WSEAS TRANSACTIONS on ENVIRONMENT and DEVELOPMENT
DOI: 10.37394/232015.2023.19.12

Heru Wahyudi, Ukhti Ciptawaty,
Arivina Ratih, Rahmah Dianti Putri,
Mahyudin Ahmad, Aryan Danil Mirza. Br

Comparison of Short-Term and Long-Term Estimation of Syariah Banking Performance

HERU WAHYUDI
Economics Development Department,
Universitas Lampung,
INDONESIA

UKHTI CIPTAWATY
Economics Development Department,
Universitas Lampung,
INDONESIA

ARIVINA RATIH
Economics Development Department,
Universitas Lampung,
INDONESIA

RAHMAH DIANTI PUTRI
Economics Education Study Program,
Universitas Lampung,
INDONESIA

MAHYUDIN AHMAD
Department of Economics,
Universiti Teknologi MARA,
MALAYSIA.

ARYAN DANIL MIRZA. BR
Accounting Department,
Universitas Lampung,
INDONESIA

Abstract: Syariah banking system is one of the exciting research objects and has the potential to continue to be developed. Sharia banking is a new way out of banking. On a more macro level, the banking system affects banking performance on economic growth. Islamic banking is also stated to contribute better than conventional banking in achieving SDG points. The primary purpose of this study is to examine the development of conventional and Islamic banks in the future for short- and long-term analysis. The analysis will discuss how productive assets, bank profits, and third-party funds are both types of banking and how these three things contribute to economic growth for the next five years. Research analysis will be able to provide a comparison of the application of the short and long-term performance of sharia concepts to economic growth.

Furthermore, it will be seen how the contribution of the two existing periods of the term of banking to economic growth, which one has a more significant impact on economic growth. Data was gathered for eleven years to test these relationships and analyzed accordingly. Besides descriptive analysis, correlations, and regression, mediation analysis was carried out using Vector Autoregression (VAR). VAR is a model that can analyze the interdependence relationship between time series variables. The results proved that profits, credits and assets significantly affect the short and long term. This study has some meaningful contributions towards both short and long practical knowledge of the subject matter, especially for banking and Government.

Heru Wahyudi, Ukhti Ciptawaty,
Arivina Ratih, Rahmah Dianti Putri,
Mahyudin Ahmad, Aryan Danil Mirza. Br

1 Introduction

Islamic banking was developed in Indonesia to provide alternative banking services to the public in addition to the conventional banking that existed before. Since 2008 the Indonesian banking system began to recognize two banking systems. Although it is a new player, the development of Islamic banking is quite good. The movement of Islamic Banking can be seen from the average asset growth of more than 65 per cent per year in the last five years from 2015 to 2020, [1].

Two banking systems in one country are interesting research objects and have the potential to continue to be developed. The variety of existing research related to Islamic and conventional banking usually compares the performance of conventional and Islamic bank units, [2], and the existing large conventional banks will be compared in collaboration with Indonesian Islamic banking, [3]. With almost the same selection of variables, the two studies found that Islamic banking performs better than conventional banking.

The proposed research topic will not compare the performance of banks within the scope of business units but in a more macro scope, namely the influence of banking performance on economic growth. The performance of Islamic banking has a positive effect on economic growth in five countries using the GMM Panel method, but only for the profitability variable, [4]. Islamic banking is also stated to contribute better than conventional banking in achieving SDG points. The study used the method of Structural Equation Model (SEM) or Partial Least Square (PLS), [5]. Different results were found when the performance of Islamic banking was examined at the provincial level in Indonesia; all variables were not statistically proven to affect economic growth. In addition, the investment financing variable has a negative value, [6].

Indonesia is an exciting research area because most of the population is Muslim and has two banking systems. Based on many previous research findings, the performance of Islamic banking is generally stated to be better than conventional banking. However, the effect of Islamic banking performance on economic growth has yet to provide consistent results. In addition, many studies still use cross-section or panel data. Because of these things, the main problem of this research is "Is Islamic banking more promising than conventional banking in the future"?

Banking is one of the essential components in the economy of every country; Indonesia is no exception, which has two service systems, Sharia and conventional. Since the official use of Islamic banking services, the public has reacted. Some continue to use conventional banking services, some switch to Islamic banking services, or some choose both. This research seeks to provide an empirical and scientific description of the banking system that has the potential to be developed in the future. The analysis is carried out neutrally without any partiality to a particular system.

The research is expected to provide empirical results that can be used for scientific development, especially in economics related to the Indonesian banking system. This study will predict how the best model in conventional and Islamic banking. Furthermore, a comparison of the performance of each bank's economic variables on economic growth will be obtained. Finally, this research will implement a short-term and long-term analysis that decides how to apply conventional and Islamic banking in the future.

2 Literature Review

2.1 Conventional Banks

The definition of a bank based on Law No. 7 the Year 1992 concerning a bank is a business entity that collects money from the public in the form of deposits that distributes it to the public in the form of credit as well as other means to improve people's living standards. In Indonesia, banks include commercial banks and people's credit banks. Article 1 Paragraph 3 of Law No. October 1998 states that a commercial bank is a bank that carries out ordinary commercial activities and, based on sharia principles, that their activity provides services in the flow of payments. A conventional bank can be defined as a commercial bank in Article 1 Paragraph 3 of Law No. October 1998, by omitting the phrase "and or based on sharia principles," that is a bank that carries out ordinary commercial activities that provide services in payments, [1].

2.2 Islamic Banks

Islamic banks are banks that operate by not relying on interest. Islamic banks can also be interpreted as financial/banking institutions whose operations and products are developed based on the Qur'an and hadith of the Prophet SAW. The principles of

WSEAS TRANSACTIONS on ENVIRONMENT and DEVELOPMENT
DOI: 10.37394/232015.2023.19.12

Heru Wahyudi, Ukhti Ciptawaty,
Arivina Ratih, Rahmah Dianti Putri,
Mahyudin Ahmad, Aryan Danil Mirza. Br

Islamic banks are guided by the principles of entrustment, profit sharing, rent, and service, [2].

2.3 Differences between Islamic Banks and Conventional Banks

Conventional and Islamic banks have similarities in several aspects, especially in money-receiving techniques, computer technology remittance mechanisms that use the general funding requirements and others. The difference between conventional banking and Islamic banking concerns the legal aspects of the organizational structure of the funded company as well as the working environment, [3]. In the operating system of Islamic banks, the fund owner invests his money in the bank, not to get the bank's interest. Islamic banking is undoubtedly different from conventional banking, which offers interest and fund owners get reciprocity from it. The motivation of the capital collectors in Islamic banking is to benefit from the return. Customer funds in Islamic banking are then distributed to those in need (for example, business capital), with a profit-sharing agreement as agreed, unlike national banks that channel their funds to anyone willing to pay the cost of capital.

In mobilizing customer funds, Islamic banks carry out business activities by displaying Islamic banking products such as current accounts based on the wadiah principle, savings based on the principles of wadiah and mudharabah, and time deposits based on wadiah or mudharabah. However, in conventional banking, the collection of own funds can be in the form of paid-up capital, funds and the sale of shares on the stock exchange, accumulated retained earnings, reserves and share ratios, [4].

The third aspect of difference is related to the funds raised by banks from the public. In the Sharia system, banks carry out their activities through benefits, which include buying and selling transactions based on the principles of murabahah, istisna', ijarah, ba'i salam and other buying and selling. In addition, Islamic banks carry out activities called Financing. This Financing adheres to a profit-sharing system based on mudharabah, musyarakah and other profit-sharing principles. The third Islamic bank activity involves other Financing based on the principles of hiwalah, Rahn, card, buying, selling or guaranteeing at its risk third party value as the letters issued based on genuine transactions. All activities carried out by Islamic banks are based on the principle of buying and selling or hiwalah. The fourth activity carried out by Islamic banks in collecting public funds is based on sharia principles by only buying Government and or Bank Indonesia securities issued based on sharia

principles. These four types of activities to collect funds from the community have different principles from the activities of conventional banks. Generally, conventional banks run funds in the form of current accounts and time deposits from individual customers or legal entities or other ways of collecting funds from depositors, such as new banking products such as certificates of deposit and savings checking accounts, [5].

2.4 Banking Assets

The definition of productive assets based on the Decree of the Board of Directors of Bank Indonesia No. 31/147/KEP/DIR dated 12 November 1998 stated the quality of Productive Assets. It concerns the Quality of Productive Assets is the investment of money in banks, both in Rupiah and foreign currencies, in the form of credit, securities, placement of interbank funds, participation, commitment and contingencies in administrative account transactions. The quality of productive assets is assessed based on; business definitions and financial instruments with an emphasis on the debtor's cash flow and paying ability, [6]. However, there are still assets unfavorable for a bank's financial position, namely problematic productive assets (NPLs), which are productive assets with less current, doubtful, and bad asset quality. The amount of NPL can be formulated as follows: NPL = Total Non-Performing Loans /Total All loans. A bank has a good NPL condition if the bank's NPL is below 5 per cent. Furthermore, Islamic banks can deposit funds at Bank Indonesia and other Islamic banks so that both are referred to as productive assets.

2.5 Banking Profit

Three products affect the growth of bank assets. In Islamic banking, these three things are mudharabah, musyarakah and murabahah. Meanwhile, in conventional banking, several products are not found in Islamic banking because they adhere to the interest system. Conventional banking increases the bank's profit by setting interest rates for the public. There are variations in the activities of the conventional bank, including; collecting funds from the public in the form of deposits in the form of current accounts, time deposits, certificates of deposit, savings, and other forms equated. In addition to that, providing loans, misusing a debt recognition letter; buying, selling or guaranteeing at its own risk or for the benefit and or order of its customers; transferring money both for own benefit and for the benefit of the customer; deposit funds on, borrow funds from or lend funds to other banks, either by mail, telecommunications means or by

WSEAS TRANSACTIONS on ENVIRONMENT and DEVELOPMENT
DOI: 10.37394/232015.2023.19.12

Heru Wahyudi, Ukhti Ciptawaty,
Arivina Ratih, Rahmah Dianti Putri,
Mahyudin Ahmad, Aryan Danil Mirza. Br

money orders, checks or other means, [7]. However, activities in conventional banks have an inflation risk because they are affected by interest rates. The movement of interest rates will always overshadow the movement of the bank's profit.

2.6 Placement of Third-Party Funds

In Islamic banking, the placement of third-party funds is carried out with the principle of al-wadî'ah. The customer entrusts the money or goods to the bank as a pure entrustment, and the bank has no right to use the money or goods deposited. However, the bank may use it in certain economic activities by seeking permission from the entrusted customer, [3]. In conventional banking, the existing fund-raising method is based on the theory expressed by Keynes, which suggests that people need money for three uses: transaction, reserve and investment functions. This theory causes the fund-raising product to be adjusted to these three functions, namely in the form of current accounts, savings and time deposits. In contrast, Islamic banks do not take a single approach to provide fund-raising products for their customers. The approach seen from the source, Islamic bank funds consist of capital, entrustment and investment, [6].

2.7 Past Research

One of the previous studies, [7], stated that mudharabah financing and musyarakah financing activities influence the development of Islamic bank assets in Indonesia. Furthermore, it was found that Islamic banks in Indonesia must continue to increase company profits, especially in inspiring distribution, because it is imperative to get income that will affect the development of productive assets. In other words, Islamic banking must continue to be creative so that customers want to invest in the bank so that sharia banks can ensure profits from customer deposits to channels for the public, such as third-party funds, so that sharia banks will continue to develop. The growth of sharia bank assets will be high.

Another study found that to obtain a good performance predicate, both Islamic and conventional must be more active in channelling funds. Channelling funds in the form of a credit to the real sector and Small and Medium Enterprises (SMEs), trying to restructure bad loans to reduce their value of bad loans. Banks must be able to reduce operational costs, [1]. In addition, research that analyzes the performance comparison between conventional and Islamic banking shows that the financial ratios owned by Islamic banks have better performance than conventional banking, [5].

Furthermore, previous research has also found that the latest development of Islamic banking shows a desirable trend for third-party funding, n-based funding, and total assets. The study showed that the performance of banks measured by CAR and NPL did not differ significantly among Islamic and conventional banks. The efficiency with BOPO proxies shows that conventional banks are better than Islamic banks, and ROA and ROE measure that profitability. Meanwhile, when viewed from liquidity (LDR), Islamic banking is better than conventional banks, [8]. However, unfortunately, some of the previous studies that have been carried out have yet to thoroughly analyse the comparison of Islamic and conventional banks in the short and short term.

2.8 State of Art

The performance of sharia regulations until September 2021 continues to show positive developments with Assets, Disbursed Financing (PYD), and Third-Party Funds (DPK), which continue to grow, [1]. Indonesia is the driver of the developing of the sharia banking industry in Asia, [9]. The Big market share of sharia banks positively leads to the immense profit reflected by ROA & ROE, [10]. So far, Syariah Bank in Indonesia continues to show positive developments even though various issues and strategic challenges still need to be addressed. Based on the Sharia Bank Transformation Study prepared by the Financial Services Authority (OJK) in 2018, strategic issues still affect the rapid development of Islamic banks, including the emergence of significant variations in business models and suboptimal quality and quantity and also human capital. And a low level of understanding and integration. On the other hand, Financing disbursed by the banking industry in the same period amounted to IDR 5,482.5 trillion or contracted by a decrease of 2.7 per cent. So far, positive expectations have been placed more on Islamic banking.

Therefore, previous studies, [11], [12], [13], have tried to compare financial performance between conventional and Islamic banking. One of the studies, [11], showed minimal differences in indicators of concern for education and training (R/D). Placement of securities in the Government (GOVER), customer welfare (DP3) and guarantee of third-party funds in the form of insurance (INSUR), where of the four indicators, Islamic banking is better than conventional banks. However, previous studies, [12], [13], [14], [15], [16], have yet to comprehensively analyse the performance of the two types of banking: short-term and long-term

WSEAS TRANSACTIONS on ENVIRONMENT and DEVELOPMENT
DOI: 10.37394/232015.2023.19.12

Heru Wahyudi, Ukhti Ciptawaty,
Arivina Ratih, Rahmah Dianti Putri,
Mahyudin Ahmad, Aryan Danil Mirza. Br

events. This research will then discuss the future development of conventional and Islamic banks. The developed analysis will discuss how productive assets, bank profits and third-party funds of both types of banking and how these three things contribute to economic growth for the next five years. Research analysis will further compare the application of conventional and Sharia concepts to economic growth. Furthermore, it will be seen how the contribution of the two types of banking exists to economic growth, which significantly affects economic growth.

3 Research Method

3.1 Data Type and Source
The data in the observation area is the State of Indonesia coverage area. The data used is secondary data (time series) with the time sequence of 2010-2021, January to December (Quarters I, II, III, & IV). Data sourced from Indonesian banking statistics (SPI) convention performance and (SPI) sharia performance from the Financial Services Authority (OJK) and the Indonesian Central Statistics Agency published on the official website.

3.2 Definition of Operational Variables

3.2.1 Economic Growth (Y)
Economic growth is the economic rate of the value of goods and services in a certain period or the growth rate of the Gross Domestic Product (GDP) in Indonesia. This variable is with a per cent unit in 2010-2021 (Quarters I, II, III, & IV) in Indonesia.

3.2.2 Profit (LBA)
According to sharia banking, profit is the principle of consensual consent, the principle of pleasure, sincerity and accepting the existing risks. In Islam, there is no limit to profit taking, even though taking 100% profit or profit as long as it does not contain usury, deception, fraud and hoarding (monopoly). This variable is in units of billions of Rupiah in 2010-2021 (Quarters I, II, III, & IV).

3.2.3 Financing to Non-Bank Third Parties (FNB)
The explanation of Financing to Non-Bank Third Parties is the provision of money or equivalent claims in Rupiah and foreign currencies based on an agreement or loan agreement. The agreements are between the reporting bank and the bank, and the third party is not a bank in principle in Sharia which

is profit sharing. This variable is in units of billions of Rupiah in 2010-2021 (Quarters I, II, III, & IV).

3.2.4 Total Productive Assets (TPA)
According to sharia banking, Total Productive Assets are the total assets owned by sharia companies or sharia financial institutions that support the operations of the companies and sharia financial institutions. This variable is in units of billions of Rupiah in 2010-2021 (Quarters I, II, III, & IV).

3.3 Data Analysis Methods
The analysis used in this study uses the Vector Autoregression (VAR) method of non-structural models. Data analysis is carried out using a descriptive quantitative approach. Quantitative research is based on positivism, used to see specific samples, [17]. The data used in this study is time series data, so it is necessary to analyse the interdependence between these variables. VAR is one of the models that can analyse the interdependent relationship between time series variables.

VAR analysis is a handy analytical tool for understanding reciprocal relationships between economic variables and forming structured economic models. The VAR model considers that all economic variables are interdependent with others, [18].

$$Y_{nt} = \alpha + \beta_{in}Y_{1t-i} + \alpha_{in}Y_{2t-i} + \cdots + n_{in}Y_{nt-i} + e_{nt}$$

Where:
Y_{nt} = Variable vector element
Y_{1t-i} = Endogenous variable element in the previous year
β_0 = Constant
$\beta_{in}, \alpha_{in,\dots}, n_{in}$ = Coefficient of endogenous variables
e_{nt} = *Error term*

This study uses the VAR model framework to determine the macroeconomic conditions in the banking sector. 1) The relationship of Islamic banking conditions LBA, FNB, TPA with Economic Growth, 2) Response of economic growth to shocks from Islamic banking conditions LBA, FNB, TPA. How significant is the performance of Islamic banking LBA, FNB, and TPA to Indonesia's economic growth? To answer all the questions in this study using the VAR analysis method, if it is not cointegrated, then the mathematical model formed is as follows:

WSEAS TRANSACTIONS on ENVIRONMENT and DEVELOPMENT
DOI: 10.37394/232015.2023.19.12

Heru Wahyudi, Ukhti Ciptawaty,
Arivina Ratih, Rahmah Dianti Putri,
Mahyudin Ahmad, Aryan Danil Mirza. Br

1. The Long-Term of Equation of Islamic Banking Performance:

$$Y_{nt} = \alpha_0 + \beta_1 LBA_{t-j} + \beta_2 FNB_{t-j} + \beta_3 TPA_{t-j} + e_t$$

2. The Short-Term of Equation of Conventional Banking Performance:

$$\Delta Y_t = \alpha_0 + \lambda_1 \Delta LBA + \lambda_2 \Delta FNB + \lambda_3 \Delta TPA + \lambda_4 Ect + e_t$$

Description:

LBA	:	Profit
FNB	:	Financing to Non-Bank Third Parties
TPA	:	Total Productive Assets
$\lambda_1, \lambda_2, \lambda_3, \lambda_4$	:	Short-term relationship coefficient
α_0	:	Intercept Constant
$\beta_1, \beta_2, \beta_3$	:	Long-term relationship coefficient
ECT	:	Error Correction Term
e	:	Error Term
j	:	Parameters (lag 1, 2,.... etc.)

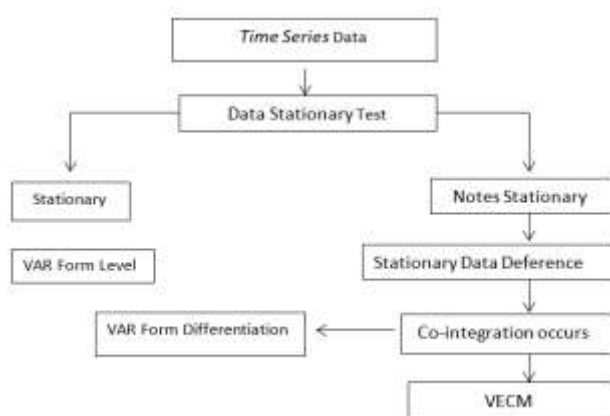### 3.4 Data Analysis Procedure

Fig. 1: Flow Image of VAR Model Formation
Source: [18].

4 Results and Discussion

4.1 Stationaryity Test
In fulfilling one of the assumptions in the time series data test using VAR or VECM model analysis, it is necessary first to conduct a Stationarity test. The stationarity test used in this study was a unit root test using the Augmented Dickey-Fuller Test (ADF test) method.

Table 1. Unit Root Test Results of Islamic Bank Performance at Level

Variable	ADF	Critical Value			Prob	Conclusion
		1%	5%	10%		
LBA	0,082	-3,57	-2,92	-2,60	0,961	Not Stationary
FNB	-0,781	-3,57	-2,92	-2,60	0,815	Not Stationary
TPA	-1,088	-3,57	-2,92	-2,60	0,712	Not Stationary

Source: Eviews data processed, 2022.

The table 1 shows the unit root test using the ADF at the level. Compare the value of the t-count with the critical value for each variable. The unit root test results by comparing the value of t-count with the critical value for each, namely 1 per cent, 5 per cent, and 10 per cent. It can be concluded that there are no static variables at the level of Conventional Bank Performance and Islamic Bank Performance variables. The unit root test will be carried out again on the first difference in each variable, and the results can be seen in the table.

Table 2. Unit Root Test Results on First Difference Islamic Bank Performance

Variable	ADF	Critical Value			Prob	Conclusion
		1%	5%	10%		
LBA	-6,753	-3,584	-2,928	-2,60	0,000	Stationary
FNB	-6,6266	-3,581	-2,926	-2,60	0,000	Stationary
TPA	-6,678	-3,581	-2,926	-2,60	0,000	Stationary

Source: Eviews data processed, 2022.

The table 2 shows the estimation results of the unit root at the first difference level for all static variables. The result means that the data used in this study is integrated in order one or can be shortened to I, [1], so data is free from spurious regression problems. Therefore, the stationary requirements have been met so that the next step can be further data processing.

4.2 Determination of Optimum Lag
Determination of the optimum lag in this study using a commonly used method, namely, the smallest Akaike Information Criterion (AIC) value. Based on the Akaike Information Criterion (AIC) value, the optimum lag lengths are 3 and 4. So the lag values that will be used for further research are lags 3 and 4. The results of determining the lag length are shown in the following tables:

Heru Wahyudi, Ukhti Ciptawaty,
Arivina Ratih, Rahmah Dianti Putri,
Mahyudin Ahmad, Aryan Danil Mirza. Br

Table 3. Results of Determination the Optimum Lag Performance of Islamic Banks

Islamic Banks	
Lag	Akaike Information Criterion (AIC)
0	4,558677
1	-2,418129
2	-2,129152
3	-2,419670
4	-4,942302*

Source: Eviews data processed, 2022.

Information, (*): The smallest Akaike Information Criterion (AIC) value

Based on the table 3 above, the determination of the optimum lag used in the first equation model of Conventional Bank Performance for the VAR/VECM equation model is at lag three and the second equation model of Islamic Bank Performance is at lag 4.

4.3 VAR Stability Test

The VAR estimate has been formed, and a stability condition check is carried out using the roots of characteristic polynomials and inverse roots of AR characteristic polynomials.

Table 4. Test Results *of AR Characteristic Polynomials*

Equation Model Sharia Performance	0.841778 - 0.939489

Source: Eviews data processed, 2022.

Table 4 shows that the modulus value of all equation models is less than 1, so it can be concluded that the VAR model is valid. After that, VAR stability testing was carried out using inverse roots AR characteristic polynomials shown in the following figure:
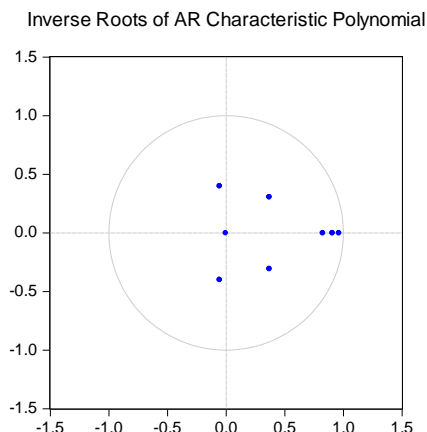

Fig. 2: VAR Stability Test Model Equation 1 Sharia Performance Using *Inverse Roots of AR Characteristic Polynomial*

Based on figures 2, var stability testing using inverse roots of AR characteristic polynomials for all equation models show that the dots on the circle or the data spread are not going out of the loop. The test result means that the data is valid for further analysis; using VAR. Therefore, var stability testing using roots of the characteristic polynomial and inverse roots AR characteristic polynomial is valid, which means that the results of impulse response function analysis and variance decomposition in VAR estimates are valid.

4.4 Cointegration Test

Engle-Granger revealed a concept of cointegration in 1987, a phenomenon of linear combinations of two or more variables that are not stationers would be stationers.   This linear combination is known as the cointegration equation and can be interpreted as a long-term equilibrium relationship between variables.   This cointegration test was performed before further testing and determining whether a more appropriate VAR or VECM was used in this study.

Table 5. Results of Uji Co-integration of Equation Model Sharia Performance

Hypothesized	Eigenvalue	Trace Statistics	0.05 Critical Value	Prob.**
None *	0.853375	128.7104	47.85613	0.0000
At most 1	0.551089	46.15560	29.79707	0.0003
At most 2	0.229241	11.71561	15.49471	0.1711
At most 3*	0.012003	0.519263	3.841466	0.4712

Source: Eviews data processed, 2022.

WSEAS TRANSACTIONS on ENVIRONMENT and DEVELOPMENT
DOI: 10.37394/232015.2023.19.12

Heru Wahyudi, Ukhti Ciptawaty,
Arivina Ratih, Rahmah Dianti Putri,
Mahyudin Ahmad, Aryan Danil Mirza. Br

Model Sharia Performance shows that the trace statistic r = 0 is greater than the critical value with a significance level of 5 per cent, which is 128,7104 greater than 47,85613. The test means that the null hypothesis, which states that no cointegration exists in the variables used, is rejected. The alternative hypothesis, which states that there is cointegration, is accepted. All variables have a stability/balance relationship and the similarity of movement in the long run. Therefore, all variables tend to adjust to each other to reach their long-run equilibrium in any short-run period. By then, the appropriate model for this study is the Vector Error Correction Model (VECM). The writer will not use the variance Autoregression (VAR) model. The model will not be used because the variables are cointegrated and stationary at the first difference level.

4.5 Vector Error Correction Model test results

The results of the conventional bank performance model and the performance of Islamic banks, stationary on the order of first difference, are stable and cointegrated in the long and short term, using the error correction vector model (VECM).

4.6 Long-term Vector Error Correction Model in the performance of Syrian banks

The second model tested is the Islamic bank performance model. The following are the results of the Long-Term Estimation of the Islamic Bank Performance Equation Model (Y, LBA, FNB, TPA), which are presented in the table:

Table 6. VECM Estimation Results of Islamic Banks' Long-Term Performance

Variable	Coefficient	t-statistics	Description
Y (-1)	1,000000		
LBA(-1)	5,630294	[4,03890]**	Significant
FNB(-1)	-9,012219	[-2,14345] **	Significant
TPA(-1)	5,66167	[1,79297] **	Significant
C	-10,90499		

Source: Eviews data processed, 2022.

[ ] : Shows t-count
* : Based on 99% confidence level (α=1%), t-table (1,302).
** : Based on 95% confidence level (α=5%), t-table (1.682).
*** : Based on 90% confidence level (α=10%) t-table (2,018).

The estimation results on the research variables obtained can be said to have a significant effect if the t-count value is greater than the t-table value with a significance level of 1% (1.302), 5% (1.682) and 10% (2.018). The estimation results on the research variables obtained can be said to have a significant effect if the t-count value is greater than the t-table value with a significance level of 1% (1.302), 5% (1.682) and 10% (2.018). The estimation results in the long term obtained the variable (Y) Economic Growth with the Islamic banking performance variable.

The Variable Profit variable (LBA) in Islamic banking in the long-term estimation has a positive and significant effect, with a coefficient value of 5.630294. An increase of 1 billion Rupiah in profit on Islamic banking performance will increase 5.63 per cent of economic growth with the assumption that the variable others are in a constant state in the first quarter of 2010 to the fourth quarter of 2021 in Indonesia.

The Variable Financing to Non-Bank Third Parties (FNB) in Islamic banking in the long-term estimation has a negative and significant effect, with a coefficient value of -9.012219, a decrease of 1 billion Rupiah. Financing to Non-Bank Third Parties will increase 9, 01 percentage of economic growth, assuming other variables are constant, in 2010-2021 (Quarters I, II, III, & IV).

In the long-term estimation, the variable Total Productive Assets (TPA) in Islamic banking has a positive and significant effect, with a coefficient value of 5.66167, an increase of 1 billion Rupiah. Total Productive Assets on the performance of Islamic banking will increase by 5.66 per cent growth of the economy with the assumption that other variables are constant in 2010-2021 (Quarters I, II, III, & IV).

4.7 Long-term Vector Error Correction t-Test Results

The t-statistical test was conducted to determine whether or not there was an influence between each independent variable on the dependent variable partially; the following are the results of the t-test:

Table 7. Long-term VECM partial t test results

NO	Variable	t-calculate	t-table	Conclusion
1	LBA	4.038	1.682	Ho rejected
2	FNB	2.143	1.682	Ho rejected
3	TPA	1.792	1.682	Ho rejected

t-test results show that Profit variable (LBA), Financing to Non-Bank Third Parties (FNB) and Total Productive Assets (TPA) have a t-calculate

WSEAS TRANSACTIONS on ENVIRONMENT and DEVELOPMENT
DOI: 10.37394/232015.2023.19.12

Heru Wahyudi, Ukhti Ciptawaty,
Arivina Ratih, Rahmah Dianti Putri,
Mahyudin Ahmad, Aryan Danil Mirza. Br

greater than the t-table, then partially each variable influences the dependent variable.

4.8 Short-term Vector Error Correction Model in the performance of Syrian banks

The results of the Short-Term Estimation of the Islamic Bank Performance Equation Model (Y, LBA, FNB, TPA) are presented in the table:

Table 8. VECM Estimation Results of Islamic Banks' Short-Term Performance

Variable	Coefficient	t-statistics	Description
ECT	-0,682548	[-5,02494] **	Significant
D(Y)(-1))	0,279998	[2,03151] **	Significant
D(Y)(-2))	0,603951	[4,50821] **	Significant
D(LBA)(-1))	3,613104	[2,07501] **	Significant
D(LBA)(-2))	0,818797	[0,44801]	Not Significant
D(FNB)(-1))	29,25307	[3,90089] **	Significant
D(FNB)(-2))	-4,476083	[3,90089] **	Significant
D(TPA)(-1))	30,97803	[4,21981] **	Significant
D(TPA)(-2))	4,174780	[0,54649]	Not Significant

Source: Eviews data processed, 2022.

[ ] : Shows t-count
* : Based on 99% confidence level (α=1%), t-table (1,302).
** : Based on 95% confidence level (α=5%), t-table (1.682).
*** : Based on 90% confidence level (α=10%) t-table (2,018).

The estimation results on the research variables obtained can be said to have a significant effect if the t-count value is greater than the t-table value with a significance level of 1% (1.302), 5% (1.682) and 10% (2.018). Based on the estimation results above, the estimated error correction parameter (ECT), with a significant level of 90 per cent, is statistically significant with a coefficient of -0.682548. The negative sign on the coefficient indicates that the Error is corrected by 0.682548 per cent every quarter in the equation to test the long-term balance, so the VECM results can be used to see the long-term effect. In the short term, only a few variables significantly influence banking performance.

The Variable Profit variable (LBA) in Islamic banking in the short-term estimation has a positive and significant effect, with a coefficient value of 3.613104. An increase of 1 billion Rupiah in profit on Islamic banking performance will increase 3.61 per cent of economic growth with the assumption

that the variable others will be in a constant state in the first leg of 2010 Quarter I to 2021 Quarter IV in Indonesia.

The Variable Financing to Non-Bank Third Parties (FNB) in Islamic banking in the short-term estimation has a positive and significant effect, with a coefficient value of 29.25307, an increase of 1 billion Rupiah. Financing to Non-Bank Third Parties will increase 29.25 per cent of economic growth, assuming other variables are constant, in the first quarter of 2010 until the fourth quarter of 2021 in Indonesia in the first lag. The second lag, Variable Financing to Non-Bank Third Parties (FNB) in Islamic banking in the short-term estimation, has a negative and significant effect, with a coefficient value of -4.476083, a decrease of 1 billion Rupiah. Financing to Non-Bank Third Parties will increase 4 .47 per cent of economic growth, assuming other variables are constant.

In the short-term estimation, the variable Total Productive Assets (TPA) in Islamic banking has a positive and significant effect, with a coefficient value of 30.97803, an increase of 1 billion Rupiah. Total Productive Assets on the performance of Islamic banking will increase by 30.9 per cent growth of the economy with the assumption that other variables are constant in the first quarter of 2010 until the fourth quarter of 2021 in Indonesia.

4.9 Short-term Vector Error Correction t-Test Results

The t-statistical test was conducted to determine whether or not there was an influence between each independent variable on the dependent variable partially; the following are the results of the t-test:

Table 9. Short-term VECM partial t test results

NO	Variable	t-calculate	t-table	Conclusion
1	D(LBA)(-1)	2.075	1.682	Ho rejected
2	D(LBA)(-2)	0.448	1.682	Ha accepted
3	D(FNB)(-1)	3.900	1.682	Ho rejected
4	D(FNB)(-2)	3.900	1.682	Ho rejected
5	D(TPA)(-1)	4.219	1.682	Ho rejected
6	D(TPA)(-2)	0.546	1.682	Ha accepted

T-test results show that Profit variable D(LBA)(-1), Financing to Non-Bank Third Parties D(FNB)(-1), D(FNB)(-2) and Total Productive Assets D(TPA)(-1) has a t-calculate greater than t-table. The model then partially each variable influences the dependent variable. Variables D(LBA)(-2) and D(TPA)(-2) have no effect because the t-count is smaller than the t-table.

WSEAS TRANSACTIONS on ENVIRONMENT and DEVELOPMENT
DOI: 10.37394/232015.2023.19.12

Heru Wahyudi, Ukhti Ciptawaty,
Arivina Ratih, Rahmah Dianti Putri,
Mahyudin Ahmad, Aryan Danil Mirza. Br

4.10 Impulse Response Function (IRF) Performance of Islamic Banks

Economic growth on the performance In terms of economic growth on the performance of Islamic banks shocks to the TPA, FNB and LBA. The following are the results of the Impulse Response Function analysis:
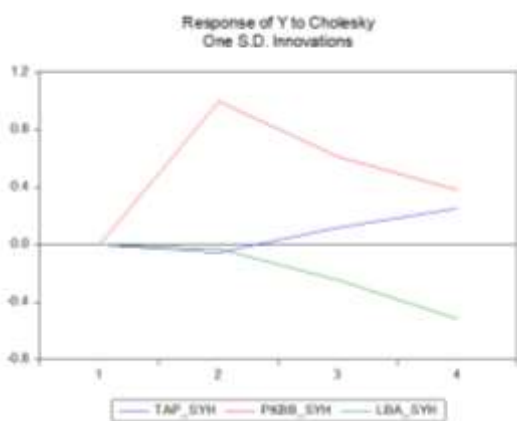

Fig. 3: Impulse Response Function (IRF)

In Sharia, the positive response of economic growth to FNB and TPA shocks, Financing to non-bank third parties and Total Earning Assets in the event of a shock still affect economic growth positively. The increase or decrease in growth remains stable in 1-4 periods. When a shock occurs, the negative response to the LBA tends to affect the decline in economic growth and create growth instability in 1-4 periods.

4.11 Conventional and Sharia Variance Decomposition

Variance decomposition is used to compile the forecast error variance of a variable, namely how big the difference between the variance before and after shock, from other variables to see the relative influence of research variables on other variables:

Table 10. Variance decomposition Performance of Islamic Banks

Period	TPA_SYH	FNB_SYH	LBA_SYH
1	0.000000	0.000000	0.000000
2	0.104291	34.99205	0.029916
3	0.489337	39.59121	1.781927
4	1.998373	37.70177	8.161759

Source: Eviews data processed, 2022.

In terms of Sharia, performance is Financing to non-bank third parties by 37%; these figures for four periods contributed to economic growth. Shariah performance variables managed to make a higher contribution than conventional performance.

4.12 Discussion

Sharia performance in Indonesia, represented by Profit (LBA) in the long and short term, has a positive and significant relationship to economic growth; sharia profit can improve the Indonesian economy in 2010 Quarter I to 2021 Quarter IV in Indonesia. On the other hand, the profit hits may harm Indonesia's economic growth.

The statement is in line with previous research, [19], which discusses the contribution of Islamic banking to Indonesia's economic growth. The paper examined the effect of consumption financing on Indonesia's economic growth, which is clustered according to use and business category consisting of short-term and long-term Financing. The researchers assert that consumer financing has a statistically negative and significant effect on Indonesia's economic growth in the short and long term. Indonesian Islamic banking financing by use and business category consisting of working capital financing, investment financing and consumption financing has contributed to Indonesia's economic growth dynamics. The increase in consumer financing in the short and long term will reduce economic growth. In order to contribute to Indonesia's economic growth, Islamic banking is expected to optimize other types of Financing that are more productive to contribute to Indonesia's economic growth.

Financing to Non-Bank Third Parties (FNB) in the long and short term has a positive and significant relationship to economic growth. Financing to Non-Bank Third Parties can improve the Indonesian economy in the first quarter of 2010 to 2021, the fourth quarter in Indonesia. On the other hand, when shocks hit Financing to Non-Bank Third Parties, it still positively impacts the increase or decrease in Indonesia's economic growth, which remains stable. The result is in line with research, [20], the development of Islamic finance (as measured by loans issued by Islamic banks) positively correlates with economic growth. The correlation shows that the Islamic banking system responds to the community's needs to contribute to economic growth. Islamic credit has a positive impact, [21], Islamic banks manage their spending and credit risk based on sharia principles which require them to evaluate the type, quality, and amount of investment before confirmation. These principles were the factors that helped the Islamic Bank to survive during times of severe crisis.

Total Earning Assets (TPA) in the long and short term have a positive and significant relationship with economic growth; total Earning Assets can increase the Indonesian economy from

WSEAS TRANSACTIONS on ENVIRONMENT and DEVELOPMENT
DOI: 10.37394/232015.2023.19.12

Heru Wahyudi, Ukhti Ciptawaty,
Arivina Ratih, Rahmah Dianti Putri,
Mahyudin Ahmad, Aryan Danil Mirza. Br

2010 Quarter I to 2021 Quarter IV in Indonesia. On the other hand, when A shock hit total Earning Assets, it still positively impacted the increase or decrease in Indonesia's economic growth, which remained stable.

The research is in line with the previous research, [22], which stated that the productivity performance of Islamic banking in the 2011-2018 period reached an efficient and productive condition in implementing its operational activities. Productivity growth (TFPCH) of +5.3 per cent (1,053), a figure that illustrates the performance of companies, especially in the Islamic banking industry, being able to manage and utilize existing inputs to achieve maximum output levels and contribute to GDP. Productive assets have a positive influence on economic development, [23]. The existence of Islamic banking in the national banking system in Indonesia can encourage the development of the national economy. The contribution of Islamic finance to the economy is made possible by the sharia principles adopted in the operations of Islamic banks, namely the prohibition of interest.

5 Conclusion

Profit (LBA) in Islamic banking in long-term estimates has a positive and significant influence as well as in short-term estimates that Profit (LBA) in Islamic banking has a positive and significant influence. In long-term estimates, Financing to Non-Bank Third Parties (FNB) in Islamic banking has a negative and significant influence. In the short term, it has a positive and significant influence. Furthermore, in long-term estimation, Total Productive Assets (TPA) in Islamic banking has a positive and significant influence. In the short term, it also has a positive and significant influence.

The results of this study can be used as recommendations to the related stakeholders. Islamic banking can improve performance as represented by Profit (Profit Improvement), which will positively impact Indonesia's economic growth in the short and long term.

Furthermore, the Government can make regulations that limit banks in distributing consumer credit and provide more productive loans through working capital financing or investment financing so that they can contribute more to improving the country's economy. Research in Vietnam, [24], showed that Government needs to take action using appropriate intervention measures. The intervention measures in Islamic banking are valuable in increasing economic growth, [25]. So, Islamic Banking is increasingly essential in the Indonesian

economy and finance [26]. On the other hand, Islamic banking is quite reliable and able to survive crises through the profit-sharing system (reducing the risk of financial volatility), [27], [28]. Profit-sharing systems also attracted more borrowers and depositors, [29].

In addition, the financial health of banks can be a concern for all parties, so lending to customers must be carried out using the principle of prudence. Keep the high non-performing loans of customers from having a destructive impact on the health of banks that lead to a decline in the economy of a country.

Some previous research has tried to compare the financial performance of conventional and Islamic banking. However, previous studies have yet to comprehensively analyse the performance of the two types of banking (short-term and long-term). This study will further discuss the future development of conventional and Islamic banks. The analysis will discuss how productive assets, bank profits, and third-party funds are both types of banking and how these three things contribute to economic growth for the next five years. Research analysis will compare the application of conventional and Sharia concepts to economic growth. Furthermore, it will be seen how the contribution of the two existing types of banking to economic growth, which one has a more significant impact on economic growth.

Future research can take the perspective of the soundness of Islamic banking and compare it with the level of profitability on the economic growth of a country. Other researchers can expand this research by combining other methods (mixed method), such as the use of primary and secondary data simultaneously. In addition, future research can also compare the performance of Islamic and conventional banking to resilience in times of economic crisis. Future research also needs to consider the role of Foreign Direct Investment which play an important part, [30], and compare the effect. Finally, future research also needs to take into account on diversity among employees, that can play an important role in bank performance, [31].

References:
[1]   Financial Services Authority (OJK). Perbankan Syariah. 2017.
[2]   Arinta, Yusvita Nena. Analisis Perbandingan Kinerja Keuangan antara Bank Syariah dan Bank Konvensional (Studi Kasus pada Bank Syariah Mandiri dan Bank Mandiri).

WSEAS TRANSACTIONS on ENVIRONMENT and DEVELOPMENT
DOI: 10.37394/232015.2023.19.12

Heru Wahyudi, Ukhti Ciptawaty,
Arivina Ratih, Rahmah Dianti Putri,
Mahyudin Ahmad, Aryan Danil Mirza. Br

Muqtasid: Jurnal Ekonomi dan Perbankan Syariah. Vol 7, no. 1, 2016, pp. 119-140.

[3] Abd. Majid MS, Musnadi S, Putra IY. A comparative analysis of the quality of Islamic and conventional banks' asset management in Indonesia." Gadjah Mada International Journal of Business 16, no. 2, 2014, pp. 185-200.

[4] Ledhem MA, Mekidiche M. Economic growth and financial performance of Islamic banks: a CAMELS approach. Islamic Economic Studies. Vol. 28, No. 1, pp. 47–62.

[5] Ghoniyah N, Hartono S. How Islamic and conventional bank in Indonesia contributing sustainable development goals achievement. McMillan D, editor. Cogent Econ Financ. Vol. 8, No. 1,1856458.

[6] Afandi MA, Amin M. Islamic Bank Financing and Its Effects on Economic Growth: A Cross Province Analysis. Signifikan: Jurnal Ilmu Ekonomi. Vol. 8, No. 2, 2019, 243–250.

[7] Subaweh I. Analisis Perbandingan Kinerja Keuangan Bank Syariah dan Bank Konvensional Periode 2003-2007. Jurnal Ilmiah Ekonomi Bisnis. Vol. 13, No. 2, 2008, 112-121.

[8] Putri, Annastasya Meisa, and Aldilla Iradianty. "Analisis Perbandingan Kinerja Keuangan Perbankan Syariah Dengan Perbankan Konvensional 2015-2019. Jurnal Mitra Manajemen. Vol. 4, No. 8, 2020, 1103-1117.

[9] Juhandi, N., Rahardjo, B., Tantriningsih, H. A., & Fahlevi, M., The Growth of Sharia Banking In Asia. Journal of Research in Business, Economics and Management, 12(2), 2019, pp. 2341-2347.

[10] Abbas, A., & Arizah, A., Marketability, profitability, and profit-loss sharing: evidence from sharia banking in Indonesia, Asian Journal of Accounting Research, Vol. 4 No. 2, 2019, pp. 315-326.
https://doi.org/10.1108/AJAR-08-2019-0065

[11] Rauf F. Perbankan Syariah Vis a Vis Perbankan Konvensional : Tinjauan Hukum Islam. Al-'Adalah. Vol. 10, No. 1, 2011, pp. 47-58.

[12] Yuliatin. Perbankan Dalam Dimensi Konvensional Dan Syariah. Bambang Sunggono, Pengantar Hukum Perbankan. 1995. 27 p.

[13] Muchlish A, Umardani D. Analisis Perbandingan Kinerja Bank Syariah dan Bank Konvensional Di Indonesia. Jurnal Manajemen dan Pemasaran Jasa. Vol. 9, No.

1, 2016, 129-156. Available from: http://trijurnal.lemlit.trisakti.ac.id/index.php/jasa/article/view/1438.

[14] Fauzan Adhim. Analisis Perbandingan Kinerja Keuangan Perbankan Syariah Dengan Perbankan Konvensional. Al-Infaq: Jurnal Ekonomi Islam, Vol. 2, No.2, 2011, pp. 19–48.

[15] Pertiwi PA. Faktor-Faktor yang Mempengaruhi Pertumbuhan Aset Bank Umum Syariah di Indonesia. Journal of Applied Islamic Economics and Finance. Vol. 1, No. 2, 2021, pp. 362–72. https://doi.org/10.35313/jaief.v1i2.2470

[16] Toin, D. R. Y. Analisis kinerja perbankan (Studi komparasi antara perbankan syariah dan konvensional). Jurnal Siasat Bisnis, Vol. 18, No.2, 2014, pp. 202-209.

[17] Sugiyono. Metode Penelitian Kuantitatif Kualitatif dan R&D. Bandung: ALFABETA. 2012.

[18] Widarjono, A., Ekonometrika Pengantar dan Aplikasinya, Yogyakarta: UPP STIM YKP,. .2016.

[19] Widyastuti, E., & Arinta, Y. N. Perbankan Syariah dan Pertumbuhan Ekonomi Indonesia: Bagaimana Kontribusinya? *Al-Muzara'ah*, *8 (2)*, 129–140. 2020. https://doi.org/10.29244/jam.8.2

[20] Boukhatem, J., & Moussa, F. B., The effect of Islamic banks on GDP growth: Some evidence from selected MENA countries, Borsa Istanbul Review, 18(3), 2018, pp. 231-247. https://doi.org/10.1016/j.bir.2017.11.004

[21] Bendriouch, F. Z., Satt, H., & M'hamdi, M., Do Islamic banks contribute to economic growth? Evidence from the GCC Countries, International Journal of Economics and Financial Issues, 10(5), 2020, pp. 352-360. https://doi.org/10.32479/ijefi.10046

[22] Otaviya, S. A., & Rani, L. N, Productivity And Its Determinants in Islamic Banks: Evidence from Indonesia, Journal of Islamic Monetary Economics and Finance, 6(1), 2020, pp. 189-212.

[23] Trianto, B., Masrizal, M., & Sabiu, T. T., Can Islamic Finance Drives Economic Growth? : Empirical Evidence From Indonesia, At-Tijaroh: Jurnal Ilmu Manajemen dan Bisnis Islam Volume 7 (2), 2021, pp. 141 - 157.

[24] Vien the Giang & Vo Thi My Huong, Dealing with Weak Commercial Banks in Restructuring the System of Credit Institutions in Vietnam using Consolidation, Merger, and Acquisition: The Change from

WSEAS TRANSACTIONS on ENVIRONMENT and DEVELOPMENT
DOI: 10.37394/232015.2023.19.12

Heru Wahyudi, Ukhti Ciptawaty,
Arivina Ratih, Rahmah Dianti Putri,
Mahyudin Ahmad, Aryan Danil Mirza. Br

Administrative Orders to Market Mechanisms, WSEAS Transactions on Environment and Development, vol. 18, 2022, pp. 1239-1251.

[25] Boukhatem, J., and Moussa, F. B. (2018). The effect of Islamic banks on GDP growth: Some evidence from selected MENA countries, Borsa Istanbul Review, Vol. 18, No. 3, 2018, pp 231-247

[26] Immas Nurhayati, Endri Endri, Desmy Riani, Widhi Ariyo Bimo, Community's Potential and Preferences for Islamic Banking: The Case of Indonesia, WSEAS Transactions on Environment and Development, vol. 18, 2022, pp. 1094-1105.

[27] Endri, E, Determinant of Firm's Value: Evidence of Manufacturing Sectors Listed In Indonesia Shariah Stock Index, International. Journal of Recent Technology and Engineering, Vol. 8, No. 3, 2019, pp. 3995–3999.
https://doi.org/DOI:10.35940/ijrte.C5258.09 8319.

[28] Karim, B. A., Lee, W. S., Karim, Z. A., and Jais, M, The Impact of Subprime Mortgage Crisis on Islamic Banking and Islamic Stock Market, Procedia - Social and Behavioral Sciences, Vol 65, 2012, pp. 668–673. https://doi.org/10.1016/j.sbspro.2012.11.182.

[29] Chong, B. S., and Liu, M. H, Islamic banking: interest-free or interestbased?, Pacific-Basin finance journal, Vol. 17, No. 1, 2009, pp. 125-144.
http://dx.doi.org/10.1016/j.pacfin.2007.12.0% 2003

[30] Viktoriia Rudenko, Halyna Pohrishchuk, Olena Moskvichova, Mykhailo Bilyi, Transformation of the Fiscal Mechanism of EU Member States and Ukraine During the Covid-19 Pandemic: from Consumption Supporting of to Investment Stimulation, WSEAS Transactions on Environment and Development, vol. 18, 2022, pp. 671-685.

[31] Joan Ekhomeh Ehilebo, Hauwa Lamido-Abubakar, Daniel Ogohi Cross, Effect of Workforce Diversity on Employee Performance in Domestic Systemically Important Banks (DSIBs) in Nigeria, WSEAS Transactions on Environment and Development, vol. 18, 2022, pp. 908-917.