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The Effect of Internal Factors on the Efficiency of ASEAN Sharia Banking

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This research aims to determine the effect of internal factors on the efficiency of ASEAN Islamic banks. The samples of this research are ASEAN Islamic banks which have listed and published their financial reports on each countries' central bank website for the period of 2012-2016. The independent variables in this research are Profitability (ROA), Bank Size (SIZE), Liquidity (LIQ), Credit Risk (RISK), and Operating Cost. The dependent variable is the banking efficiency measured by the ratio of input (total deposit, labour, and capital) and output (total loans and investments). The analytical method used is a quantitative approach with E-Views 9.0 Software. The results of this research indicate that the variables ROA, SIZE, and RISK have no effect on the efficiency of Islamic banking, whereas LIQ has a significant positive effect and Operating Cost has a significant negative effect on the efficiency of Islamic banking.

Key words: *Efficiency, ROA, SIZE, RISK, Liquidity, Operating Cost, E-Views.*

Introduction

A bank is a business entity or institution that acts as a financial intermediary. Banks collect funds between parties who have funds and then channels these funds to those who need them. The function of the bank gives rise to the flow of funds in the form of banking services so that the public can feel the function of the banking sector itself and the public can then trust the bank to help the management of funds to be more productive (Adityantoro & Rahardjo, 2013). Overall banking performance is largely determined by the behaviour of banks in managing assets and liabilities, so managing funds owned by a banking company must be done efficiently. (Wuryandani et al., 2014).

According to Santoso (2010), efficiency is one of the performance parameters that underlies the entire performance of an organization. The measurement of banking performance is faced

with the condition of how to get the minimum input level with a certain output (Miranti & Sari, 2016). Banking performance is influenced by internal and external factors. Internal factors can be seen in the ability of banks to raise funds, the quality of productive assets, and available production factors that are reflected in the statement of financial position, while external factors can be seen in the form of macroeconomic factors and industrial characteristics (Purwoko & Sudiyatno, 2013).

Bad management tactics are one of the threats to the banking industry. The bad management that occurred in the banking industry in 1997 caused an economic crisis in Indonesia. Bad management occurs because of actions that aim to provide personal benefits to interested parties, such as directors and majority shareholders, without properly regarding the interests of other stakeholders, thus harming many minority shareholders. In the United States, bad management in the financial and banking industry also caused a global financial crisis that led many investors to terminate their cooperation until many industries went bankrupt, increasing unemployment in various countries.

Bad management theory suggests that most financial risks in an institution are caused by internal factors (Berger & De Young, 1997). Bad management theory shows that management can be said to be bad if it is unable to manage existing funds, incurring high costs and creating high cost inefficiency. Poor management functions like this are also caused by the inability of banking institutions to absorb debtor information or, to put it another way, by decreased banking efficiency.

The Islamic banking sector has been a major concern in the past three to four decades, particularily after the Islamic Conference Organization meeting in Mecca in the late 1970s (Sukmana & Febriyati, 2016). Islamic banking is in the spotlight in developing countries because the system has more competitive value when compared to conventional banks, which are considered to cause various polemics. This Islamic banking system has proven to be resilient in the face of the economic crisis that occurred in 2008 in the United States, which affected other industrial sectors. From year to year, Sharia financial assets have increased globally. In the Islamic Finance Development Report 2017 it is estimated that these assets will continue to grow, reaching 3.8 trillion USD in 2022 with an annual average asset growth of 9.5%.

In the Islamic Finance Development Report 2017, Southeast Asia itself ranked third globally in ownership of Islamic bank assets after the GCC (The Gulf Cooperation Council) and MENA (Middle East-South Africa) countries, which amounted to 200.242 million USD in 2016, and was ranked first in the ownership of other Islamic financial institution assets, having amounted to 46.319 million USD.

This study uses the 2012-2016 period due to the phenomenon of the Federal Reserve System (The Fed) in 2013-2014 raising interest rates, causing macroeconomic pressures. Determining the percentage of profit-sharing in the Islamic banking operating system itself still refers to conventional interest rates, so it can be concluded that the increase in interest rates due to the Fed has a global effect, specifically conventional banking and Islamic banking and other sectors.

The difference of this study with Batir et al., (2017) and Ismail et al., (2013) is the use of independent variables that only come from internal factors. External factors are ignored here because they only focus on the efficiency of Islamic banking financial performance and the addition of independent variables in internal credit risk. Therefore, in this study, the independent variables used are profitability, equity, expense, bank size, liquidity, and credit risk. The analytical method used is data envelopment analysis (DEA) and panel data regression analysis. This research was conducted on registered Islamic banking and has published financial reports on the website of the Central Bank or the site of each ASEAN company.

Theoretical Basis

Bad Management Hypothesis Theory

The Bad Management Hypothesis explains the relationship between credit risk and efficiency, where credit risk is one of the internal factors in banking financial performance (Sparta, 2016). Financial performance can be used as a key indicator for every business organization including in the banking sector (Bansal et al., 2018). The inability of managers to understand information from debtors causes asymmetric information between the two parties in credit decisions, causing inefficiency, which affects the bad management hypothesis. The inefficiency can also define an action that cannot utilize resources optimally, so it does not achieve maximum output (Nisa, 2016 ; Thi and Shen, 2018).

Islamic Bank

Islamic banks are banks whose practises refer to Islamic law and, in their activities, do not charge or pay interest to customers. They are free from usury, speculation (maisir), and uncertainty (gharar) (Umiyati & Syarif, 2016). All Islamic bank fees received or paid to customers depend on the contracts and agreements made by the customer and the bank in accordance with Islamic principles and law. Some claim that the basis of Islam (Sharia) in Islamic banking is different from conventional banks (Sukmana & Ibrahim, 2017). Islamic banks have a basic mechanism as a financial institution, which accepts deposits from capital owners (depositors) and has an obligation (liability) to offer finance to investors on the asset

side, with patterns and/or financing schemes that are in accordance with Islamic law (Umiyati & Syarif, 2016).

Efficiency

According to Amirillah (2014), optimal efficiency is the best use of inputs in producing output, whereas efficiency, according to Hidayat (2011), is the ratio or ratio between an input and an output, in which banking is efficient if it is able to produce more output compared to inputs issued, or produce the same output with fewer inputs used. In a competitive world-class, a bank is required to improve the efficiency and effectiveness of its performance, specifically by managing the use of its resources to achieve optimal profit levels, and particularly in regard to Islamic banks that are currently in the growth stage (Kamarudin *et al* ., 2017).

Research Hypotheses

Effect of Profitability on Islamic Banking Efficiency

Profitability is the company's ability to generate profits where the profits are obtained from capital and assets owned by the company (Permata et al, 2014). Profitability itself is used as a reference in bank operational activities, regardless of whether it has been run efficiently or not. Measuring bank profitability is the best used ROA ratio because it is not distorted with multiple equities and can reflect measurements of the company's ability to better generate portfolio returns (Sufian, 2010). The results of previous studies by Sufian and Noor (2009) showed that profitability is positively related to the efficiency of Islamic banking in MENA and Asia. This is supported by the research conducted by Saha et al. (2015). The research provides evidence that a company's level of profitability can reflect its level of performance efficiency and, by extension, that the higher a company's profitability, the more efficient is that company's performance.

H_1: Profitability has a positive effect on the efficiency of Islamic banking.

Effect of Bank Size on the Efficiency of Islamic Banking

Bank size is one of the characteristics that determines banking efficiency (Perwitaningtyas & Pangestuti, 2015). *Bank size* can show the activities of banking performance. Bank size can be reflected in the assets owned by a bank. When banks have large assets; the size of the bank is also large. In other words, the greater the size of the bank, the more superior and more efficient the performance of its banks, increasing the profit offset by minimizing company costs and easing access to the capital market when compared to banks that have small-scale company sizes (Gultom et al, 2013). There are several studies that state that bank size has a

positive effect on efficiency, including Sufian and Noor (2009), Noor and Ahmad (2012), and Sufian et al. (2016). The results of this study prove that the large size of the company is because of the assets owned, which are also large, and in turn increase the efficiency of the company's performance activities.

H_2: Bank size has a positive effect on the efficiency of Islamic banking.

Effect of Liquidity on the Efficiency of Islamic Banking

Liquidity is closely related to management activities in deposit and loan products provided by banks. Dewi (2016) states that liquidity is a problem related to the ability of a banking company to immediately fulfil all of its obligations. Liquidity itself is related to the ability of its current assets to become cash, which will be used to pay liabilities. Generally, banks will maintain their current assets, which can be quickly cashed in order to fulfil their obligations, and avoid the problem of insolvency (Sufian, 2010). Previous research on liquidity, specifically that conduced by Sufian and Habibullah (2010), showed that the results of their research had a positive effect on efficiency. This was supported by the results of Noor and Ahmad (2012). Their study showed that the greater the intensity of the loan, the more it shows a higher level of efficiency.

H_3: Liquidity has a positive effect on the efficiency of Islamic banking.

The Effect of Credit Risk on the Efficiency of Islamic Banking

Bank activities are always related to receiving deposits and providing credit facilities that inevitably have to face credit risk (Muriithi, 2016). Credit, alongside credit interest, is the biggest investment asset, since, if credit repayments fail, the biggest income for banks is the provision of loan products, which will also be disrupted (Buchory, 2014). According to PP Athanasoglou *et al.* (2008), the more financial institutions that experience high-risk loans, the greater the accumulation of unpaid loans. If this happens, it can increase inefficient company performance, because poor credit management will also result in low profitability. Previous research on credit risk was seen in the study of Sufian and Habibullah (2010), which results in negative credit risk on efficiency. This is further supported by research from Sufian et al. (2016). The results of the study stated that when a bank has low credit risk, the bank's operational performance has been carried out efficiently.

H_4: Credit risk has a negative effect on the efficiency of Islamic banking.

Effect of Operating Cost on the Efficiency of Islamic Banking

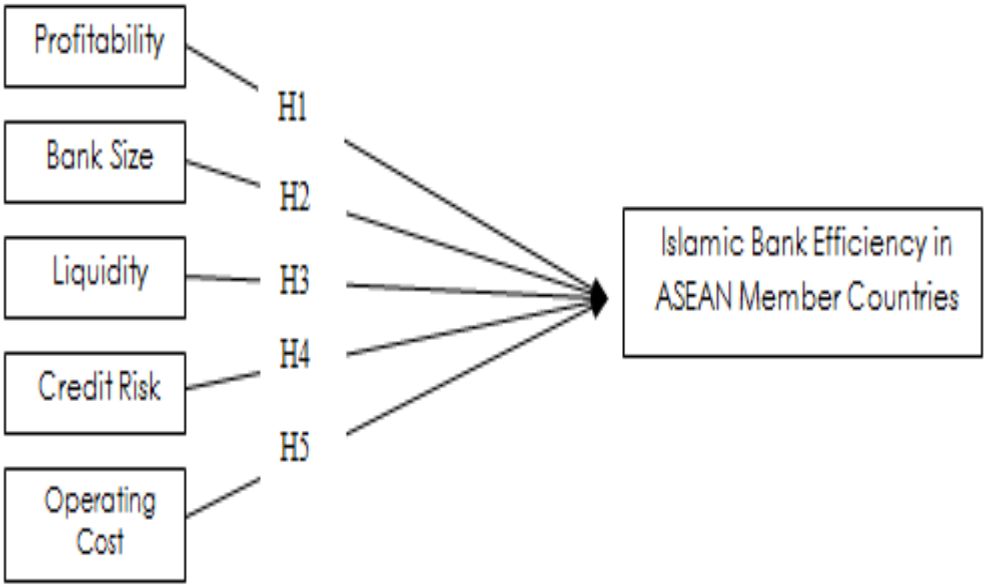
The efficiency of Islamic banking can be seen from the operational activities of the bank itself. Operating costs are costs arising from the company's operational activities. According to Widyastuti and Anto (2010), the operational costs of Islamic banks are the cost of funds incurred to raise public funds and income tax costs, where the cost of funds is the operational costs of banks with the largest amount. Previous research on this operating cost by Sufian et al. (2016) examined the determinants of the efficiency of Malaysian banks, and showed that the relationship between operating cost variables and profitability were negative when profitability was positively related to efficiency. This is because the operational costs must be higher if a banking company wanted to be more productive,, while other companies are required to be more efficient by maintaining *operating costs* in a fixed amount. This is supported by the results of previous studies by Sufian and Habibullah (2010) which also states that operating costs negatively affect bank efficiency.

H_5: Operating Cost has a negative effect on the efficiency of Islamic banking.

Conceptual Framework

To help understand the internal factors that can affect banking efficiency, a conceptual framework is needed. The conceptual framework explains the relationship between variables used in research through the theories that have been described, as well as the hypotheses that have been put forward by the researcher. The conceptual framework is as follows:

Figure 1. Conceptual Framework



Research Methods

The type of research used here is an explanatory quantitative approach. Explanatory research is research that aims to determine the relationship between the hypothesized variables. According to Sugiyono (2009), research that aims to find out two or more variables is also called a quantitative research method, which is causal associative.

Population and Research Samples

Table 1: Determination of Research Samples

Population Criteria	Number of Companies
Islamic banking in ASEAN which publishes financial reports on the websites of the Central Banks of each country	32
Islamic banking in ASEAN which does not present the data needed for consecutive research	(4)
Total	26
Population Target	26 x 5 year period = 130 data

Hypothesis Testing and Analysis Techniques

Data analysis in quantitative research uses statistical methods. In this study, DEA analysis was used. Data analysis techniques are used to determine the effect of independent variables on the dependent variable, using statistical panel data regression models using E-Views 9.0 software. Panel data (pooled data) is a combination of data from cross-section and time-series data.

Panel Data Regression Analysis Model

The panel data regression analysis used aims to measure the strength of the relationship and the direction of the relationship between the independent variables and the dependent variables. Widarjono (2013) stated that estimation of panel data regression uses several approaches, namely Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM).

Testing the Panel Data Regression Analysis Model

Model testing is done to choose the right model in the panel data estimation. The following are tests that can be performed:

Chow Test

Chow test is a test to choose between better models of common effects or fixed effects by looking at the results of Cross Statistics-F (Widarjono, 2013). If the Cross-Statistic-F significance value is smaller than the significance level $\alpha = 0.05$, then H_0 *is* accepted. Conversely, if the significance value is greater than the significance level then H_0 is rejected. H_0 accepted, indicating that the Fixed Effect Model is better used in estimating panel data than the Common Effect Model.

Hausman Test

The Hausman test is performed when the results of the chow test are H_0 accepted. The Hausman test is done by comparing the Fixed Effect model of the Random Effect Model. The best model in the Hausman test uses chi-square statistics with a degree of freedom of k, where k is the number of independent variables. If the chi-square statistic value is greater than the significance value $\alpha = 0.05$ then H_0 *is* rejected and this indicates that the Random Effect Model is better than the Fixed Effect Model. Conversely, if the chi-square statistical

value is smaller than the significance value then H_0 is accepted and it can be concluded that the Fixed Effect Model is better used for panel data (Widarjono, 2013).

Hypothesis Test

Hypothesis testing in this study was conducted using a t-test, while the feasibility test for the model was carried out using the coefficient of determination and statistical test F. The coefficient of determination (R^2) was derived from the *adjusted R-square* regression value of E-Views 9.0, while the statistical test F was derived from the results of the *F- statistics* in E-Views 9.0 regression. Widarjono (2013) said that the t-statistic test was used to find out how far the influence of the independent variables explains the dependent variable.

The basis for decision making used for the t-test is:

1. If the significance of the t-test is <0.05, then the hypothesis is accepted, where it indicates that the independent variable significantly influences the dependent variable
2. If the significance of the t-test >0.05 then the hypothesis is rejected, where it indicates that the independent variable does not significantly influence the dependent variable.

Data Analysis and Discussion

Descriptive Analysis

Table 2: Descriptive Analysis

Variables	Min	Max	Mean	Median	St. Dev
EFF	0.624200	1.000000	0.976988	1.000000	0.054564
ROA	-0.224471	0.030218	0.005228	0.008183	0.024893
SIZE	27.56858	33.93721	30.98027	31.18080	1.499594
LIQ	0.298783	0.890493	0.651898	0.679657	0.105028
RISK	0.001173	0.466115	0.034376	0.018500	0.062679
OP	0.000231	0.048845	0.011016	0.009295	0.010336

Based on Table 2 it can be seen that the average efficiency (EFF) of all sample companies is 0.976988 with a standard deviation of 0.054564. The greatest efficiency is 1.000000 which is owned by most of the sample companies, while the minimum value is owned by Standard Chartered Saadiq Berhad in 2015. The average value of Return on Assets (ROA) of companies owned by all sample companies is 0.00807018 with a standard deviation of 0.005409152. Return on Assets (ROA) has a minimum value of -0.224471 owned by PT. Maybank Syariah in 2015, while the maximum value of 0.030218 is owned by PT. Bank Mega Syariah in 2012. The average size of banks owned by sample companies was 30,98027 with a standard deviation of 1.499594. Bank size (SIZE) has a minimum value

of 27,56858 owned by PT. Victoria Islamic Bank in 2012 and has a maximum value of 33.93721 owned by Hong Leong Islamic Bank Berhad in 2014. The average value of liquidity (LIQ) owned companies sampled by 0.651898 with a standard deviation of 0.105028. Liquidity has a minimum value of 0.298783 owned by the Islamic Bank of Brunei Darussalam in 2016 and a maximum value of 0.890493 owned by PT. Maybank Syariah Indonesia in 2015. The average value of credit risk (RISK) owned by a sample company is 0.034376 with a standard deviation value of 0.062679. Credit Risk has a minimum value of 0.001173 which is owned by PT. Bank Muamalat Indonesia in 2016 and has a maximum value of 0.466115 owned by PT. Maybank Syariah Indonesia in 2014. The average value of operating costs (OP) of the sample companies is 0.011016 with a standard deviation of 0.010336. Operating cost has a minimum value of 0.000231 owned by AmBank Islamic Berhad in 2013 and a maximum value of 0.048845 owned by PT. Bank Mega Syariah in 2014.

Regression Analysis Results

The data used in this study is panel data that aims to determine the effect of internal factors on the efficiency of ASEAN 2012-2016 Sharia banking so that the data processing of the study uses panel data regression models. Panel data regression has three types of models namely Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). From the three-panel data regression models, the most suitable research model to apply to this research will be determined.

Selection of Regression Model
Chow Test

The value used in the test chow is a probability value *Cross-section F*. There is a hypothesis used in conducting the chow test, namely H_0 is the *fixed-effect* model and H_1 is the common effect model. If the probability value *Cross-Section* F of Test Chow has a significance level below 5% (0.05) then H_0 accepted. The results of the Chow Test in this study are presented in Table 3

Table 3: Chow Test Results

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.867976	(25,99)	0.0160
Cross-section Chi-square	50.235349	25	0.0020

The results of the probability value Cross-Section F of this research model is 0.0160 so that H_0 studies received and H_1 rejected. The appropriate panel data model to provide conclusions in this study according to the Chow Test is the Fixed Effect Model (FEM).

Hausman Test

Tests carried out after the chow test are the Hausman test. The Hausman test is used to select the panel data model that is more suitable between the Random Effect Model (REM) and the Fixed Effect Model (FEM). The value used in the Hausman test is the random cross-section probability. There is a hypothesis used in the Hausman test is H_0 is a fixed-effect model and H_1 is a random effect model. If the probability value resulting from the cross-section of random test Housman is less than 5% (0.05), then H_0 studies are received and H_1 study is rejected.

Table 4: Hausman Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	13.877983	5	0.0164

The Hausman test results in table 4 have a *random cross-section* probability value of 0.0164 or are less than 5% (0.05). The panel data model that is appropriate and suitable for use in this study according to the Hausman test is the *Fixed Effect Model* (FEM). The results of panel data regression using the *Fixed Effect Model* (FEM) are presented in Table 5.

Table 5: FEM Panel Data Regression Results

Dependent Variable: EFFICIENCY				
Method: Pooled Least Squares				
Date: 07/05/18 Time: 12:13				
Sample: 2012 2016				
Included observations: 5				
Cross-sections included: 26				
Total pool (balanced) observations: 130				
Variables	Coefficient	Std. Error	t-Statistic	Prob.
C	0.236103	0.672729	0.350963	0.7264
ROA?	-0.193188	0.364026	-0.530699	0.5968
SIZE?	0.019900	0.021604	0.921129	0.3592
LIQ?	0.274606	0.092421	2.971266	0.0037
RISK?	-0.206184	0.150599	-1.369100	0.1741
OPCOST?	-4.225542	2.047256	-2.064003	0.0416
	Effects Specification			
R-squared	0.384500	Mean dependent var		0.976988

Adjusted R-squared	0.197985	S.D. dependent var	0.054564
S.E. of regression	0.048865	Akaike info criterion	-2.995003
Sum squared resid	0.236391	Schwarz criterion	-2.311206
Log-likelihood	225.6752	Hannan-Quinn criteria.	-2.717153
F-statistic	2.061493	Durbin-Watson stat	1.806411
Prob(F-statistic)	0.004141		

Hypothesis Test

Determination Coefficient Test

Testing the coefficient of determination is performed in order to measure the ability of the independent variables to explain the dependent variable. The coefficient of determination (R^2) itself has a value of zero to one. If the value of the coefficient of determination (R^2) is close to one, the better the results of the research regression model. Based on the results of the study sample calculation as presented in Table 5, the coefficient of determination (R^2) shows the value 0.197985. It states that the efficiency of the banking companies which are influenced by internal factors of the company is 19.79% and the rest are influenced by other factors not included in this study.

Statistical Test F

The F statistical test is a statistical test that is used to show the independent variables that can affect the dependent variable in the research model. Table 5 shows an F-statistics probability value of 0.004141, this value is significantly below the level of confidence used which is 5% (0.05), so it can be concluded that the dependent variable used in the study is feasible to be tested.

Statistical Test T

The T statistical test is a type of test carried out to explain the influence of individual or partial independent variables used in research on the dependent variable of the research model. Proof of the presence or absence of influence individually or partially can be known from the calculation of the probability value of the t-statistic test. Based on Table 5 the following is an identification of the t-statistic test:

1. The significance value or the probability value of the probability variable is 0.5968. The value of 0.5968 is greater than the α significance level of 5% (0.05) so it can be concluded that the probability variable does not significantly influence the efficiency of Islamic banking.

2. The significance value or probability value of the variable bank size is 0.3592. The value of 0.3592 is greater than the significance level of α of 5% (0.05) so it can be concluded that the bank size variable does not significantly influence the efficiency of Islamic banking.
3. The significance value or probability value of the liquidity variable is 0.0037. The value of 0.0037 is smaller than the significance level of α of 5% (0.05) with a coefficient value of 0.274606, which shows a positive effect. Therefore, it can be concluded that the liquidity variable has a significant positive effect on the efficiency of Islamic banking.
4. The significance value or probability value of the credit risk variable is 0.1741. The value of 0.1741 is greater than the α significance level of 5% (0.05) so it can be concluded that the credit risk variable does not significantly influence the efficiency of Islamic banking.
5. The significance value or probability value of the operating cost variable is 0.0416. The value of 0.0416 is smaller than the significance level of α of 5% (0.05) with a coefficient value of -4.225542 which shows a negative effect so it can be concluded that the operating cost variable does not significantly influence the efficiency of Islamic banking.

Conclusions and Suggestions

Conclusion

This study examines the influence of internal factors on the efficiency of ASEAN Islamic banking. The conclusion of this study is that several internal factors, namely the variable liquidity and operating cost, affect bank efficiency, while probability, bank size, and credit risk have no significant effect on the efficiency of Islamic banking. The test results can be explained as follows:

1. The probability variable has no significant effect on the efficiency of ASEAN Islamic banking companies in the 2012-2016 study period. It can be concluded that profitability does not determine performance efficiency. Instead, it is management practices in decision making that determines performance efficiency. The company is required to continue operating company efficiency, not seeing the size of the profitability generated, because high profit is the main goal of every company.
2. The bank size variable does not significantly influence the efficiency of ASEAN Islamic banking in the 2012-2016 study period. It can be concluded that the size of the bank does not determine the efficiency of banking performance. Instead it is the professionalism of management in their practice that determines banking efficiency. A large bank with high assets does not always carry out its activities efficiently.
3. The liquidity variable has a positive and significant effect on the efficiency of ASEAN Islamic banking in the 2012-2016 study period. It can be concluded that the better the bank's ability to manage current assets, the more efficient the performance of Islamic banking will be.

4. The credit risk variable has no significant effect on the efficiency of ASEAN Islamic banking in the 2012-2016 study period. Therefore, it can be concluded that Islamic banking with the principle of fairness or profit-sharing reflects that the risk of default has no effect. On the other hand, the company is required to continue to carrying out operational efficiency of the company, without regard for the size of the credit risk generated.
5. The operating cost variable has a significant negative effect on the efficiency of ASEAN Islamic banking in the 2012-2016 study period. It can be concluded that the greater the company's operational costs, the lower the efficiency of the company's performance, because management cannot manage the costs well.

Suggestions

Based on the limitations of existing research, further studies are expected to:

1. Expand upon other variables besides those used in this study. It aims to find out other factors that influence the efficiency of Islamic banking.
2. Future studies are expected to add external variables such as gross domestic product and inflation to see the effect on the efficiency of Islamic banking.
3. Further research is expected to be able to add to the scale of the data period used to reflect economic conditions more real.

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