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The Contribution of the Performance Efficiency of Islamic Commercial Banks to Economic Growth: Evidence from Indonesia

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ABSTRACT

Islamic Commercial Banks (BUS) constitute one of the driving forces of economy that serve to boost economic growth as well as contribute to the maintenance of monetary stability. This vital economic role will only be performed effectively provided that BUS is able to sustain the development of its business efficiently. The purpose of this study is to test causality BUS efficiency performance and economic growth in Indonesia using panel data that integrates cross sectional data(Bank Muamalat Indonesia, Bank Syariah Mandiri, BNI and BRI Syariah) and time series data (2010: 2-2015: 4). The results of the study reveal that maintained efficiency of BUS business operations leads to economic growth, whereas economic growth gives a fresh impetus to economic development and efficiency of BUS. From this standpoint, it can be concluded that there is a bidirectional relationship between BUS efficiency and economic growth in Indonesia.

JEL Classification: G14; G21; H21; O47.

Keywords: Performance; Efficiency; Islamic Commercial Banks; Economic Growth.

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1. INTRODUCTION

The history of economic development of a country can not be separated from political dynamics which are in fact the most important determinant of the economic system adopted in the same country. Indonesia is no exception, where the cycle of the change of government always has quite an impact on the national economic system. In the old order government (1945-1965) the economic system was rather closed and oriented toward socialist / communist politics, whereas in the new order government (1966-1996), there is an open and capitalist-oriented economic system. During the transitional government (1997-1998), the turbulence in the global economy had a serious impact on the national economy, and the reform government (1999-2001) ended up in the removal of President Gus Dur from power. But it should be noted that in any regime and economic system, and regardless of who is sitting on the presidential throne, the main actors on the economic stage are the real sector and monetary sector. Both of these sectors are directly "responsible" for all economic matters. Therefore, governments are responsible for designing and implementing laws and regulations to boost national economic growth. Theoretically, the real sector is represented by the goods and commodities that the parties produce using the facilities offered by the banking sector, while the monetary sector is represented by the money market or financial sector, which in this study is represented by banks. Both of these sectors are needed for national economic development.

Ingrid (2006: 40) explained that the paralysis of the financial sector during the economic crisis that hit Indonesia in the late 1990s has had a negative impact on the real sector. From this standpoint, itcan be stated that monetary policy is instrumental to the growth of the real sector (2015; 480). The importance of the financial sector in the success of the development of the national economy has implications for the development of this sector both institutionally, and in terms of quantity and quality. Following the workshop conducted by the Indonesian Ulema Council (MUI) in 1990, the government responded in 1992 with the enactment of Law No. 7 on Banking, which opened up opportunities for the commercial banks to conduct business based on sharia principles. This is how Bank Muamalat was born as the first Islamic bank.

As a continuation of the Banking Act of 1992, in 1998, the government passed Law No. 10 on Amendments to Law No. 7 on Banking. Then in 2008, the government issued Law No. 21 about Islamic banking, which was followed in 2009 with the enactment of Bank Indonesia Regulation No. 11 on Islamic Banks. Governmental policies on Islamic banking can be considered as a manifestation of the government's will to respond to the needs of the community and financial institutions by elevating the country's economy to a higher growth trajectory. In terms of quantity, the number of financial institutions based on syariah principle continues to experience growth both in the shape of BUS, Sharia (UUS) and Bank Rakyat Syariah Financing (BPRS). The following table represents data BUS growth in Indonesia.

Table 1: Statistics BUS

Year	∑ Banks	∑ Office
2007	3	401
2008	5	581
2009	6	711
2010	11	1215
2011	11	1401
2012	11	1745
2013	11	1998
2014	12	2163

Source: Financial Services Authority (2015;4), processed

Based on Table 1, it can be argued that in terms of quantity, there is an increasing number of BUS and offices. The table demonstrates that in 2014, the number of BUS was 12. In this study, only 4 BUS were observed, with consideration of active publication of financial statements and smaller number of offices in many of the banks, namely: Bank Muamalat Indonesia (103), Bank Syariah Mandiri (65), Bank BNI Syariah (17) and Bank BRI Syariah (10). Others have less than 5 cash offices which should be considered as unrepresentative sample. Institutional support from the government and an increase in the quantity of BUS alone is not enough to contribute to national economic development. This is why Good Corporate Governance (GCG), a company management and control mechanism for achievement of sustainable economic growth, was established. Abidin, et.al (2013; 38-39) explains that GCG factor assessment is an assessment of the quality of bank management in the form of self assessment. This self-assessment mechanism is integrated into three aspects of governance, which are, governance structure, governance process and governance outcomes. Especially, relating to governance outcomes, the mechanism includes qualitative and quantitative aspects, such as the bank's performance efficiency.

The concept of a bank's performance being measured by efficiency as proposed by Abidin, et.al is relevant to the theory put forward by Nugraha (2013; 274), which proposes that the performance measurement based on financial ratios does not directly quantify related to the level of efficiency when compared to other banks. This is because expressing performance solely in terms of efficiency may have both favourable and unfavourable consequences; i.e., this may lead to enhanced economic performance, while it may also lead to bankruptcy. This study uses efficiency analysis to measure the performance of Islamic banking because of the following advantages: it can identify the input and output of the bank which can be used as a reference that can help to diagnose the causes for and find a way out of the inefficiency problem. In relation to economic growth, many empirical studies conducted by Muljawan, et al (2014; 1-76), Hafiz and Astuti (2013; 1-49), Ferreira (2012; 1-36), Kessy (2008; 1-49), Koivu (2002: 1-24), Berger, et al (2014; 1), Andersen (2003; 1), Budiyanti and Lisnawati (2012; 1-11) and Rama (2013; 33-56) specifically found out that there is a casual relationship between the efficiency and economic growth rate of banks. Results obtained from Soubbotina's study (2004; 33) show that the Gross Domestic Product growth rate in developing countries is on average higher than in developed countries. During the period 1965-1999, the annual growth rate averaged 4.1% in low-income countries, 4.2% in middle-income countries, and 3.2% in high-income countries.

The primary purpose of this research is to test the contribution of performance efficiency BUS to economic growth of Indonesia. More specifically, the purpose of this research is to test the causality between BUS efficiency performance and economic growth in Indonesia. Efficiency starts from the concept of microeconomic theory, the theory of producer and consumer theory. According to Production Theory, producers always tend to maximize profits and to minimize costs. On the other hand, consumer theory states that consumers tend to maximize utility or satisfaction level (Machmud and Rukmana, 2010; 122).

Economically, costs can be divided into fixed costs, which are not related to the amount of output produced, and variable costs whose value is determined by the amount of production output. Production is the process of transforming inputs into outputs. From this standpoint, efficiency can not be separated from the elements of input and output. As a concept, efficiency has a very broad scope as it demonstrates the success of individuals and profit/non-profit organizations in transforming a resource into an economic good. As also underlined by Nugraha (2013; 274), in the context of banking, the presence of numerous major banks and the supply of a broad range of products and services can be problematic. One of these problems can be about the quality of service a bank provides for the community. The assessment of banking efficiency gains more importance in this framework. This study aims to describe the efficiency of banking performance through the parameters put forward by Eden and Hosen (2013; 169-170) which suggest that, if we consider the banking industry as a group of intermediary institutions that use a lot of input and output, the measurement of the level of efficiency using a ratio of Operating Expenses to Operating Income (ROA) will not accurately describe the level of performance efficiency due to the calculation of the level of efficiency using a Partial Efficiency ROA ratios. In addition, the level of efficiency calculated through the CAMELS method accounts for only 5% of the total research population. This is a special concern, especially bearing in mind the urgency of the evaluation of the overall performance and efficiency of the banks.

Besides efficiency, this study also discusses the issue of economic growth. Economic growth according to Soubbotina (2004: 23) refers to the growth of Gross Domestic Product. Economic growth is the increase in per capita gross domestic product (GDP) or any other measure of aggregate income. Economic growth is often measured as the rate of change in real GDP and only refers to the amount of goods and services produced. In reality, the value of economic growth can be either positive or negative. If economic growth is negative, the economy is shrinking, which means the economy is in recession or depression. Thus, in the long term, the economic wealth of a nation depends on the growth of potential output. Given the importance of economic growth, which in other literature is referred to as the growth of output, this aspect becomes the main priority of macro-economic policy of a country in addition to the aspects of unemployment, inflation and balance of payments. Sukirno (1995; 23-24) states that, based on macro-economic issues, the objectives of macroeconomic policy can be categorized into the following four aspects: (1) to stabilize economic activity; (2) to reach the maximum level of labor utilization without inflation; (3) to create a firm economic growth and (4) to avoid the problem of inflation. From this standpoint, it is clear that the level of economic growth is the main barometer of a country's macroeconomic policy, especially considering that this aspect can also affect non-economic aspects such as politics.

Samuelson and Nordhaus (2004: 248-249) stated that nations continue to view economic growth as the central goal of policy. Economic growth is the most important factor for the success of nations in the long term, and describes the potential GDP expansion or a country's national output. Economic growth in the broad sense is influenced by direct and indirect factors. Boldeanu and Constantinescu (2015; 329-338) proposed that economic growth is directly influenced by factors such as human resources (increasing the active population, investment in human capital), natural resources (land, underground resources), increase in capital employed, or technological advances. Economic growth is also influenced by factors such as the size of aggregate demand, savings rates and investment rates, the efficiency of the financial system, budget and fiscal policy, migration of labor and capital and government efficiency. Besides the theories of efficiency and economic growth, previous research such as the study carried out by Rozzani and Rahman (2013; 98) has explored banking efficiency through the use of Stochastic Frontier Analysis. The ultimate goal is to identify the determinants that affect the efficiency of conventional banks and Islamic banks in Malaysia. The research data in the form of annual financial reports from 2008 to 2011 were obtained from a sample of 19 conventional banks and 16 Islamic banks operating in Malaysia.

The overall picture of the results showed that the level of efficiency of conventional banks and Islamic banks in Malaysia is very similar. Specifically, it can be argued that the efficiency of conventional banks is indicated by an increase in the size of banks, and a decrease in operational costs and credit risk, wheras efficiency for Islamic banks is shown with only a reduction in operating costs. According to the study, it can be concluded that the level of efficiency of conventional banks (represented by 19 banks) is indicated by an increase in the size of banks, and a decrease in operational costs and credit risk. On the other hand, the level of efficiency of Islamic banks (represented by 16 Islamic banks) is shown with only a decrease in operating expenses in the period 2008 to 2011 in Malaysia. The results of the study conducted by Muljawan, et.al (2014; 17) demonstrate that the enhanced financial performance of commercial banks in Indonesia also provides a climate conducive to the growth of the national economy. Therefore, the national banking industry should continue to develop on an ongoing basis in order to support economic growth in Indonesia. In a more technical level, the banking institutions are expected to have a high level of efficiency so as to print a high level of profit from operations and third-party funds at a

competitive cost. The above research was based on data that uses a sample of 103 conventional commercial banks from the period 2007Q1 through 2014Q1. The results of these studies indicate that the financial performance of commercial banks is proxied by the level of efficiency that can drive national economic growth. Hafiz and Astuti (2013; 1) pointed out in their study that the banking industry still holds the biggest role in the Indonesian financial system with a share of approximately 75% at the end of 2012. Therefore, the banking sector should be able to operate efficiently, and with stability in order to boost sustainable economic growth. Aspects of efficiency are one of the most important factors that need to be considered in this respect because they can affect the sustainability of the bank.

In relation to economic growth and the performance of banking efficiency, Ferreira (2012; 1) in his study provided empirical evidence about the importance of economic growth and the performance of banking institutions, especially banking efficiency measured through Data Envelopment Analysis (DEA). The study used 27 EU member states for the period of time between 1996 and 2008. The results confirmed that the efficiency of financial institutions make a positive contribution to economic growth. Kessy (2008; 1) analyzed the relationship between the efficiency of the financial sector and economic growth using fixed-effect models and a balanced panel data from three East African countries, namely Tanzania, Kenya and Uganda over the period 1994- 2005. The results showed that the efficiency of banks was found to be positively associated with economic growth for all countries. The efficiency of the financial system affects the real sector, especially through increased productivity of capital and an increase in the savings rate. One important policy implication of this study is that governments in East Africa can achieve a higher economic growth rate by adopting policies that encourage the development of an efficient financial sector.

Koivu's (2002; 1) empirical studies that use fixed-effect panel data model from 25 countries during the transition period 1993-2000 found that the presence of an efficient banking sector accelerates economic growth in the transition economies, namely, Albania, Georgia, Romania, Armenia, Hungary, Russia, Azerbaijan, Kazakhstan, Slovak Rep, Belarus, Kyrgyzstan, Slovenia, Bulgaria, Latvia, Tajikistan, Croatia, Lithuania, Turkmenistan, Czech Rep., Moldova, Ukraine, Estonia, Poland, Uzbekistan and FYR Macedonia. According to the study of Berger, et al (2014; 1) which tested the effects of bank health on economic growth, healthy banks are one of the parameters measured by the average level of efficiency. The empirical data on economic performance and financial system of 49 countries during the period of 1993-2000 showed that the marginal benefit of the stock can be felt when the banks are more efficient in running the business. Andersen's (2003; 1) research that examined the empirical relationship of financial development and economic growth, and the extent to which this relationship is different between groups of countries, is based on three indicators measuring the financial sector by size (liquid liabilities) and activities (loans to the private sector and credit by the bank).

The research data used was representative of 60 countries during the period 1965-1997. The analysis concluded that: (1) there exists a positive statistical relationship between financial development and economic growth; and (2) developing countries are growing faster than industrialized countries (some evidence of convergence). Therefore, the development of the financial sector seems to be at least as important in developing countries as in industrialized countries. Budiyanti and Lisnawati (2012; 1) stated that, since the global crisis in 2008, global economic developments, especially in the financial sector, have gained impetus, including the ASEAN region. This development can be seen from several financial indicators in ASEAN countries such as the ratio of the money supply, credit, and investment to GDP. The econimic increase in the financial sector has also been accompanied by a significant increase in economic growth in ASEAN countries. This study aims to look at the effects of the financial indicators on economic growth in the five ASEAN countries, namely Indonesia, Malaysia, Philippines, Thailand, and Singapore. Financial indicators used in this study is the ratio of money supply per GDP, the ratio of credit rate per GDP and the ratio of investment per GDP. By using a panel data for the period 1990-2010, the results show that the two financial indicators which significantly influence economic growth in the five ASEAN countries are; the ratio of the money supply per GDP and the ratio of investment per GDP.

Based on the research results, as noted above, there is empirical evidence that the performance of financial institutions as well as the majority of banks measured by the level of bank efficiency can boost economic growth. This result applies not only to Indonesia, but also to the 27 EU member states selected, the three East African countries (Tanzania, Kenya and Uganda), 25 transition countries, the member countries of ASEAN and some other countries. The studies of Rama (2013; 33) which empirically examined the dynamic relationship between the development of Islamic banking, capital markets, trade, inflation and economic growth in Indonesia by using time series data found that there is a long-term balance between Islamic banks, capital markets, trade, inflation and economic growth. Granger causality test shows that there is a bidirectional relationship between economic growth

and performance efficiency of Islamic banks in Indonesia. VDCs results showed that the variation of economic growth is highly dependent on its own variations. The study also found that the variation of Islamic bank financing may have significant variations in economic growth. In order to increase the contribution of Islamic banking to economic growth, related parties must formulate and implement appropriate policies to accelerate the growth of Islamic banking in Indonesia. Furthermore, Muljawan, et.al (2014; 46) suggested that GDP growth has a positive effect on the bank performance efficiency because the demand for loans is bound to rise along with economic growth. The expectation proved that GDP has a significantly positive effect (as expected) on the level of operational efficiency (technical efficiency) of commercial banks in Indonesia. Research conducted by Muljawan, et.al also indicates that economic growth as measured by GDP growth boost efficiency levels for commercial banks in Indonesia. Similarly, a study of commercial banks in Kenya by Ongore and Kusa (2013; 237) demonstrated that the financial performance of commercial banks in Kenya is driven mainly by the decision of the board and management, while macroeconomic factors also play a significant role in this respect. The findings of the theoretical and empirical studies stated above can lead to an understanding that there is a causal relationship between bank efficiency and economic growth. Thus, in relation to the BUS in Indonesia, the hypothesis of this study can be formulated as follows: "There exists a causality relationship between PERFORMANCE EFFICIENCY OF BUS AND ECONOMIC GROWTH IN INDONESIA".

2. RESEARCH METHODS

This research has implemented a quantitative approach to the type of associative research in accordance with the formulation of the research problem. The study uses a time series analysis method and numerical data for analysing the relationship between BUS efficiency and economic growth in Indonesia between the second quarter (qtq) of 2010 and the fourth quarter of 2015. Thus, the study makes use of 23 observational data. The two variables of research are the performance efficiency of BUS and the level of efficiency and economic growth. BUS efficiency in this study was calculated using the approach in the study of Chen (2011; 7717), where the measurement of the relative efficiency is derived from the concept of efficiency. The relative efficiency is defined as the ratio of output weight to input weight.

$$hj = \frac{\sum_{i=1}^{s} u_i \, y_{ij}}{\sum_{r=1}^{m} v_r \, x_{rj}}$$

Where: hj is the technical efficiency of bank j (DMU); s is the output of the bank; m is the input of the bank; yij is the amount of output produced by the bank i j; xrj is the number of inputs used by bank r j; ui is the weight of the output generated by the bank i j; vr is the weight of the input provided by the bank r j; i counts from 1 to s and r is calculated from 1 to m. The efficiency value is in a range between 0 and 1. If the value of efficiency is high, or very close to 1, this means that the bank operates with high efficiency (100%). If the value is close to 0, however, this will indicate that the bank operates with a low efficiency ratio. Economic growth refers to macroeconomic indicators that describe the development of production (goods and services) of a country or region within a specific period of time. Macroeconomic variables are used as the basis for the calculation of economic growth and GDP rate. This study has used purposive sampling method. Sugiyono (2014; 126) defines purposive sampling as a sampling technique with certain considerations. This study has used purposive sampling technique to analyze the causality relationship between BUS efficiency data (qtq) and economic growth data available for the period between the second quarter of 2010 and the fourth quarter of 2015.

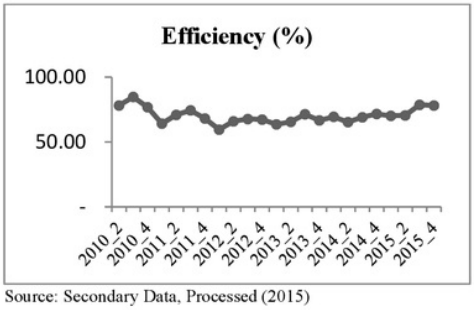
The data source of this research is secondary data, which has been collected using data collection techniques from archives. Jogiyanto (2004: 117) explains that this technique can be implemented for the collection of both primary and secondary data. One of the data collection techniques that can be used for obtaining secondary data is that of collecting data in a database. The present study has also used data archiving method, also referred to as the documentation method, for gathering research data from the BUS efficiency publications / documentation of Bank Indonesia and the publications / documentation of the Central Statistics Agency (BPS). Data analysis was carried out in two stages. In the first phase which is related to the efficiency of Islamic Banks, data analysis was performed by calculating the average level of efficiency in each quarter by using LINGO software. In the second phase which is related to causal relationships, data analysis was carried out in stages: (1) Test Data Stationarity using Root Test Unit (Unit Root Test) on each variable; (2) Determination of Optimal Lag; (3) Test Cointegration Johansen (Johansen Cointegration Test) and (4) Granger Causality Test (Granger Causality). Eviews software was used to test the causality relationship in this phase.

3. RESULT

Efficiency BUS

Efficiency provides an overview of the input and output relationship. A system is said to be efficient if a maximum amount of output is achieved from the given resource inputs. In the context of Islamic banking, a bank can be said to be efficient if the BUS has an efficiency value which is close to 1 or 100%. If the efficiency value is close to 0, this will indicate that the bank has a low efficiency ratio. The results obtained from this research (see Figure 1) demonstrate that the efficiency of BUS between the second quarter of 2010 and the fourth quarter of 2015 was very dynamic. The value of the lowest efficiency in the first quarter of 2012 was 59.58%, which amounts to a level of 40.43% inefficiency. The highest efficiency value achieved in the third quarter of 2010 was 84.72% which corresponds to a level of 3.4% inefficiency. Within this framework, it can be concluded that the highest level of efficiency is quite satisfactory.

Figure 1: Level of Efficiency BUS Second Quarter 2010 to Fourth Quarter 2015

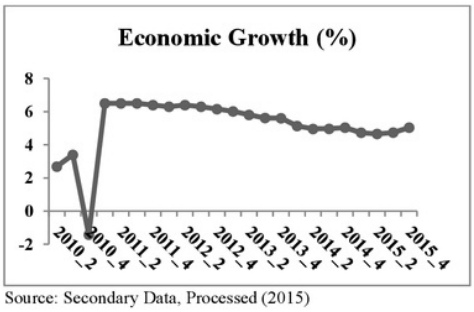


Source: Secondary Data, Processed (2015)

Economic Growth

Economic growth reflects increased production and consumption of goods and services produced by economic sectors, namely: (1) agriculture, forestry and fisheries; (2) mining and quarrying; (3) processing industry; (4) electricity, gas and water; (5) building; (6) great trade, Eceren, restaurants and hotels; (7) transport, storage and communication; (8) finance and insurance, and (9) other activities. The results of this research (see Figure 2) reveal that the value of economic growth between the second quarter of 2010 and the fourth quarter of 2015 is also very dynamic. Put in other words, economic growth in this period is characterized by boom, recession, depression and recovery. 2010 was a year filled with uncertainty in relation to economic growth. This is demonstrated by the fact that economic growth slowed down in the fourth quarter of 2010. The loss of pace in national economic growth in the fourth quarter of 2010 is due to rising prices of strategic commodities that have a significant impact on economic growth. However, this condition does not last long, due to the economic recovery in the first quarter of 2011.

Figure 2: Indonesian Economic Growth Between Second Quarter of 2010 to Fourth Quarter of 2015



Source: Secondary Data, Processed (2015)

Stationarity Test Data

Generally, the current study uses time series analysis techniques. Hence, prior to a further analysis of the gathered data, it is necessary to test stationary data by unit root test based on the Augmented Dickey Fuller (ADF) test. Figure 3 shows the stationary test results for variables of BUS efficiency, and Figure 4 shows the stationary test results for the variables of of economic growth.

Figure 3: Variable Data Stationarity Test Results Efficiency

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		**-6.809664**	**0.0000**
Test critical values:	1% level	-3.886751	
	5% level	-3.052169	
	10% level	-2.666593	

*MacKinnon (1996) one-sided p-values. Source: Secondary Data, Processed (2015)

Based on Figure 3, it can be concluded that the data is already stationary at the second difference because the value of Prob. * is less than 0.05 (5%). The second way of detecting stationary variable data for BUS efficiency is by comparing the absolute value of the t statistic (6.809664) with critical value in MacKinnon table at a rate of 1%, 5% and 10%. The statistical results show that t was greater than the critical values. Viewed in this light, it can be concluded that the data is stationary and ready for further analysis.

Figure 4: Stationarity Test Results for Economic Growth

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		**-7.361231**	**0.0000**
Test critical values:	1% level	-3.788030	
	5% level	-3.012363	
	10% level	-2.646119	

*MacKinnon (1996) one-sided p-values. Source: Secondary Data, Processed (2015)

Based on Figure 4, it can be stated that the data is already stationary at the first difference because the value of Prob. * is less than 0.05 (5%). The second way of detecting stationary variable data of BUS efficiency is by comparing the absolute value of the t statistic (7.361231) with critical value in MacKinnon table at a rate of 1%, 5% and 10%. The statistical results demonstrate that t was greater than the critical values. Thus, it can be concluded that the data is stationary and ready for further analysis.

Determination of Optimal Lag

Figure 5 below shows the results of the test for determining the amount of optimal lag before the test of cointegration and granger causality in autoregressions vector regression model (VAR). We can see from the figure that all the asterisks are at lag1, meaning the optimal lag is lag 1.

Johansen Cointegration Test

The cointegration tests carried out in this study using the Johansen Cointegration Test indicates the possibility of a long-term equilibrium relationship between the dependent variable and independent variables.

Figure 5: Results of Determination of Optimal Lag

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-108.02	NA	75.67	10	10.1	10.02
1	**-100.86**	**12.37***	**56.94***	**9.71***	**10.01***	**9.78***

* indicates lag order selected by the criterion. Source: Secondary Data, Processed (2015)

Figure 6: Johansen Cointegration Test Results (Trace Statistic)

Series: Economic Growth vs Efficiency
Lags interval (in first differences): 1 to 4

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Stat	0.05 C.Value	Prob.**
None	0.456	**15.415**	**15.495**	0.051
At most 1 *	0.219	4.45	3.841	0.035

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level, **MacKinnon-Haug-Michelis (1999) p-values. Source: Secondary Data, Processed (2015)

Figure 7: Johansen Cointegration Test Results (Max-Eigen Statistic)

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 C.Value	Prob.**
None	0.456206	10.96533	14.26460	0.1560
At most 1 *	0.219034	4.450017	3.841466	0.0349

Max-eigen value test indicates no cointegration at the 0.05 level. * denotes rejection of the hypothesis at the 0.05 level. **MacKinnon-Haug-Michelis (1999) p-values. Source: Secondary Data, Processed (2015)

Based on Figure 6, the value of Trace Statistic (15.415) is smaller than the critical value at the 5% level of confidence (15.495). Within this framework, it can be stated that the two variables are not mutually cointegrated in the long term. These results are confirmed by Max-Eigen Statistics results (figure 7), where the Max-Eigen value Statistic (10.96533) is smaller than the critical value at 5% confidence level (14.2646). This means that in the long run, there is no cointegration.

Granger Causality Test (Granger Causality)

Granger causality test was used to test whether a variable improves forecasting performance of other variables to indicate causality (Novita, et al, 2009; 111). In other words, granger causality test was used to look at the direction of the relationship between the variable of BUS and the variable of efficiency of economic growth. The guidelines in analyzing this causal relationship are based on the following hypothesis:

i. H_0: Economic growth does not affect (not lead to) BUS efficiency;
   H_1: Economic growth affects (causes) BUS efficiency;
ii. H_0: Efficiency BUS does not affect (not cause) economic growth;
   H_1: Efficiency BUS affects (causes) economic growth.

If Prob is > α (0.05 or 5%), then H_0 and H_1 are rejected. Then if Prob is <α (0.05 or 5%) then H_0 and H_1 are accepted.

Figure 8: Granger Causality Test Results

Pairwise Granger Causality Tests
Sample: 2010Q2 2015Q4
Lags: 2

Null Hypothesis:	Obs	F-Stat	Prob.
Economic Growth does not Granger cause Efficiency	21	3.712	**0.047**
Efficiency does not Granger cause Economic Growth		4.505	**0.028**

Source: Secondary Data, Processed (2015)

Based on figure 8, it can be concluded that: firstly, economic growth leads to BUS efficiency (because the value of Prob. (0.047) < α (0.05 or 5%). Thus, H_1 is accepted. Furthermore, for the second statement, BUS efficiency leads to economic growth. These results are based on the value of Prob. (0.028) < α (0.05 or 5%). Thus, H_1 is accepted. From the Granger test, it can be concluded that both variables have a 2-way relationship or mutual influence. Therefore, the research hypothesis, which reads: " There exists a causality relationship between PERFORMANCE EFFICIENCY OF BUS AND ECONOMIC GROWTH IN INDONESIA" is tested.

4. DISCUSSION

Based on the research results (Granger causality test) it can be stated that: (1) economic growth leads to BUS efficiency and (2) BUS efficiency leads to economic growth. Thus, there is a causal relationship between the variables of BUS efficiency and economic growth during the period from the second quarter of 2010 to the fourth quarter of 2015. Stated in a more detailed way, there is a relevance between the results obtained from research study and the theoretical and empirical studies. First of all, economic growth leads to BUS efficiency. Although the research setting and periodization research are not the same, the results of this study are concordant with the results obtained from the research carried out by Muljawan, et al (2014; 17). According to Muljawan, et al, economic growth as measured by GDP growth can push up the level of efficiency of commercial banks in Indonesia. However, considering the lack of theoretical and empirical studies on the impact of economic growth on the efficiency of banks, then the hypothesis being tested in the research of Muljawan, et al is limited to one-way relationship between bank efficiency and economic growth. The study also supports research conducted at commercial banks in Kenya. According to Ongore and Kusa (2013; 237), the financial performance of commercial banks in Kenya is driven mainly by the decision of the board and management, while macroeconomic factors also play a significant role in the process. However, this study is different from the research of Ongore and Kusa, since this study measures BUS performance by using efficiency performance instead of financial performance.
The empirical considerations in choosing performance efficiency method are based mainly on a study by Abidin, et.al (2013; 38-39) which explains that the quality of bank management is determined by three aspects of governance among other governance outcomes.

Governance outcome includes qualitative and quantitative aspects, such as the bank's performance efficiency. The concept of relating a bank's performance to efficiency, as was proposed by Abidin, et.al, is relevant to the theory put forward by Nugraha (2013; 274), which proposes that the performance measurement based on financial ratios does not directly quantify related to the level of efficiency when compared to other banks. This is because expressing performance solely in terms of efficiency may have both favourable and unfavourable consequences; i.e., this may lead to increased economic performance, but it may also lead to the bankruptcy of the very same corporation. Secondly, BUS efficiency leads to economic growth. This study has underlined that efficiency is the ratio of the output to the inputs of the system. Previous studies have examined efficiency in relation to economic growth mostly in non-Islamic commercial banks. As also pointed out by Muljawan, et.al (2014; 17), banking institutions are expected to have a high level of efficiency so as to print a high level of profit from operations and third-party funds at a competitive cost. This research is also relevant to the research of Haafiz and Astuti (2013; 1), which demonstrates that the contribution of banks in the financial system in Indonesia reached about 75% at

the end of 2012. Therefore, the banking sector should be able to operate efficiently, and with stability in order to boost sustainable economic growth. As also demonstrated by the results of Ferreira's (2012; 1) study, the efficiency of financial institutions makes a positive contribution to economic growth.

In a context where the method of periodization is used for data analysis, we can say the results of this study support the findings of Kessy (2008; 1) which suggest that the efficiency of banks is positively associated with economic growth for all countries. This also complies with the study of Koivu (2002; 1) which emphasizes that the presence of an efficient banking sector accelerates economic growth, and with the study of Berger, et al (2014; 1) which proposes that enhanced banking efficiency leads to better economic performance. The results of this study concord with the study of Andersen (2003; 1) which found a statistical positive relationship between financial development and economic growth, and the study of Budiyanti and Lisnawati (2012; 1) which states that the financial indicators significantly influence economic growth in five ASEAN countries. If viewed from the holistic aspects of conventional banks and Islamic banks, the results of this study support the proposition of Rozzani and Rahman (2013; 98) that the level of efficiency of conventional banks and Islamic banks in Malaysia is very similar. So, in the context of Islamic banking, efficiency largely determines economic growth rate both internally and externally.

Internally, when BUS is able to realize efiensi combinations of inputs (in the form of deposits, the cost of labor and fixed assets) into outputs (in the form of financing and operating income) then, it is theoretically and empirically able to realize a banking organization that is highly competitive and sustainable. Externally, BUS is able to realize efficiencies that can boost economic growth. Increased economic growth from period to period means there is an increased GDP rate, whereas the increase in GDP is driven by the increase of the aggregate demand such as consumption of the household sector, the business sector investment, government spending, exports and imports. The increase in strategic sectors can not be separated from the increase in the monetary sector, namely banks, one of which is BUS. The results of this study present empirical evidence that BUS efficiency can make a positive contribution to economic growth of Indonesia.

5. CONCLUSION

BUS performance measurement can not only be determined by indicators or financial ratios which are short term. In the constellation of modern economies that promote efficient management of institutions, there is a need for long-term-oriented indicators. The relevant indicator in this context is performance efficiency, given the efficiency of performance-oriented long-term interests that are expected to have a multiplier effect on national economy and economic growth.

Operationally, this study can be summarized as follows: firstly, economic growth leads to efficiency, and secondly, BUS efficiency leads to economic growth. BUS management efficiency produces an internal effect on the maintenance of company viability, and an external effect on the improvement of national economic performance which is measured by economic growth. The government is recommended to incorporate efficiency indicators as one of the indicators to gauge the health of banks, while future researchers are recommended to carry out a study comparing the performance efficiency of conventional banks BUS in Indonesia with the performance efficiency of conventional banks in different countries.

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