain their efficiency performance. This research aims to find out the difference between Non Islamic and Islamic performance in term of efficiency using financial ratios. The data used in this research are balance sheet and income statement Non Islamic, Islamic Business Unit, and Islamic Bank in Indonesia that are available during period 2004 – 2014. The total observation in this research is 1537 bank-year. Method used in this research are computation with financial ratios, descriptive statistic, and Mann-Whitney Test. The results from the descriptive analysis mean value of each ratios, Islamic Bank efficiency performance shows that in early years of this study were not as good as Non Islamic Bank. The result of this study can be used by Islamic Bank management to give empirical evidence to the public that efficiency of Islamic Bank can come up and compete with Non Islamic Bank. Hopefully, it can increase the market share in Indonesia.

Keywords: Islamic banking, banking Industry, financial ratios, efficiency.

Introduction

Islamic Bank grow all over the world, with first existence of Islamic bank in Middle East in 1970s and continue to grow not only in the Middle East but in all the world in Asia, Europe, and America as well. The first sign of Indonesia Islamic Banking begin appeared in 1992 which is Bank Muamalat Indonesia and continue to develop. Growth of the asset must be come along with market share, Bank Indonesia said Islamic Banking market share should be more than 5%, but the realization is below the target. From Statistik Perbankan Indonesia, Market share of Islamic Bank including IBU in Indonesia still shows 4.85% in 2014.

As the Banking Industry in Indonesia keep growing, the performance of Islamic and Non Islamic Bank must be increasing. One of the important aspect in Bank management is improving financial efficiency of Islamic and Non Islamic Bank as Indonesia has huge potential to improve the Islamic Banking in the country where the Muslim is majority. This research wants to find out the difference between Islamic and Non Islamic performance in term of efficiency regarding Islamic Banking growth. This research focus on comparing Islamic Bank and Non Islamic Bank efficiency to determine the difference of Islamic and Non Islamic Bank from efficiency aspect using financial ratios.

This research study the efficiency of Islamic and Non Islamic Bank in Indonesia for limited time from 2004 until 2014 to give big picture about how well is the Islamic Banking performance in order to keep up the national and international competition using financial ratios. The difference of this research from previous research about Islamic Banking in Indonesia is the sample size in this research that covers 1537 bank-years including all Non Islamic (Conventional) Bank, Islamic Bank, and Islamic Business Unit in Indonesia.

Literature Review

Islamic Banking Development in the world

The existence of Islamic Bank started at early 1970s, especially after the launch of the First International Conference on Islamic Economics organized by King Abdul Aziz University in Makkah, Saudi Arabia and the establishment of the first commercial Islamic Bank, Dubai Islamic Bank (DIB) in the United Arab Emirates followed by the establishment of the international Islamic Development Bank (IDB) in Jeddah, Saudi Arabia and the many private and semi-private commercial Islamic banks that were established after that in Egypt, Sudan, Kuwait, Bahrain, etc. (Iqbal & Molyneux, 2005). In 2007 there were more than 300 Islamic financial institutions and over 250 mutual funds complying with Islamic principles, in over 51 countries. And over the last decade this industry has experienced growth rates of 10-15 percent per annum and expected to continue. (Solé, 2007).

Islamic Banking Development in Indonesia

According to Ascarya and Yumanita (2005) the first existence of Islamic financial institutions started in early 1980s with the establishment of *Baitut Tamwil-Salman* in Bandung dan *Koperasi Ridho Gusti* in Jakarta and the first Islamic Bank in Indonesia, Bank Muamalat Indonesia, established in 1992. Since then, Bank Indonesia (central bank of Indonesia) in 1998 allowed conventional banks to open Islamic branch or even fully converted into Islamic Bank at all. During 2013 Indonesia economic condition was stable although economic development was relatively slower. This condition affect the development of Islamic Banking in Indonesia, in 2013 the asset growth from Islamic Banks and Islamic Business Unit was 24,2% for 242,28 billion rupiah. This result is lower compare to 2012 that reach 34% in asset growth. However, the asset growth of Islamic Bank was bigger than Non Islamic (Conventional) Bank.

Islamic Banking Product

Islamic Banking are The Banks that operates guided by Islamic principles (Sharia). Islamic Banking has quite different system compare to Conventional Commercial Bank, one of the most important difference of Islamic Banks is the prohibition of interest or called *riba* in Arab language. Islamic Law prohibit interest or *riba* in any transaction. *Riba* is not a payment for taking risks, nor is it the reward for a constructive activity (Olson, Zoubi 2008). Islamic banks have some several product that they can offer to their customer, which are:

1. *Mudaraba*
Type of partnership where Islamic Bank provide funds to an entrepreneur to conduct business or productive activities. Profit and loss is shared between the banks and entrepreneur based on agreement which contain agreed ratios between two parties. Islamic bank become passive partner for the entrepreneur, if there is a loss, the Islamic Bank will lose his capital, and the entrepreneur will lose the time and effort invested in the project.
2. *Musharaka*
Type of partnership where Islamic Bank become active partner and become management partner for entrepreneur. Islamic Bank provide funds for equity and working capital to the entrepreneur, with the agreement before about profit and loss ratio contribution between two parties. Islamic Bank provide the funding for purchase of goods or commodities in return of profit sharing.
3. *Murabaha*
Islamic Bank buy an asset or goods for the client that will be sell with markup price by the client. The bank take the return in form of profit margin from the asset sale. The purchase price, selling price, and the profit margin must be stated at the sale agreement.
4. *Ijara*
Ijara is rental contract by the Islamic Bank for the specific asset/equipment with time period. Islamic Bank purchase the asset/equipment and rent it to the client with fixed fee for the rental. The asset/equipment ownership remain to the Islamic Bank who buy the asset/equipment.
5. *Bai at Salam*
Form of sale contract where price is paid in advanced and the goods will be delivered in the

future. Islamic Banks make the profit by the margin between the spot price is lesser than the future prices.

6. *Istisna*

Contract to purchase goods for the third party. The price is paid to the manufacturer in advance and the goods are produced and delivered in the future. This tool usually use for infrastructure projects.

Differences of Non Islamic and Islamic Bank financial report accounts

According to Fathurohman (2013) there are differences between Non Islamic and Islamic Bank writing systematic. Non Islamic (Conventional) Bank in Indonesia reporting standards follow International Financial Reporting Standards (IFRS), but Islamic Bank in Indonesia follow the standards Accounting and Auditing of Islamic Financial Institutions (AAOIFI). Several account changes between Non Islamic and Islamic Bank used in this research will be explained in Methods section.

Previous research about Islamic Banking efficiency

Efficiency as one of the method to measure the company financial performance. Company can be said efficient when the input is less than the output result of the process. The goal is of course to maximize output which is profit. Efficiency can be measured from 3 approach which are maximizing output, minimizing cost, and maximizing profit. This approach of production is widely known as economic efficiency where the objective of producers becomes one of attaining a high degree of economic efficiency (cost, revenue or profit efficiency). Olson and Zoubi (2008) studying Islamic and Non Islamic Bank in GCC region for 2000 – 2005 time period. Financial ratios were used to define bank performance which are profitability ratio, efficiency ratio, asset quality indicators, liquidity ratios, and risk ratio. For efficiency ratios they used interest income to expenses, operating expenses to asset, operating income to asset, operating expenses to revenue, asset turnover, net interest margin, and net non interest margin. General findings of this study are Islamic bank are more profitable than Non Islamic bank, but probably not quite as efficient.

Ika and Abdullah (2011) study about financial performance of Islamic and Non Islamic Bank in Indonesia during 2000 – 2007 in Indonesia. 3 Islamic and 6 Non Islamic Bank compared in this study. The efficiency measurement is using Asset Utilization ratio and Operating Efficiency ratio. The result of efficiency measurement is that there are no significant difference between Non Islamic and Islamic Bank in all efficiency measurement. Hasan, Mohammad, and Bader (2009) study efficiency of Islamic and Non Islamic Bank in Middle East. This study evaluate cross country data in financial statements of 40 banks, 18 Non Islamic and 22 Islamic Banks during 1990 - 2005. The countries are: Egypt, Bahrain, Tunisia, Jordan, Kuwait, Lebanon, Qatar, Saudi Arabia, Turkey, UAE, and Yemen. Efficiency measurement in this study use DEA non parametric approach. Findings in this study is that there are no significant different between overall efficiency result of Non Islamic and Islamic Bank. Study of efficiency of Islamic banks, financial ratios can be used to measure efficiency of bank performance. DEA (Data Envelopment Analysis) is more commonly used to measure efficiency. Mainly result of this paper reviewed are about significance difference between Islamic and Non Islamic Bank efficiency. The other paper result are varies whether Islamic or Non Islamic Bank have better efficiency performance in comparison.

Research Flowchart

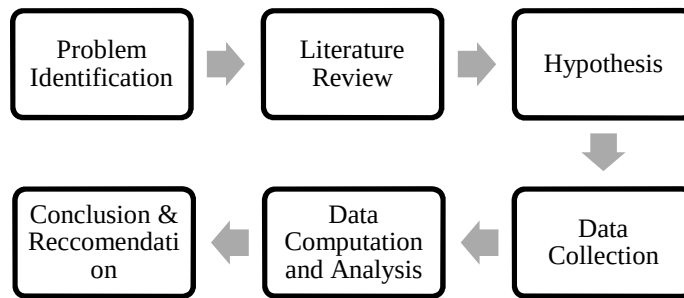


Figure 1: Research Flowchart

Problem Identification: Identifying the problem that will be research and determine the steps to analyze it.

Literature Review: Elaborate the theories that will be used in this research.

Hypothesis: Process of conducting hypothesis that will be tested in this research.

Data Collection: Process of gathering the data used to achieve the research objectives.

Data Computation and Analysis: Process of analyzing the data to find out the result of the research.

Conclusion and Recommendation: Explains the result of this research and what can be done to improve the research in the future.

Hypothesis

After literature review, the next step is conducting hypothesis of the research. The hypothesis found by analyzing the previous research that related to the topic of research which is Islamic Bank efficiency. Because the previous research about comparative efficiency measurement varies whether there is significant difference between Islamic and Non Islamic Bank performance, the hypothesis conducted in this research with Mann-Whitney test is:

1. H_0 : There is no significant difference between Islamic and Non Islamic Bank efficiency
2. H_1 : There is significant difference between Islamic and Non Islamic Bank efficiency

If the significance difference exist between Islamic and Non Islamic performance of each ratio, the measurement continue to observe mean and median score to define which bank has higher efficiency of each ratio.

Data Collection

In this paper annual financial report of Islamic and Non Islamic Banks is an object of this research. Financial report needed in this research are Balance Sheet and Income Statement of all bank in Indonesia, both Non Islamic and Islamic Bank in time period 2004 – 2014. Source of data used in this research are from OJK (Otoritas Jasa Keuangan), Bank Indonesia Website, Infobank, and previous research data from previous researcher related to this topic. This research cover total 1227 Non Islamic (Conventional) Banks, 232 IBU (Islamic Business Unit), and 78 Islamic Bank in time period 2004 – 2014. Total 1537 bank-year included in this research.

Methods

First of thing is to measure the Islamic and Non Islamic Banking efficiency performance using financial ratios. Descriptive statistic is used to determine average Islamic and Non Islamic Bank performance by looking at the mean for each efficiency ratio. Also the median and standard deviation used to see the distribution of the calculation result of each ratios. This research method of calculation based on "Using ratio to distinguish Islamic and Conventional Bank" by Olsoun and Zoubi in 2008. Several ratios used on Olson and Zoubi paper that adopted in this research are:

1. Return on Asset
$$ROA = \frac{\text{Net Income}}{\text{Average Total Asset}}$$

ROA or Return on Asset is one of the ratio to measure profitability. There are no different account between Islamic and Non Islamic Banking in Balance Sheet and Income Statement to calculate the ROA. The greater the percentage the stronger the ratio.

2. Return on Equity
$$ROE = \frac{\text{Net Income}}{\text{Average Stockholder's Equity}}$$

ROE or Return on Equity is another ratio to measure profitability. The difference in equity account financial report in Islamic Business Unit (IBU) and computed by the proportion of the asset in IBU with their Non Islamic Bank parent and multiply with their parent's equity. The greater the percentage the stronger the ratio.

3. Interest Income to Expense
$$IEE = \frac{\text{Interest Income} - \text{Interest Expenses}}{\text{Average Total Loans and Advances}}$$

IEE or Interest Income to Expenses is one ratio to measure efficiency of bank performance. There is difference in Islamic Bank and IBU financial report are interest and loan variable. The interest income replaced by income from fund disbursement and interest expenses replaced by revenue sharing distributed for investor of unrestricted investment fund. The greater the percentage the stronger the ratio.

4. Operating Expenses to Asset
$$OEA = \frac{\text{Operating expenses}}{\text{Average Total Asset}}$$

OEA or Operating Expenses to Asset is a ratio that measure efficiency in term expenses and asset of bank. Differences in Islamic Bank and IBU financial report are Operating Expenses in Islamic Bank and IBU replaced by revenue sharing distributed for investor plus other operating expenses. The lower the percentage the greater the ratio.

5. Operating Income to Asset
$$OIA = \frac{\text{Operating Income}}{\text{Average Total Asset}}$$

OIA or Operating Income to Asset is ratio that measure efficiency in term of income and asset of bank performance. There are no difference account in Islamic Bank and Non Islamic Bank. The greater the percentage the stronger the ratio.

6. Operating Expenses to Revenue
$$OER = \frac{\text{Operating Expenses}}{\text{Operating Income}}$$

OER or Operating Expenses to Revenue is ratio that measure efficiency in term of expenses of the bank. Operating Expenses in Islamic Bank is revenue sharing distributed for investor plus other operating expenses. The lower the percentage the stronger the ratio.

7. Asset Turnover
$$ATO = \frac{\text{Interest Income}}{\text{Average Total Asset}}$$

Asset Turnover is ratio that measure efficiency of bank performance. The interest income in Islamic Bank and IBU replaced by income from fund disbursement. The greater the percentage the stronger the ratio.

8. Net Interest Margin
$$NIM = \frac{\text{Net Interest Income} - \text{Net Interest Expenses}}{\text{Average Total Asset}}$$

NIM or Net Interest Margin is one ratio to measure efficiency of bank performance in term of interest income. The interest income replaced by income from fund disbursement and interest expenses replaced by revenue sharing distributed for investor of unrestricted investment fund. The greater the percentage the stronger the ratio.

9. Net Non Interest Margin
$$NNIM = \frac{\text{Net Non Interest Income} - \text{Net Non Interest Expenses}}{\text{Average Total Asset}}$$

NNIM or Net Non Interest Margin is ratio to measure efficiency of non-interest income of the bank. There are no difference between Non Islamic and Islamic Bank account to compute NNIM. The

greater the percentage is the stronger the ratio. After the calculation using 9 financial ratios above for 11 years (2004 – 2014), the calculation continue with descriptive statistic to calculate mean, median, and standard deviation. Each year of calculation is the result of Islamic and Non Islamic Banking efficiency using 9 ratios above in average per 1 year. After the calculation of descriptive statistic for 11 year, finally this research using Mann-Whitney test to find significant difference between Islamic and Non Islamic Bank performance.

Data Computation and Analysis

The analysis of data computation based on the balance sheet and income statement with descriptive statistic and significance test by Mann Whitney method (2 independent factor) to see the significant difference between Islamic and Non Islamic Banks in terms of efficiency by 9 factor which are ROA , ROE, IEE, OEA, OIA, OER, NIM, and NNIM. The calculation of significance difference test is using 5% significance level. This section will also explain the summary of all calculation that has been done in this research.

ROA

ROA or Return on Asset is one of the ratio to measure return (income) based on their asset. The higher the percentage the better the ratio. Table 2 shows the result of descriptive statistic (mean, median, and standard deviation) and Mann-Whitney test result of ROA for both bank.

Table 1: ROA calculation result

Year	Mean		Median		Std. Deviation		p value	Information	Additional Description
	Non Islamic	Islamic	Non Islamic	Islamic	Non Islamic	Islamic			
2004	0.024	- 0.027	0.021	- 0.008	0.032	0.059	0.000	N	Significance at confidence level 99%
2005	0.017	- 0.015	0.015	0.002	0.017	0.047	0.003	N	Significance at confidence level 99%
2006	0.016	0.006	0.013	0.004	0.019	0.024	0.013	N	
2007	0.015	0.004	0.014	0.011	0.019	0.042	0.226		
2008	0.042	0.000	0.016	0.020	0.361	0.135	0.516		
2009	0.016	0.011	0.018	0.021	0.036	0.055	0.777		
2010	0.004	0.015	0.016	0.024	0.124	0.047	0.281		
2011	0.016	0.012	0.017	0.022	0.013	0.051	0.126		
2012	0.015	0.025	0.016	0.025	0.011	0.025	0.002	I	Significance at confidence level 99%
2013	0.021	0.025	0.020	0.024	0.016	0.019	0.412		
2014	0.013	0.029	0.012	0.020	0.013	0.036	0.001	I	Significance at confidence level 99%

Note:

I: Mean score of Islamic is Bank significantly higher than Non Islamic Bank

N: Mean score of Non Islamic is Bank significantly higher than Islamic Bank

p value shows rejected

Bold: hypothesis

As seen on table 1 year 2004 – 2006 the *p* value score are 0.000, 0.003, and 0.013 respectively. In 2012 and 2014 *p* value score are 0.002 and 0.001. It means that there are significant difference between Islamic and Non Islamic Bank in ROA because *p* value is lower than 5% significance level. From 2004 – 2006 mean and median of Non Islamic constantly higher than Islamic bank. The result of mean and median during 2004 - 2006 shows that Non Islamic Bank is significantly higher in ROA than Islamic Bank. For 2012 and 2014 mean and median score of Islamic Bank is constantly higher than Islamic Bank. This means Islamic Bank ROA for 2012 and 2014 is significantly higher than Non Islamic Bank

ROE

ROE or Return on Equity is another ratio to measure return (income) based on equity. The higher the percentage the better the ratio. Table 2 shows descriptive analysis (mean, median, and standard deviation) and Mann-Whitney test result of ROE for both bank.

Table 2: ROE calculation result

Year	Mean		Median		Std Deviation		<i>p</i> value	Information	Additional Description
	Non Islamic	Islamic	Non Islamic	Islamic	Non Islamic	Islamic			
2004	-0.045	- 0.371	0.165	- 0.119	2.772	0.786	0.000	N	Significance at confidence level 99%
2005	-0.155	- 0.113	0.131	0.019	3.801	0.459	0.073		
2006	0.371	0.084	0.109	0.072	1.754	0.278	0.114		
2007	4.315	0.276	0.120	0.190	41.948	1.230	0.494		
2008	0.513	0.112	0.118	0.163	2.006	0.701	0.639		
2009	0.053	0.089	0.112	0.210	1.294	0.766	0.323		
2010	0.116	- 0.062	0.117	0.173	0.583	1.457	0.208		
2011	0.144	0.210	0.114	0.206	0.142	0.903	0.079		
2012	0.167	0.241	0.121	0.241	0.390	0.277	0.006	I	Significance at confidence level 99%
2013	0.113	0.215	0.096	0.212	0.180	0.147	0.001	I	Significance at confidence level 99%
2014	-0.004	0.988	0.091	0.136	1.166	1.583	0.008	I	Significance at confidence level 99%

Note:

I: Mean score of Islamic is Bank significantly higher than Non Islamic Bank

N: Mean score of Non Islamic is Bank significantly higher than Islamic Bank

Bold: *p* value shows rejected hypothesis

As seen on table 2 year 2004, 2012, 2013, and 2014 *p* value score are 0.000, 0.006, 0.001, and 0.008 respectively. This means during 2004, 2012, 2013, and 2014 that there are significance difference

between Islamic and Non Islamic Bank because p value are lower than 5% significance level. In 2004 mean and median shows that Non Islamic Bank is significantly higher than Islamic Bank. During 2012 – 2014 Islamic Bank mean and median score is constantly higher and this result shows that Islamic Bank ROE is significantly higher than Non Islamic Bank.

IEE

IEE or Interest Income to Expenses is one ratio to measure efficiency of bank performance. The higher the percentage the better the ratio which means more efficient. Table 3 shows descriptive analysis (mean, median, and standard deviation) and Mann-Whitney test result of IEE ratio for both bank.

Table 3: IEE calculation result

Year	Mean		Median		Std Deviation		p value	Information	Additional Description
	Non Islamic	Islamic	Non Islamic	Islamic	Non Islamic	Islamic			
2004	0.138	0.071	0.110	0.049	0.125	0.099	0.000	N	Significance at confidence level 99%
2005	0.121	0.087	0.094	0.089	0.085	0.167	0.448		
2006	0.130	0.099	0.096	0.099	0.136	0.055	0.702		
2007	0.120	0.088	0.095	0.073	0.128	0.053	0.155		
2008	0.100	0.091	0.088	0.088	0.051	0.054	0.598		
2009	0.148	0.139	0.088	0.099	0.505	0.161	0.120		
2010	0.104	0.346	0.086	0.105	0.098	1.363	0.348		
2011	0.086	0.126	0.078	0.087	0.039	0.134	0.115		
2012	0.081	0.098	0.072	0.081	0.046	0.057	0.090		
2013	0.082	0.090	0.067	0.212	0.052	0.147	0.107		
2014	0.074	0.093	0.066	0.083	0.036	0.056	0.100		

Note:

I: Core of Islamic is Bank significantly more efficient than Non Islamic Bank

N: Core of Non Islamic is Bank significantly more efficient than Islamic Bank

Bold: p value shows rejected hypothesis

Based on this result, the rejected area was back in year 2004 when the p value shows 0.000 lower than significance level 5%. In 2004 mean and median score are 0.071 and 0.049 for Islamic Bank, then 0.138 and 0.110 for Non Islamic Bank. This means that Non Islamic Bank is significantly more efficient in IEE than Islamic Bank.

OEA

OEA or Operating Expenses to Asset is a ratio that measure efficiency in term expenses and asset of bank. The lower the percentage the better the ratio, which means more efficient. Table 4 shows descriptive statistic (mean, median, and standard deviation) and Mann-Whitney test result of OEA for both bank.

Table 4: OEA calculation result

Year	Mean		Median		Std Deviation		p value	Information	Additional Description
	Non Islamic	Islamic	Non Islamic	Islamic	Non Islamic	Islamic			
2004	0.082	0.090	0.079	0.083	0.033	0.059	0.732		
2005	0.087	0.096	0.088	0.083	0.029	0.058	0.852		
2006	0.097	0.094	0.097	0.098	0.033	0.032	0.726		
2007	0.081	0.086	0.081	0.077	0.026	0.038	0.540		
2008	0.088	0.080	0.089	0.073	0.031	0.047	0.115		
2009	0.088	0.085	0.087	0.079	0.040	0.044	0.293		
2010	0.121	0.095	0.095	0.078	0.157	0.074	0.008	I	Significance at confidence level 99%
2011	0.102	0.100	0.092	0.077	0.078	0.071	0.045	I	
2012	0.097	0.078	0.085	0.072	0.073	0.035	0.051		
2013	0.101	0.045	0.083	0.058	0.062	0.052	0.000	I	Significance at confidence level 99%
2014	0.092	0.100	0.088	0.080	0.037	0.062	0.361		

Note:

I: Mean score of Islamic is Bank significantly more efficient than Non Islamic Bank

N: Mean score of Non Islamic is Bank significantly more efficient than Islamic Bank

Bold: p value shows rejected hypothesis

In year 2010, 2011, and 2013 p value score are 0.008, 0.045, and 0.000 respectively. This means during 2010, 2011, and 2013 that significant difference is exist in those years because p value is lower than 5% significance level. Based on mean and median score, the result in 2010, 2011, and 2013 shows that Islamic Bank mean and median score is constantly higher. Islamic Bank is significantly more efficient than Non Islamic Bank.

OIA

OIA or Operating Income to Asset is ratio that measure efficiency in term of income and asset of bank performance. The higher the percentage the better the ratio which means more efficient. Table 5 shows descriptive statistic result (mean, median, and standard deviation) and Mann-Whitney test result of OIA for both bank.

Table 5: OIA calculation result

Year	Mean		Median		Std Deviation		p value	Information	Additional Description
	Non Islamic	Islamic	Non Islamic	Islamic	Non Islamic	Islamic			
2004	0.029	0.006	0.024	0.010	0.044	0.087	0.024	N	
2005	0.022	0.004	0.017	0.005	0.023	0.063	0.044	N	
2006	0.020	0.026	0.018	0.014	0.022	0.047	0.712		
2007	0.020	0.016	0.019	0.013	0.024	0.058	0.061		
2008	0.002	0.032	0.001	0.024	0.005	0.040	0.000	I	Significance at confidence level 99%
2009	0.021	0.041	0.022	0.034	0.041	0.045	0.230		
2010	0.010	0.055	0.021	0.045	0.125	0.044	0.000	I	Significance at confidence level 99%
2011	0.021	0.046	0.022	0.037	0.017	0.067	0.000	I	Significance at confidence level 99%
2012	0.021	0.051	0.021	0.037	0.013	0.040	0.000	I	Significance at confidence level 99%
2013	0.020	0.027	0.019	0.027	0.016	0.021	0.155		
2014	0.018	0.071	0.016	0.034	0.015	0.081	0.000	I	Significance at confidence level 99%

Note:

I: Mean score of Islamic is Bank significantly more efficient than Non Islamic Bank

N: Mean score of Non Islamic is Bank significantly more efficient than Islamic Bank

Bold: p value shows rejected hypothesis

Based on calculation result, p value in 2004, 2005, 2008, 2010, 2011, 2012, and 2014 are 0.0024, 0.044, 0.000, 0.000, 0.000, 0.000, and 0.000 respectively. This mean during 2004, 2005, 2008, 2010, 2011, 2012, and 2014 there are significant difference between Islamic and Non Islamic Bank because p value is lower than 5% significance level. In 2004 and 2005 Non Islamic Bank mean and median score is constantly higher than Islamic Bank. This result shows that Non Islamic Bank significantly more efficient than Islamic Bank in 2004 and 2005. In year 2008, 2010, 2011, 2012, and 2014 Islamic Bank mean and median score is higher than Non Islamic Bank. This result means that Islamic Bank is significantly more efficient than Non Islamic bank during 2008, 2010, 2011, 2012, and 2014.

OER

OER or Operating Expenses to Revenue is ratio that measure efficiency in term of expenses of the bank. The lower the percentage the better the ratio which means more efficient. Table 6 shows descriptive analysis result (mean, median, and standard deviation) and Mann-Whitney test result of OER for both bank.

Table 6: OER calculation result

Year	Mean		Median		Std Deviation		<i>p</i> value	Information	Additional Description
	Non Islamic	Islamic	Non Islamic	Islamic	Non Islamic	Islamic			
2004	0.892	3.469	0.815	0.854	0.426	7.603	0.009	N	Significance at confidence level 99%
2005	0.891	1.162	0.856	0.952	0.267	0.578	0.057		
2006	0.874	0.906	0.867	0.888	0.246	0.243	0.894		
2007	0.862	1.181	0.837	0.852	0.239	1.368	0.444		
2008	0.862	0.889	0.838	0.756	0.220	0.530	0.187		
2009	0.868	1.012	0.827	0.807	0.344	1.086	0.802		
2010	1.349	0.786	0.974	0.836	1.919	0.238	0.000	I	Significance at confidence level 99%
2011	1.340	0.848	0.966	0.802	2.399	0.359	0.000	I	Significance at confidence level 99%
2012	1.393	0.745	0.938	0.743	2.770	0.195	0.000	I	Significance at confidence level 99%
2013	1.399	0.410	0.957	0.638	1.689	0.439	0.000	I	Significance at confidence level 99%
2014	1.079	0.813	0.961	0.843	0.653	0.164	0.000	I	Significance at confidence level 99%

Note:

I: Mean score of Islamic is Bank significantly more efficient than Non Islamic Bank

N: Mean score of Non Islamic is Bank significantly more efficient than Islamic Bank

Bold: *p* value shows rejected hypothesis

P value in 2004 are 0.009 and during 2010 – 2014 p value are 0.000. This means significance difference exist between Non Islamic and Islamic Bank for OER during 2004, 2010, 2011, 2012, and 2014. In 2004 mean and median score are 0.892 and 0.815 for Non Islamic Bank, then 3.469 and 0.854 for Islamic Bank. This result shows that Non Islamic Bank significantly more efficient than Islamic Bank. Mean and median score of Islamic bank is constantly higher in 2010 – 2014. This means that Islamic Bank is significantly more efficient than Non Islamic Bank.

ATO

Asset Turnover is ratio that measure efficiency of bank performance. The higher the percentage the better the ratio which means more efficient. Table 7 shows descriptive analysis result (mean, median, and standard deviation) and Mann-Whitney test result of ATO for both bank.

Table 7: ATO calculation result

Year	Mean		Median		Std Deviation		<i>p</i> value	Information	Additional Description
	Non Islamic	Islamic	Non Islamic	Islamic	Non Islamic	Islamic			
2004	0.097	0.051	0.094	0.054	0.036	0.036	0.000	N	Significance at confidence level 99%
2005	0.099	0.068	0.100	0.063	0.029	0.034	0.004	N	Significance at confidence level 99%
2006	0.111	0.088	0.113	0.095	0.027	0.029	0.002	N	Significance at confidence level 99%
2007	0.095	0.073	0.094	0.061	0.025	0.036	0.000	N	Significance at confidence level 99%
2008	0.103	0.084	0.102	0.076	0.030	0.043	0.001	N	Significance at confidence level 99%
2009	0.102	0.085	0.105	0.088	0.028	0.038	0.001	N	Significance at confidence level 99%
2010	0.098	0.093	0.095	0.076	0.037	0.071	0.020	N	
2011	0.092	0.079	0.089	0.076	0.033	0.031	0.011	N	
2012	0.090	0.080	0.086	0.077	0.045	0.037	0.128		
2013	0.092	0.089	0.086	0.080	0.049	0.051	0.271		
2014	0.091	0.097	0.090	0.084	0.031	0.061	0.499		

Note:

I: Mean score of Islamic is Bank significantly more efficient than Non Islamic Bank

N: Mean score of Non Islamic is Bank significantly more efficient than Islamic Bank

Bold: *p* value shows rejected hypothesis

Based on calculation result, 8 consecutive years started in 2004 until 2011 *p* value score are 0.000, 0.004, 0.002, 0.000, 0.001, 0.001, 0.020, and 0.011 respectively. This means from 2004 until 2011 there are significant difference between Islamic and Non Islamic Bank of ATO. Non Islamic Bank mean and median score is constantly higher for 8 consecutive years. This result of mean and median score show that Non Islamic Bank is significantly more efficient than Islamic Bank.

NIM

NIM or Net Interest Margin is one ratio to measure efficiency of bank performance in term of interest income. The higher the percentage the better the ratio. Table 8 shows descriptive statistic result (mean, median, and standard deviation) and Mann-Whitney test result of NIM for both bank.

Table 8: NIM calculation result

Year	Mean		Median		Std Deviation		<i>p</i> value	Information	Additional Description
	Non Islamic	Islamic	Non Islamic	Islamic	Non Islamic	Islamic			
2004	0.061	0.037	0.053	0.044	0.029	0.029	0.009	N	Significance at confidence level 99%
2005	0.056	0.044	0.050	0.045	0.023	0.023	0.279		
2006	0.053	0.060	0.048	0.055	0.022	0.023	0.489		
2007	0.044	0.049	0.044	0.033	0.015	0.017	0		
2008	0.057	0.050	0.053	0.055	0.025	0.030	0.616		
2009	0.057	0.050	0.053	0.055	0.023	0.023	0.515		
2010	0.053	0.060	0.047	0.055	0.025	0.060	0.985		
2011	0.049	0.050	0.043	0.055	0.021	0.030	0.495		
2012	0.049	0.050	0.044	0.040	0.025	0.030	0.329		
2013	0.052	0.060	0.046	0.050	0.030	0.040	0.263		
2014	0.047	0.060	0.041	0.050	0.022	0.060	0.269		

Note:

I: Mean score of Islamic is Bank significantly more efficient than Non Islamic Bank

N: Mean score of Non Islamic is Bank significant more efficient than Islamic Bank

Bold: *p* value shows rejected hypothesis

In 2004 *p* value score is 0.009 and that is below the 5% significance level. This result in 2004 means that between Islamic and Non Islamic Bank there is significance difference for NIM. In same year mean and median score are 0.061 and 0.053 for Non Islamic Bank, then 0.037 and 0.044 for Islamic Bank. This means Non Islamic Bank is significantly more efficient than Islamic Bank.

NNIM

NNIM or Net Non Interest Margin is ratio to measure efficiency of non-interest income of the bank. The higher the percentage is the better the ratio which means more efficient. Table 9 shows descriptive analysis result (mean, median, and standard deviation) and Mann-Whitney test result of NNIM for both bank

Table 9: NNIM calculation result

Year	Mean		Median		Std Deviation		<i>p</i> value	Information	Additional Description
	Non Islamic	Islamic	Non Islamic	Islamic	Non Islamic	Islamic			
2004	0.001	0.000	0.000	0.000	0.023	0.005	0.224		
2005	0.001	-0.003	0.000	0.000	0.005	0.007	0.002	N	Significance at confidence level 99%
2006	0.001	-0.005	0.000	0.000	0.005	0.011	0.001	N	Significance at confidence level 99%
2007	0.001	-0.001	0.000	0.000	0.003	0.005	0.031	N	
2008	0.001	0.000	0.000	0.000	0.004	0.010	0.001	N	Significance at confidence level 99%
2009	0.002	0.000	0.000	0.000	0.006	0.003	0.002	N	Significance at confidence level 99%
2010	-0.043	0.000	-0.031	0.000	0.125	0.005	0.000	I	Significance at confidence level 99%
2011	-0.028	-0.001	-0.027	0.000	0.019	0.005	0.000	I	Significance at confidence level 99%
2012	-0.028	0.000	-0.027	0.000	0.022	0.003	0.000	I	Significance at confidence level 99%
2013	-0.032	-0.001	-0.029	0.000	0.028	0.009	0.000	I	Significance at confidence level 99%
2014	-0.029	-0.002	-0.028	0.000	0.020	0.007	0.000	I	Significance at confidence level 99%

Note:

I: Mean score of Islamic is Bank significantly more efficient than Non Islamic Bank

N: Mean score of Non Islamic is Bank significantly more efficient than Islamic Bank

Bold: *p* value shows rejected hypothesis

During 2005 until 2009 *p* value score are 0.002, 0.001, 0.031, 0.001, 0.002, while during 2010 until 2014 *p* value shows 0.000. That's mean there are significant difference result of NNIM for Islamic and Non Islamic Bank in 2005 – 2014. The mean and median result from 2005 – 2009 shows that Non Islamic Bank is constantly higher than Islamic Bank. It means that Non Islamic Bank is significantly more efficient than Islamic Bank. Islamic Bank in 2010 – 2014 shows higher mean and median score than Non Islamic Bank. This means that Islamic Bank is significantly more efficient than Non Islamic Bank.

Summary

Summary of calculation result between Islamic and Non Islamic Bank done in this research shows in table 10. There are total 9 ratio and 11 years of calculation and analysis of descriptive statistic and Mann-Whitney test.

Table 10: NNIM calculation result

	ROA	ROE	IEE	OEA	OIA	OER	ATO	NIM	NNIM
2004	N	N	N		N	N	N	N	
2005	N				N		N		N
2006	N						N		N
2007							N		N
2008					I		N		N
2009							N		N
2010				I	I	I	N		I
2011				I	I	I	N		I
2012	I	I			I	I			I
2013		I		I		I			I
2014	I	I			I	I			I

Average score of Islamic Bank significantly more efficient than Non

I Islamic Bank

Average score of Non Islamic Bank significantly more efficient Non

N Islamic Bank

Non Islamic Bank mostly having higher mean and median score than Islamic Bank in time period 2004 – 2007, the ratios that show Non Islamic mean score is higher than Islamic Bank in time period are ROA, ROE, OIA, OER, ATO, NIM, and NNIM. In 2008 Islamic Bank keeps increasing the performance and until 2010 starting to achieve same or even better performance based on the mean score result. Islamic Bank is having better efficiency performance in the following ratio: ROA, ROE, OIA, OER, and NNIM. While the rest of ratios: IEE, OEA, ATO, and NIM Islamic Bank efficiency performance is not showing significance difference with Non Islamic Bank, that's mean the performance between both banks is nearly the same.

Conclusion

Islamic Bank growth in Indonesia is fast compared to Non Islamic Bank. In term of asset, Islamic Bank growth reach more than 10%. Although Islamic Bank growth rate is fast, market share of Islamic Bank in Indonesia still below 5%. With this condition, efficiency is one of the important factor to ensure Islamic Bank credibility. Findings from the calculation with descriptive statistic and Mann-Whitney test, Islamic Bank shows great progress as time goes on. From the descriptive analysis, mean value of each ratio, Islamic Bank efficiency performance shows that in early years of this study were not as good as Non Islamic Bank. Islamic Bank keeps increasing their efficiency and started in 2010 starting to achieve the same even better result of performance based on the mean and median score result. At the end, Islamic Bank is increasing their efficiency performance and starting to catch up Non Islamic Bank that show more stable performance in this research. This result, however, must consider the fact that Islamic Bank is not as big as Non Islamic Bank and it makes Islamic Bank easier to maintain their efficiency.

Recommendation

Indonesia as one of the country with big Muslim population have big potential to increase their competitiveness in Islamic Finance sector in the world. Malaysia and Middle East country is an example of the leading country in Islamic Finance. As Indonesia is the biggest Muslim majority country, Indonesia has huge potential to develop Islamic Banking. Based on this research there are several recommendation that perhaps may help the growth of Islamic Bank in Indonesia for Indonesia Banking Industry and policy makers for banking especially Islamic Banking sector.

On term of efficiency, especially in ratio based efficiency measurement, improvement can be done with increasing the Net Non Interest Margin and Asset Turnover ratio that is the most differ from all ratio that comparing Islamic and Non Islamic Bank because Islamic Bank haven't achieved higher result than Non Islamic Bank. The result of this study can be used by Islamic Bank management to give empirical evidence to the public that the efficiency of Islamic Bank can come up and compete with Non Islamic Bank. Hopefully, it can increase the market share in Indonesia as Indonesian Muslim population is majority, Islamic Bank has huge potential to grow. For further research, improvement can be done by finding out which efficiency measurement that most affect the market share of Islamic Bank. Also same the same thing can be done with profitability, risk, and liquidity aspect.

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