WHAT IS THE EFFECT OF SUKUK ON THE ECONOMIC GROWTH OF MOSLEM COUNTRIES? EVIDENCE FROM OIC MEMBER COUNTRIES

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Abstrak

Pertumbuhan ekonomi merupakan indikator kemajuan suatu negara dan sinyal bagi pemerintah dalam menentukan kebijakan yang akan dilakukan pemerintah selanjutnya. Adanya perbedaan hasil penelitian sebelumnya membuat penulis penasaran dan ingin meneliti penelitian ini lebih detail. Penelitian ini bertujuan untuk menganalisis pengaruh jangka panjang dan jangka pendek variabel sukuk, Indeks Persepsi Korupsi, Indeks Pembangunan Manusia, Harga Minyak Mentah, dan pertumbuhan ekonomi di 10 negara anggota OKI periode 2017-2022 serta mengetahui dampaknya dan akibat jika terjadi pengaruh guncangan pada satu variabel terhadap variabel lainnya. Metode yang digunakan dalam penelitian ini adalah VECM. Data yang digunakan dalam penelitian ini adalah data sekunder yang diperoleh dari website resmi World Bank, Economy-country, Transparency, IIFC, dan UNDP.

Hasil penelitian menunjukkan bahwa terdapat hubungan jangka panjang antara sukuk dan harga minyak mentah terhadap pertumbuhan ekonomi yang berpengaruh signifikan terhadap nilai statistik t |2.18635|, |55.3240| > nilai kritis t | 2.000995 |. Sedangkan hubungan jangka pendek variabel sukuk dan harga minyak mentah terhadap pertumbuhan ekonomi juga berpengaruh signifikan karena nilai statistik t |2.07061|, |7.47968| > nilai kritis t | 2.000995 |. Hasil uji kausalitas Granger menunjukkan bahwa sukuk dan pertumbuhan ekonomi memiliki hubungan kausalitas dua arah. Dan uji kausalitas Granger juga menunjukkan bahwa IHK, HDI, COP dan pertumbuhan ekonomi tidak terjadi dalam hubungan kausalitas dua arah atau satu arah.

Kata Kunci : Ekonomi, Sukuk, CPI, HDI, COP

Abstract

Economic growth is an indicator of a country's progress and a signal for the government in determining the policies that the government will undertake next. The difference in the results of previous research made the writer curious and wanted to examine this research in more detail. This study aims to data obtained from the official websites of the Worldbank, economycountry, Trading Economics, Transparency, IIFC, and UNDP

The results show that there is a long-term relationship between sukuk and crude oil prices to economic growth, which has a significant effect on the statistical value t |2.18635|, |55.3240| > critical value t |2.000995|. While the analyze the long and short-term effects of the variable sukuk, Corruption Perception Index, Human Development Index, Crude Oil Price, and economic growth in 10 member countries of the OIC for the 2017-2022 period and find out the impact and results if it occurs the effect of shocks on one variable on other variables. The method used in this study is the VECM. The data used in this study is secondary short-term relationship of the variables of sukuk and crude oil prices to economic growth also has a significant effect because of the statistical values t |2.07061|, |7.47968| > critical value t |2.000995|. Granger causality test results show that sukuk and economic growth have a two-way causality relationship. And the Granger causality test also shows that CPI, HDI, COP and economic growth do not occur in a two-way or one-way causality relationship.

***Keywords**: Economic, Sukuk, CPI, HDI, COP*

INTRODUCTION

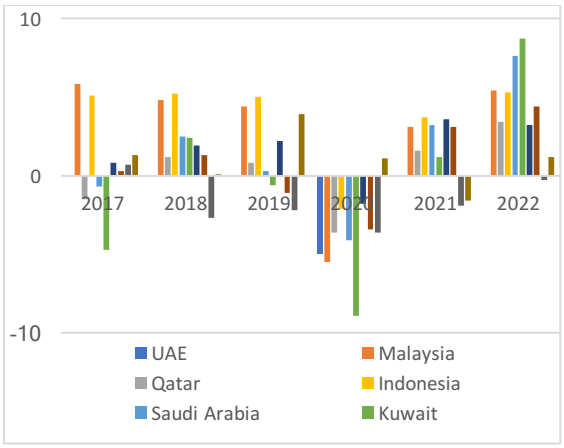
Economic growth shows the increase and decrease in the success of development carried out by the country. Economic growth is an increase in output value from time to time with a certain process Todaro (2003).[1] In the country's economy, economic growth is important because it is directly related to the level of welfare of the population in a country. Gross Domestic Product (GDP) is an indicator to determine the state of the country's economy at a certain time period. Nominal current GDP prices indicate the level of ability of economic resources produced by the state.

Neo-classical economic growth theory from Robert Solow (1970) and T. W. Swan (1956), namely the four factors in economic growth, namely a series of human, capital accumulation, modern technology, and results.[2] The contribution of these four factors directs the achievement of increased economic growth in the long term.

In 2013 the Governor of The Federal Reserve named Ben Benarke, conducted a tapering, namely reducing the purchase of bonds from USD 85 billion to USD 75.[3] This policy caused economic turmoil, especially in developing countries such as Turkey, Brazil, India, South Africa, and Indonesia and they even got the nickname the fragile five.[4]

The economic growth of several countries experienced erratic fluctuations[5]. As of 2015, there was a global economic slowdown with a 2014 GDP value of USD 79.71 trillion to USD 75.18 trillion in 2014. This was due to structural and cyclical factors. Structural factors due to a decline in investment income since the global crisis in 2008 accompanied by demographic factors. Meanwhile, the cyclical factors were caused by China's economic downturn and uncertain US policies.

Graph 1
Economic Growth



(Worldbank (data processed))

The Organization of Islamic Cooperation (OIC) is a group of Islamic countries formed on the basis of cooperation for the benefit of Islam. The aim of the establishment of the OIC is to increase world peace, help other countries that have difficulties, and foster unity among OIC members. The OIC has a membership of 57 countries.

In the economy, investment is one of the supports for economic growth in the future. One investment that is based on Islamic principles is sukuk. Sukuk can boost the progress of companies and governments. This is in line with

[1] Rijal, Syamsu. *Kontribusi 20 Tahun Perdagangan Internasional Indonesia Terhadap Pertumbuhan Ekonomi.* Bandung. Widina Bhakti Persada. (2022)
[2] Rahmadana, Noni Rozaini, Suleman Abdul Rahman, and Eko Sudarmanto. *Ekonomi Pembangunan Islam.* Yayasan Kita Menulis. (2021).
[3] Amri, Asnil Bambani, Forddanta D, and Prayogo O. *Apa Itu Quantitative Easing? Apa Itu Tapering?* (2013): Kontan.Co.Id.
[4] Nugraha, M F, Putra P, and Ika Kartika Sari. *Analisis Pemantauan Resiko Keuangan Global.* Jakarta. Central Transformation Office.(2022).
[5] Witasari, O. "Determinan Nilai Perusahaan: Pra Dan Pasca Krisis Global 2015 Pada Perusahaan Yang Terdaftar Di Bursa Efek Indonesia 2012-2018." (2020).

research conducted by (Ridlo, Ahmad and Khalim 2020) which states that sukuk has an effect on increasing output in companies and governments.[6] However, in practice, there are fewer people who are interested in sukuk than in conventional bonds. Another study stated that sukuk has a negative and insignificant effect on economic growth because the number of Islamic capital markets is less than conventional capital markets.[7]

Violations often occur in government and in public agendas such as corruption. Corruption is carried out by groups or individuals to gain instant profits. According to the view of the "corruption apologist," which means corruption can be lubricating oil in the bureaucracy and regulations that are still rigid. In addition to receiving a positive view, corruption has negative consequences for a country's economy, such as the implementation of a budget that is not in accordance with the plan, increasing poverty, unequal development, and even reducing the quality of human resources. According to research conducted by (Firman and Fathan 2022) that corruption has a negative effect on economic growth because foreign investors tend to avoid countries with high levels of corruption so that it can indirectly reduce the number of investors entering the country. While research conducted by (Nawatmi 2013) showed that corruption has a positive effect on economic growth.

The Human Development Index (HDI) shows indicators of successful development carried out within a country. The higher the HDI value, the higher the community's productivity, thereby encouraging people's income.[8] Meanwhile, research conducted by the University (Sari, A and Aning 2020) of Indonesia shows that HDI has a negative and significant effect on economic growth. This happens because the HDI value varies from country to country because each country has different diversity, policies, natural resources, social life, and economic levels.

One of the pillars of the global economy, namely petroleum, even petroleum is a source of energy that is widely used for all needs. This resulted in fluctuations in the ups and downs of oil prices. Petroleum can improve the economy of a country if the country has high petroleum resources, but if a country does not have abundant petroleum resources, the country must import continuously. This is in line with research conducted by (Ftiti and France 2016), a positive and significant influence because rising oil prices can increase economic growth. In contrast, research conducted by (Sarmah and Bal 2021) states that the price of petroleum has a negative and significant effect on economic growth because the higher the price of petroleum, the importing country will experience a budget deficit and will even cause inflation.

This study aims to analyze the long and short-term effects on the variables of sukuk, Corruption Perception Index, Human Development Index, Crude Oil Price, and

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[6] Ridlo, Musalim, Mifdlol Muthohar Ahmad , and Mudrik Masruhan Khalim. "The Impact of Zakah, Islamic Financing, Sukuk and Inflation on National Economic Growth with Poverty as a Moderation Variable." *Falah* 1 (6) (2020): 17-19. doi:https://doi.org/10.22219/jes.v6i1.14993.

[7] Marsi, Gebi Gita, and Dyah Titis Kusuma Wardani. "The Influence of Sharia Capital Market, Sharia Bonds (Sukuk), and BI Rate on Gross Domestic Products (GDP) in Indonesia." *Journal of Economics Research and Social Sciences* 4 (2). (2020):

[8] Sudarlan. "Contribution Of Human Development Index On Per Capita Income Growth And Poverty Alleviation In Indonesia." *International Journal of Scientific & Technology Research.* (2015): www.ijstr.org.

economic growth and to determine the impact and results if there is a shock effect on one variable on another variable. This study also analyzes the number of contributions made between variables on economic growth. Author hopes that this research can be useful for the general public.

METHOD

This study uses panel data, namely data that combines time series and cross sections, which are units of observation at different times, so that data changes can explain the results of the study well. The time series in this study is from 2017 to 2022, and the cross-section in this study is ten member countries of the Islamic Cooperation Organization. The sample selection used the purposive sampling technique which is the technique chosen in determining the sample based on certain considerations. The author's consideration in this study is the ten OIC member countries with the highest GDP in 2021 among OIC members and the second consideration is the completeness of the data according to research needs. The countries sampled in this study are Indonesia, Saudi Arabia, UAE, Nigeria, Malaysia, Qatar, Kuwait, Oman, Sudan, and Brunei Darussalam.

The type of data used in this research is quantitative data. This study uses data on sukuk, Corruption Perception Index (CPI), Human Development Index (HDI), Crude Oil Prices, and Economic Growth obtained in an annual period. Sukuk data is obtained in USD units, CPI data in score units, HDI in value units, and Crude Oil Prices in USD units. The data in this study were collected in an annual period from the official website (Worldbank n.d.) (Economics n.d.) (Transparency n.d.) (UNDP n.d.) (IIFC n.d.) and (Economycountry n.d.).

VAR or VECM is used to determine response speed and impact in the short and long term. The variables used to analyze Sukuk, Corruption Perspection Indecx, Human Development Index, and Crude Oil Price on Gross Domestic Bruto. The model formed is as follows:

The standard VECM model equation obtained from the VAR is as follows:

$$\Delta Xt\text{-}1 = \mu t + \Pi Xt\text{-}1 + \sum \Delta\, Xt\text{-}1 + \mu t$$

$$\begin{bmatrix} \Delta SUKUK \\ \Delta CPI \\ \Delta HDI \\ \Delta COP \end{bmatrix}_{it} = \begin{bmatrix} a_0 \\ a_1 \\ a_2 \\ a_3 \end{bmatrix} + \sum_{t-1}^{k} \tau_{it} \begin{bmatrix} \Delta SUKUK \\ \Delta CPI \\ \Delta HDI \\ \Delta COP \end{bmatrix}_{it} + \begin{bmatrix} SUKUK \\ CPI \\ HDI \\ COP \end{bmatrix}_{it-1} + \begin{bmatrix} v_0 \\ v_1 \\ v_2 \\ v_3 \end{bmatrix}$$

α_1 - α_4	Variable coefficient
$SUKUK_{it}$	Sukuk
CPI_{it}	Corruption Perspection Index
HDI_{it}	Human Development Index
COP_{it}	Crude Oil Price
v_0 -v_4	*Error term*
T	The year 2017-2022
i	GDP

The first step in this study is to carry out a root test (stationary test) with the aim that the regression estimation results do not cause misleading economic phenomena such as the occurrence of false regression results (regression that is not meaningful) so that it really shows a genuine relationship to avoid misunderstandings such as the existence of variables which looks significant but actually has no relationship.[9] A group of time series data can be said to be stationary if the nature of the data series does not change when there is a change in time and is said to be non-stationary if it has a unit root symptom which results in inaccuracy in estimation of the

[9] Syamputri, Dealika. *Ekonometrika Terapan Pada Bidang Riset Ekonomi Dan Keuangan Islam.* UPI Press. (2021).

relationship between variables.[10] The ADF (Augmented Dickey-Fuller) test is often used in research. The ADF test assumes the residuals are independent, the variance is constant and uncorrelated, and the mean is zero. The decision-making criteria are based on the probability value. That is, if the probability value is < 0.05, the data is stationary, while data with a probability value > 0.05 is called non-stationary data.

The second step is followed by the optimal lag test with the aim of knowing the relationship and behavior of each variable. In addition, the purpose of determining the optimum lag length is to eliminate the autocorrelation problem in VAR on the FPE (Final Prediction Error), SC (Schwarz Information Criterion), Likelihood Ratio (LR), Akaike Information Criterion (AIC), and Hannan-Quinn (HQ) criteria. In testing time series data, it is necessary to determine the optimal lag length because every economic activity that occurs does not directly affect its activities but requires a certain time interval so that the effect can be seen. If the lag length is too short, the model will not be able to identify the actual error. The standard for determining the best criteria used is AIC and SC. The right decision in the optimal lag test is taken based on the lag that has the most criteria with asterisks (*).

The third step is the cointegration test which is used to determine the existence of a long-term relationship between non-stationary variables.[11] This cointegration test produces a long-term balance and fixed residuals even though there are variables that are not stationary because the combination of variables can be improved. The method often used is the Johansen Cointegration Test. Decision-making in this cointegration test is shown by the value of the trace statistic and the critical value. If the value of the trace statistic > critical value, the data are cointegrated and have a long-term relationship. And if the value of the trace statistic <critical value, then the data is not cointegrated and does not have a long-term relationship.

Step of the Vector Error Correction Model (VECM) test is referred to as a VAR derivative product that has non-stationary data but has a cointegration relationship. VECM is used to see long-term relationships and short-term relationships in research. The assessment criteria in the VECM test are table values and t-statistic values. If the t-statistic value > t table illustrates that there is a long-term or short-term relationship in the test.

The fifth step is the Granger causality test, which is the test proposed by Granger. The Granger causality test is used to see the effect of past variables on other variables over time. The causality relationship describes the short-term relationship between variables using an econometric approach that includes reciprocal relationships. The decision-making criterion in this study is that when the probability value is < 0.05, the two variables have a one-way influence, and if the two variables also have an opposite effect, it illustrates the influence of a two-way causality relationship.

The sixth step is the Impulse Response Function (IRF) test which aims to see the time it takes for a variable to respond to other variables. According to (Syamputri 2021) IRF, it can describe the response to each variable dynamically in the long term as a result of certain variable shocks in the form of graphs, both horizontal and vertical axes or two-axis graphs.

[10] Khairul, Amri, Cut Dian Fitri, Muhammad Adnan, Muhammad Zulhilmi, and Zaki Fuad. "Pembiayaan Investasi Bank Syariah Dan Pertumbuhan Produksi Usaha Kecil Dan Menengah: Bukti Data Panel Indonesia Kawasan Barat." *Al-Muzara'ah.* (2022) 123-138. doi:https://doi.org/10.29244

[11] Syamputri, Dealika. *Ekonometrika Terapan Pada Bidang Riset Ekonomi Dan Keuangan Islam.* UPI Press. (2021).

The vertical axis describes the response value, while the horizontal axis describes the value of the previous period after the shock occurred. Long-term responses have consistent results but are sometimes smaller or weaker. Meanwhile, the short-term response is important and can change.

The Variance Decomposition (VD) test aims to determine the percentage of contribution in the model caused by changes in the variables in the study. The VD test describes the ratio at the current time and in the future due to the shock of one variable and another variable (Syamputri, 2021).[12] In addition, VD testing can explain which variables have a greater contribution to the test.

This study aims to determine the effect of Sukuk, CPI, HDI, and COP t on the Economic Growth of Member Countries of the Islamic Cooperation Organization for the 2017-2022 period using quantitative data where the data is in the form of numbers. The analysis tool used in this study is using Eviews software version 10. The results of the processed data analysis will be used to determine the discussion.

RESULTS AND DISCUSSION

1. Unit Root Test Results

The unit root test is the initial stage of testing the data set to be examined with the aim of knowing the stationarity of the data (Ma'ruf and Wihastuti 2008).[13] Based on the variables and data in this study in the form of time series data (annual) and cross data (country). Then the stationary test uses the panel unit root test. The unit root test in this study used the Augmented Dickey-Fuller (ADF) method. In this stage, if there is a variable that is not stationary at the level stage, it is changed to a differential stage.

Table 1

Augmented Dickey-Fuller Stationarity Test (ADF)

Variable	Stage	Probability
Sukuk	1st difference	0.0000
CPI	1st difference	0.0000
HD	1st difference	0.0008
COP	1st difference	0.0069
GDP	1st difference	0.0000

(Calculation results with Eviews version 10)

Based on the results of the panel root test, it shows that all variables are stationary at the first difference stage. With a sukuk probability value of 0.0000 < 0.05, a CPI value of 0.0000 < 0.05, an HDI value of 0.0008 < 0.05, a crude oil price value of 0.0069 < 0.05, and an economic growth value of 0.000 < 0.05.

2. Optimal Lag Determination

Determination of the optimal lag is applied in the VECM method with the aim of ensuring that the data has consistent parameters (Agbonlahor 2014). This study used the information criteria FPE (Final Prediction Error), SC (Schwarz Information Criterion), Likelihood Ratio (LR), Akaike Information Criterion (AIC), and Hannan-Quinn (HQ). In this study, the optimal lag chosen was the second lag.

Table 2

Optimal Lag Determination

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1045.831	NA	1.24e+12	42.03324	42.22444	42.10605
1	-864.5902	318.9839 *	2.40e+09 *	35.78361 *	36.93082 *	36.22047 *

(Calculation results with Eviews version 10)

[12] Syamputri, Dealika. *Ekonometrika Terapan Pada Bidang Riset Ekonomi Dan Keuangan Islam.* UPI Press. (2021).

[13] Ma'ruf, Ahmad, and Latri Wihastuti. "Pertumbuhan Ekonomi Indonesia: Determinan Dan Prospeknya." *Jurnal Ekonomi Dan Studi Pembangunan* 9 (1) (2008): 44-55.

Based on table 2 shows that the smallest AIC value is in lag 1, which is 35.78361. The VAR dynamic model shows the estimation of the functional relationship between sukuk, Corruption Perception Index, Human Development Index, and Crude Oil Price on the one hand and economic growth, on the other hand, occurring within a two-period horizon. In addition, the use of lag 1 in this study is also based on indications (*) that the most lag 1 is on LR, FPE, AIC, SC, and HQ.

3. Cointegration Test

The cointegration test was applied in a study with the aim of knowing the long-term equilibrium relationship to variables that are not stationary but have stationary linear combinations.[14] This study uses the Johansen cointegration test approach by comparing the critical value and trace statistics or comparing the critical value with the max eigen statistic. Based on the cointegration test, this time it is known that the probability value of the None line is 0.0000 which is less than 0.05, so there is a cointegration equation, and it has a long-term balance.

Table 3
Johansen Cointegration Test Results

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value
None *	0.989827	222.8845	69.81889
At most 1	0.461038	39.36530	47.85613
At most 2	0.197191	14.64089	29.79707
At most 3	0.135054	5.855370	15.49471
At most 4	0.001295	0.051823	3.841466

(Calculation results with Eviews version 10)

4. *Vector Error Correction Model* (VECM) test

Based on the cointegration test results in Table 3 shows that there is a long-term balance relationship between variables, so the analysis is continued with the VECM test. VECM is used to solve problems in time series data with non-stationary root tests and in lancing correlations. The VECM test shows long-term and short-term estimation by comparing t-table values with t-statistics. If the t-statistic > t-table means that there is a significant influence between the independent and dependent variables. This study uses the quadratic cointegration model with intercept.

Table 4
VECM Test Results

Cointegrating Eq:	CointEq1
GDP(-1)	1.000000
SUKUK(-1)	-0.000118 (5.6E-05) [-2.12517]
CPI(-1)	0.027107 (0.12106) [0.22392]
HDI(-1)	-1.847014 (14.2445) [-0.12967]
COP(-1)	10.99421 (0.20177) [54.4877]
C	-629.4413
Error Correction:	**D(GDP)**
CointEq1	-0.060071 (0.00838) [-7.17159]
D(GDP(-1))	-0.170442 (0.14007) [-1.21686]

[14] Syahril, Arie Saputra, and Irmayani. *Persaingan Minyak Nabati Dunia Dalam Periode 1960-2020.* Aceh: Syiah Kuala University Press. (2022).

D(SUKUK(-1))	-0.000148 (8.9E-05) [-1.67078]
D(CPI(-1))	-0.177372 (0.19596) [-0.90515]
D(HDI(-1))	131.3703 (69.0945) [1.90131]
D(COP(-1))	0.425105 (0.05801) [7.32874]
C	-1.162410 (0.51266) [-2.26742]

(Calculation results with Eviews version 10)

Long-term and short-term relationships can be shown through statistical values and table values. If the statistical value t > table value (critical value), then there is a long-term and short-term relationship in research.[15] Based on Table 4 it is known that the long and short-term effects in this study are as follows:

a. In the long run, sukuk has a significant effect on economic growth, with a statistical value of t [2.12517] > critical value t |2.000995|. If the current sukuk one year ago increased by one score, it would cause changes in the current sukuk to decrease by -0.000118 score.
b. In the long run, the Crude Oil Price has a significant effect on economic growth, with a statistical value of t [54.4877] > critical value t |2.000995|. If the Crude Oil Price 1 year ago increased by 1 USD, it would cause a change in the Crude Oil Price at this time to increase by 10.99421 USD.
c. In the short term, the Crude Oil Price has a significant effect on economic growth, with a statistical value of t [7.32874] > critical value t |2.000995|. If the Crude Oil Price 1 year ago increased by 1 USD, it would cause a change. The Crude Oil Price at this time increased by 0.425105 prices per barrel.

5. Granger Causality Test

The Granger causality test is important to use in research because it is an indication of the existence of causality and the direction of causality as well as knowing which variables are changing and their impact on other variables .[16] In addition, the Granger causality test aims to see the response of one variable to another to changes in shock that occur in other variables.

Table 5
Granger Causality Test Results

Null Hypothesis:	Obs	F-Statistic	Prob.
SUKUK does not Granger Cause GDP	40	4.71801	0.0153
GDP does not Granger Cause SUKUK		4.23987	0.0224
CPI does not Granger Cause GDP	40	2.51732	0.0952
GDP does not Granger Cause CPI		1.06244	0.3565
HDI does not Granger Cause GDP	40	0.40878	0.6676
GDP does not Granger Cause HDI		0.29855	0.7438
COP does not Granger Cause GDP	40	23.5525	3.E-07
GDP does not Granger Cause COP		1.76907	0.1854

(Calculation results with Eviews version 10)

Table 5 shows the Granger causality relationship as follows:

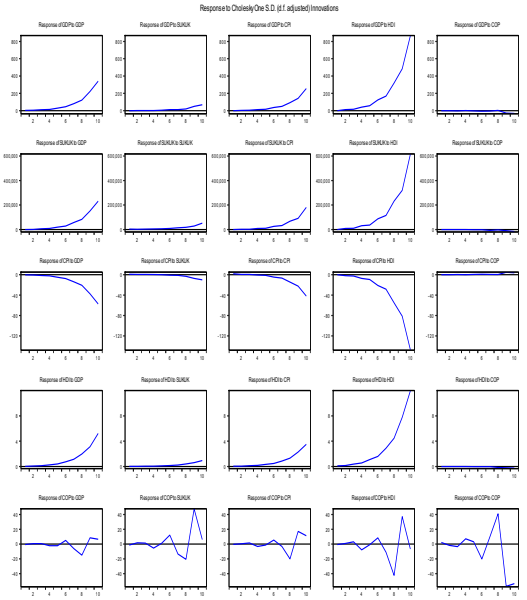
[15] Ajija, and Rohmatul Shochrul. *Cara Cerdas Menguasai Eviews.* Salemba Empat (2011).
[16] Kurniawan. *Analisis Data Menggunakan Strata SE 14.* Yogyakarta: Deepublish Publisher. (2019).

a. It is known that sukuk significantly influences economic growth, with a probability value of 0.0153 < 0.05, and also significant economic growth affects sukuk with a probability value of 0.0224 > 0.05. So it is concluded that there is a two-way causality between sukuk and economic growth.
b. It is known that CPI does not significantly affect economic growth with a probability value of 0.0952 > 0.05, and economic growth also does not significantly affect CPI with a probability value of 0.3565 > 0.05. So it is concluded that there is no one-way or two-way causality between CPI and economic growth.
c. Known HDI does not significantly affect economic growth with a probability value of 0.6676 > 0.05, and economic growth also does not significantly affect HDI with a probability value of 0.7438 > 0.05. So it is concluded that there is no one-way or two-way causality between HDI and economic growth.
d. It is known that the Crude Oil Price does not significantly affect economic growth with a probability value of 3.E-07 > 0.05 and economic growth also does not significantly affect the Crude Oil Price with a probability value of 0.1854 > 0.05. So it is concluded that there is no one-way or two-way causality between Crude Oil Price and economic growth.

6. Impulse Response Function (IRF) analysis

IRF analysis shows the dynamic long-term response of a variable to another variable if it experiences a shock.[17] IRF provides an illustration of when a variable experiences disturbance in the future so that the effect of interference from one variable with another variable appears until it reaches a stable point. The graph of the impulse response function analysis function is as follows:

Figure 1
***Impulse Response Function* (IRF) Test Results**



(Calculation results with Eviews version 10)

Based on Figure 1, the IRF test shows several fluctuating responses as follows:

a. The response of GDP variable to GDP shocks variable in period 1 was 2.492356 and then experienced a continuous increase until period 10 with a value of 341.2468. This indicates that from 1 to 10 periods, the reaction of the GDP variable to GDP shocks tends to be strong.
b. The response of the GDP to shocks from sukuk also increased from period 1 with a value of -334.9107, then until period ten, it continued to rise to 231793.2. This indicates that from 1 to 10 periods, the reaction of the GDP to shocks from sukuk tends to be strong.

[17] Sella, Pramai, A Zuliansyah Novia, and Gustika Nurmalia. *Integrasi Indeks Harga Saham Syariah Indonesia Menggunakan Metode Vector Error Correction Model (VECM).* Vol. 2. Lampung: UIN Raden Intan Lampung. (2021): http://ejournal.radenintan.ac.id/index.php/almashrof.

c. The response of the GDP to CPI shocks in periods 1 to 10 tends to decrease from period 1 of -0.239266 to period 10 of -57.30032 This indicates that the GDP response to CPI shocks tends to be negative and decrease.
d. The response of the GDP to shocks from HDI has increased continuously from period 1 of 0.015797 to period 10 to 5.220745. This indicates that period 1 to 10 of the GDP variable reaction to HDI shock tends to be strong.
e. GDP response to COP shocks in period 1 was -0.640464 and in subsequent periods produced fluctuating shocks. However, in this shock, the majority experienced a decline, which means that the response to this COP was weak.

7. Variance Decomposition (VD) Analysis of Economic Growth

Variance Decomposition describes the shock movement information for each variable in a certain period so that it can be seen how far one variable influences other variables. FEVD is used to estimate the variance error in a variable, namely the difference between the variance before and after the shock, both from other variables and the variable itself.

Table 6
Variance Decomposition Test Results
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Period	S.E.	GDP	SUKUK	CPI	HDI	COP
1	2.521286	100.0000	0.000000	0.000000	0.000000	0.000000
2	10.91951	17.86911	0.454808	6.257097	75.22902	0.189958
3	18.53107	27.89294	0.673619	5.629737	64.99831	0.805397
4	34.87171	17.72585	0.192566	5.968773	75.81884	0.293965
5	51.55566	22.69414	0.271393	5.423305	71.43741	0.173753
6	89.58725	16.29958	0.478931	6.271718	76.57082	0.378944
7	124.9294	19.64678	0.293468	5.958880	73.88599	0.214875
8	186.1683	16.83708	0.136931	5.781241	77.05080	0.193946
9	267.8161	18.73250	0.556351	5.811570	74.40674	0.492831
10	406.7700	15.93855	0.417765	6.338856	76.91404	0.390789

(Calculation results with Eviews version 10)

In Table 6 when shocks (shock) occur at the beginning of the first period of economic growth, the variance of economic growth comes from economic growth 100 % itself, Sukuk, CPI, HDI, and Crude Oil Price each 0%. During the second period, the Economic Growth variance was formed from the Economic Growth variance of 17%, Sukuk 0.4%, CPI 6.25%, HDI 75.2%, and Crude Oil Price 0.18%. The ups and downs of shocks from period 1 to period 10 were very volatile so that in period ten, the largest variance in economic growth came from HDI at 76.9%, economic growth at 15.9%, CPI at 6.3%, and sukuk and crude oil prices less than 1%.

CONCLUSION

The results of the research based on the data collected by the authors show that the VECM test shows that there are short-term and long-term effects. In the long term, the variable sukuk and crude oil prices have a significant effect on economic growth in the first leg, which indicates that an increase in the variable sukuk and crude oil prices in the previous period will affect the variable economic growth during the current period. However, the sukuk variable has a negative direction of influence where if there is an increase in the sukuk in the previous period, there will be a decrease in the current period.

The results in the long run show that the price of sukuk and crude oil has a significant effect on economic growth variables. But the sukuk variable has a negative direction of influence which indicates that if there is an increase in sukuk in the previous period, it will cause a decrease in economic growth in the current period.

The Granger causality test shows that sukuk and economic growth have a two-way causality indicating that changes in the previous period's sukuk rate will affect the current period's economic growth rate or vice versa. Meanwhile, the CPI, HDI, and COP variables do not have a one-way or two-way causality relationship to economic growth.

Analysis of the contribution to the variable economic growth shows that economic growth contributes fully to itself and is the main contribution. The next biggest contributions are HDI and CPI. Sukuk and crude oil price variables have a small contribution to economic growth.

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