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## Impact of Sukuk Market Development on Indonesian Economic Growth

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**Abstract:** This study discusses the impact of sukuk market developments on the Indonesian economy, and vice versa. It will use the 2009–2016 quarterly longitudinal data of outstanding sukuk as a proxy of the size of the sukuk markets, as well as Indonesia's GDP as a proxy of the size of the economy. The basic model used in this study is a VAR model, and a Granger causality test is utilised to determine the direction of causality. The study also uses impulse response function and variance decomposition to determine the impact of shock on each variable on the others. The result shows that, in aggregate, sukuk market has positive influence on Indonesian GDP. While in detailed, domestic sovereign sukuk market has bigger influence on Indonesian GDP than corporate market. Therefore, in terms of improving the Indonesian economy, sukuk can be considered as an effective financial instrument.

**Keywords:** sukuk performance; Indonesian economic growth; VAR

### 1. INTRODUCTION

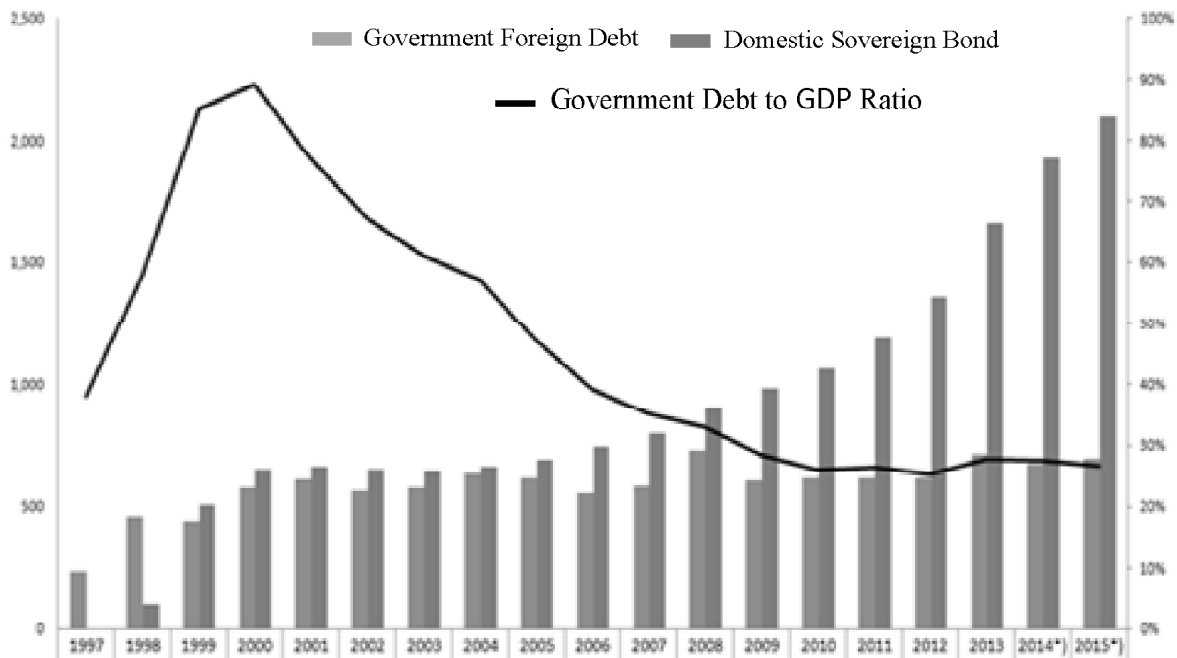
The financial crisis that occurred in 1998 was influenced by various complex issues. However, one of the most significant causes was the size of Indonesia's foreign loans, both in the private and government sectors. A large amount of foreign debt has a risk of high exchange rate fluctuations. Moreover, this will simply be a burden if the debt is not effectively allocated. In this situation, a huge amount of money should go outside the country compared to what is received, thereby resulting in widening the current account deficit. Alternatively, if the foreign investment is invested in direct investments, for instance in automobile factories, this will have a direct positive impact on the real economy and expand employment opportunities, or perhaps only stimulate the economy in the related sectors.

A large amount of external debt causes the external exchange rate of the rupiah to appreciate. In turn, this causes the rupiah to become less competitive in the international market. Given the large amount of debt held by Bank Indonesia but not supported by good fiscal and monetary policies, and the unhealthy

banking system, the rupiah began to depreciate dramatically. At this time, Bank Indonesia did not have sufficient US dollars to maintain the value of the rupiah so, on August 14, 1997, it finally decided to change the floating exchange rate regime into a free-floating regime. Unfortunately, the consequences for Indonesia were that the rupiah depreciated sharply, there were higher interest rates and the value of stock indices went into decline.

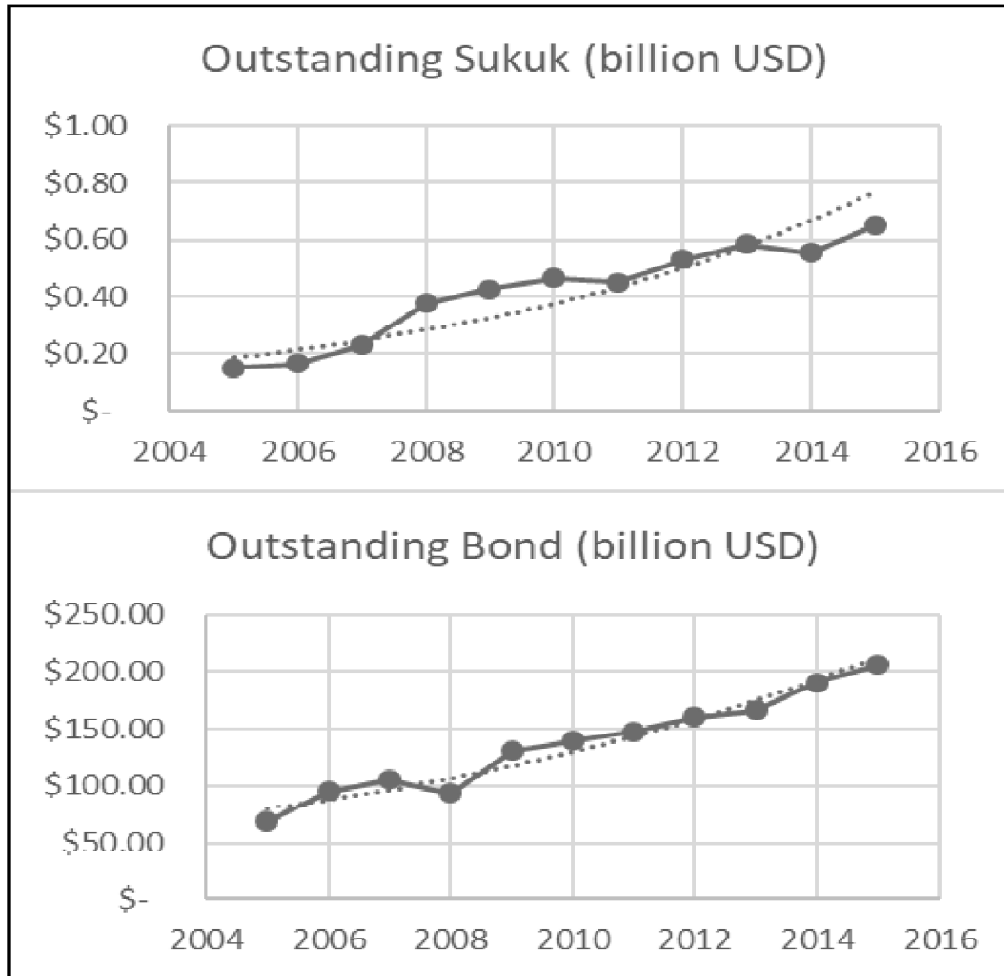
This led to the bankruptcy of the banking sector and its customers (fund-borrowing companies and communities), lower GDP growth rates, and increasing inflation and unemployment.

The negative impact on the Indonesian economy was caused by the exchange rate fluctuations that cause debt-based financial instruments to be vulnerable to swelling when the creditor currency exchange rate sharply depreciates, as was the case in 1998. Therefore, it is necessary to transfer the sources of funds into the domestic financial market which is relatively more resistant to exchange rate fluctuation. Financial instruments such as stocks cannot be used as a proxy to observe the effect of investment market development in Indonesia from the government's perspective. To gain an in-depth understanding, this research uses sukuk market size as a variable of investment market development.



**Graph 1.1: Proportion of Government Debt (IDR Trillion), Directorate General of Financing and Risk Management (DJPPR) Ministry of Finance**

Graph 1.1 highlights that the Indonesian government has carried out foreign debt transfers since 1998. In 1997, the proportion of government foreign debt amounted to 100% of the total government debt. However, since 1998, government debt has been transferred into SBN (Surat Berharga Negara – sovereign bonds) which are primarily held by domestic investors. It only took two years until they were able to dominate the proportion of government debt instruments. By 2015, the issuance of SBN had doubled the government's foreign debt. The increase in SBN illustrated in Graph 1.1 does not only comprise bond

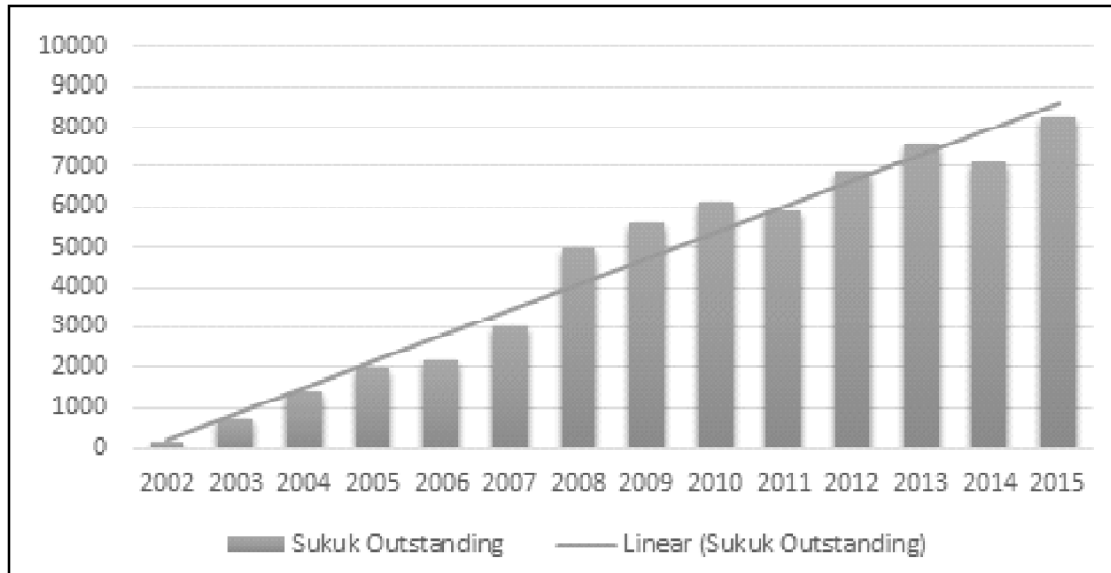


**Graph 1.2: The Development of the Sukuk and Bond Market, The Financial Services Authority**

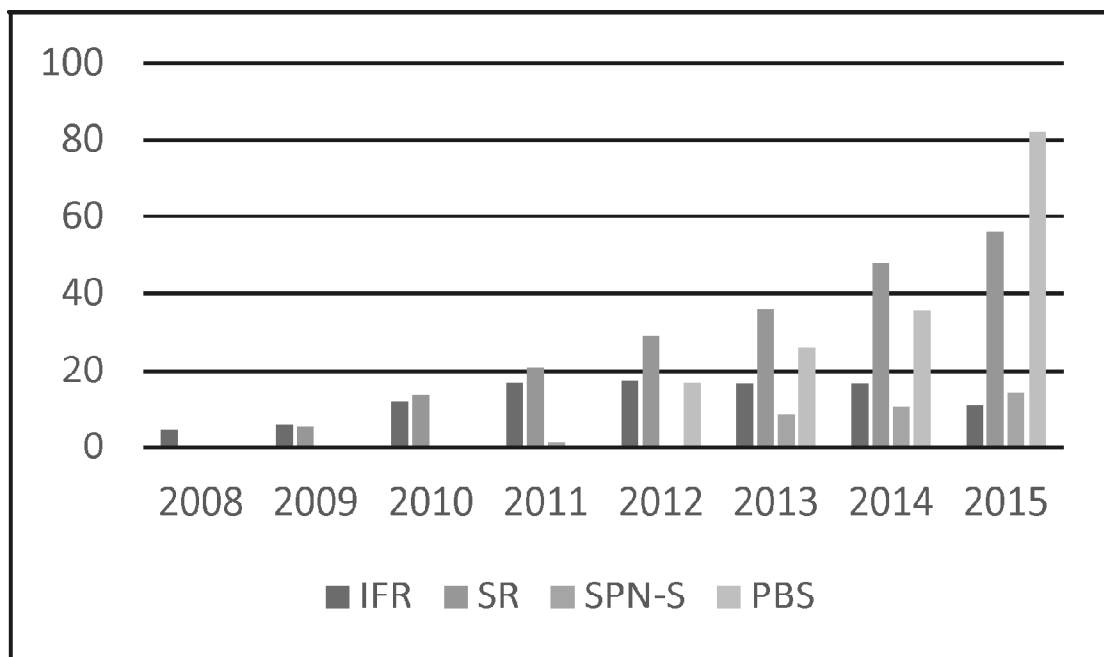
financial instruments. In 2008, the government began to issue a new type of bond in order comply with the Islamic custom of not charging interest. This financial instrument is called sukuk or the sovereign Islamic bond (SBSN). Indeed, the issuance of sovereign sukuk in 2008 enriched the options in respect of government-owned financing management.

In aggregate, developments in both the bond and sukuk market in Indonesia have shown a positive trend. However, in terms of outstanding value, the development of the sukuk market is still far below the bond market. But, the development of the sukuk market has a larger growth rate than the development of the conventional bond market. Although on aggregate the size of the bond market is much greater than the sukuk market, the growth rate of sukuk (14.3%) is bigger than the growth rate of bonds (9.87%).

Graph 4.1 shows the development of Indonesian corporate sukuk market has consistently increased from 2002 to 2015. In Indonesia, sukuk began to be traded since 2002 which started with the issuance of corporate sukuk by PT. Indosat Tbk with a value of 175 billion rupiah. Number of the sukuk issuance by PT. Indosat Tbk initiated the development of sukuk market in Indonesia. Only later in the following year began many companies that also issue sukuk.



**Graph 1.3: Indonesian Corporate Sukuk Market Development**  
 Source: Financial Services Authority (OJK)



**Graph 1.3 Indonesian Sovereign Sukuk Market Development,**  
 Source: Indonesian Ministry of Finance

Not only in the corporate sector, Chart 4.4 shows that Indonesian sovereign sukuk market development has also continued to show consistent improvement since it began to issue in 2008. The sovereign sukuk issuance is not only intended to finance the state budget deficit in general like conventional bond, it is also intended to finance several infrastructure projects. This is seen by the issuance of PBS series (Project Based Sukuk) Rp 16.71 trillion in 2012. PBS is a sovereign sukuk that uses underlying/principal assets in

the form of infrastructure projects that have been listed in the APBN (Indonesian State Budget). It allows the investor to take over the project if it comes to default. Besides PBS, since 2012, the issuance of Retail State Sukuk (SR) is also used for project development. Total State Sukuk used for project financing from 2012 to 2014 had reached Rp 112.82 trillion.

There are other types of sovereign sukuk such as islamic fixed rate sukuk (IFR), sharia treasury bills (SPN-S), and hajj fund sukuk (SDHI) for domestic market. However, the hajj funds sukuk are not traded, so it will not be included in this research. Indonesian state sukuk (SNI), will not also be included in this research since it is issued for the global market. Because this research will be only focuses on the development of domestic sukuk market.

In contrast to research on the bonds that have been done a lot before, only a few studies found that discuss the relationship between sukuk and the economy. Furthermore, there is no specific research looking at the relationship between sukuk market development with the Indonesian economy. So, this research will focus on the discussion about the relationship between Indonesian sukuk market development with Indonesian economy. This study also provides specific result from both sovereign and corporate sector. In the end, this paper will conclude whether sukuk is reliable as a new investment source for Indonesia.

## **2. THEORETICAL REVIEW**

The negative impact of foreign loans in developing countries has been widely researched. Reinhart and Rogoff (2010) found that when a country's foreign loans, both from the government and private sectors, reach 60% of GDP, this will have 2% negative impact on the country's GDP growth. Even if the level of loans is above 60%, the perceived negative impact may equate to 50% of GDP growth (Pattillo *et al.*, 2011). When different levels of debt are involved, Schclarek (2004) found that the negative impact of foreign loans will begin to fall at a level of 35–40% debt to GDP. This negative impact is caused more by non-private government loans. In Indonesia, the ratio of foreign debt to GDP is still relatively small compared to the Eurozone, which is still below 40%, but this ratio has experienced a positive trend amounting to 25% since 2011 (External Debt Statistics Indonesia, 2015).

Sukuk are considered as one of the alternative way to alternate the need of external debt. Theoretically, IS-LM model says that increased sukuk issuance can affect the growth of a country's GDP (Mankiw, 2008). For example, the Ministry of Finance issues sukuk to finance government projects. Then people buy sukuk issued by the ministry of finance. So that there is decreasing number of money supply resulted in a shift in the LM curve to the left. But then there is an increase spending by the finance ministry for financing their projects. Government spending will shift the IS curve to the right that is automatically accompanied by an increase in GDP. The productivity of government spending will determine whether the GDP will be increased from the starting point or not.

The Harrod-Domar growth model shows the relationship between the growth of GDP with the net-savings ratio ( $s$ ) and the capital-output ratio ( $c$ ) of an economy (Todaro and Smith, 2012). Firstly, it says that the net-savings ratio directly affects the output growth of a country. Whereas, the net-savings ratio shows the propensity to save by a country. Secondly, it says that the inverse capital-output ratio of an economy influences the output growth of a country. Whereas, the capital-output ratio shows how many units of capital ( $k$ , capital) needed to produce for one unit of economic output.

$$\frac{\Delta Y}{Y} = \frac{s}{c} \quad (1)$$

The left side of equation 2.8 ( $\Delta Y / Y$ ) shows the additional output that can be generated depend on the net-savings ratio to the capital-output ratio. That is, the higher the public tendency to save, *ceteris paribus*, the higher the GDP will be, vice versa. In Harrod-Domar's theory, saving is assumed to be equal with the investment. That is, it is assumed that total savings will be fully used for the investment through banking intermediaries. While sukuk have function that can be implemented into the theory. All funds obtained from the issuance of sukuk (sukuk proceeds) will be directly used as additional value of K. Capital output (c) shows the productivity of the increased capital. The smaller the value of capital compared to the amount of output can be generated, the greater the productivity of the capital which will then have an impact on the increases of output growth  $\Delta Y / Y$ . In the context of sukuk, it can be defined as the productivity of the proceeds. All the sukuk proceeds will directly inject the economy, both into private and public sector.

In Harrod-Domar's theory, the channel of savings to the economy is the banking sector. Thus, if the banking sector does not appropriately operate, the economic growth will be directly face the impact. If bond is assumed to be the S as in the function, the investor can only minimize the risk of the investment by looking at the reputation which sometimes misleads like were in 2008. But if sukuk is assumed to be the S as in the function, in addition to the reputation, investors can also minimize the risk by looking at the plan of the proceeds.

In the reverse relationship, in determining which assets are going to be held or owned by the public, there are a few things to be the determining factor, and each assumed *ceteris paribus*. The first is wealth, which is the total resources owned by society, including the assets themselves, for example, income. The second is expected return (estimated return rate), which is an estimate of changes in asset value in the future. The third is the risk (risk), namely how big the risk of losses borne by society in holding an asset. The last is liquidity level is how fast the asset can be exchanged into more liquid assets (Mishkin, 2010).

From the empirical findings, there are already numerous studies which have explored the relationship between the development of the bond market and the economy. Using a VAR model, the domestic sovereign bond market development has proven to granger cause economic growth (Pradhan *et al.*, 2015). Long before that research had conducted, Fink *et al.*, (2003) found a similar result, that bond market is proved to have causality with the economy. With different model, Thumrongvit (2013) found that bond market is positively correlated to the economy.

In the reverse direction, Godlewski *et al.* (2011) found that the market has positive or neutral responses to the issuance of bonds, while negative on the issuance of sukuk. Using simple OLS and GLS methods, Bhattacharyay (2013) found that economy promote bond market development. In line with former research, using VAR model, Pradhan (2016) also found that economic growth granger cause bond market development.

In contrast to the plethora of previous research which has analysed bonds, there is limited research on the relationship between sukuk market development and the effect on the economy. However, Ahmad (2012) did examine the relationship between sukuk and the Malaysian economy. Using a VAR model, she found that sukuk issuance proved to have a positive impact on the Malaysian economy. As this topic has not been previously discussed with reference to Indonesia, this research will break new ground.

### 3. RESEARCH METHODS

The variables used in this study are sukuk, domestic sovereign and corporate sukuk market development and Indonesian GDP, respectively represented by *sukuk*, *sdgov*, *sdkorp* and *PDB*. This study uses longitudinal data from Q1 of 2009 to Q4 of 2016 in logarithmic form. The sukuk market developments referred to in this study involve the number of outstanding domestic sukuk. The selection of proxy for the variables in this study follows Fink (2003) while the ordering of variables follows Pradhan (2015).

This study sees two sides of the same coin. It is not only observing the influence of sukuk market developments on the Indonesian economy, it is also observing the opposite relation. Therefore, the most appropriate model to be used in this study is *vector autoregression* (VAR) as a base model to measure the causality and impact of each variable on the others. The test to determine the causality among the variables is the *Granger causality test*. The *impulse response function* (IRF) traces the responsiveness of the dependent variables in the VAR to shocks of each variable. Meanwhile, *variance decomposition* (VD) provides the proportion of the movements in the dependent variables that are due to their ‘own’ shocks compared to shocks to the other variables (Brooks, 2014).

The VAR model used in this research is as follows

$$Y_t = A_0 + AY_{t-1} + \varepsilon_t \quad (3.1)$$

Where:

1. Aggregate Equation

$$Y_t = \begin{bmatrix} PDB_t \\ Sukuk_t \end{bmatrix}; A_0 = \begin{bmatrix} \alpha_{11} \\ \alpha_{21} \end{bmatrix}; A = \begin{bmatrix} \alpha_{12} & \alpha_{13} \\ \alpha_{22} & \alpha_{23} \end{bmatrix}; v = \begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \end{bmatrix} \quad (3.2)$$

2. Break Down Equation

$$Y_t = \begin{bmatrix} PDB_t \\ Sdgov_t \\ Sdkorp_t \end{bmatrix}; A_0 = \begin{bmatrix} \alpha_{11} \\ \alpha_{21} \\ \alpha_{31} \end{bmatrix}; A = \begin{bmatrix} \alpha_{12} & \alpha_{13} & \alpha_{14} \\ \alpha_{22} & \alpha_{23} & \alpha_{24} \\ \alpha_{32} & \alpha_{33} & \alpha_{34} \end{bmatrix}; v = \begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \\ \varepsilon_{3t} \end{bmatrix} \quad (3.3)$$

### 4. EMPIRICAL RESULTS

VAR is an approach that is not equipped with a long-term relationship analysis like *vector error correction model* (VECM). So, the interpretation of VAR model is not the focus in this research. Then, what will be the focus in the VAR is the analysis of the results of IRF and VD. However, VAR model estimation results are an important step in estimating IRF and VD models.

Variables in the equation are stationary at different levels. GDP and aggregate sukuk are stationary at level whereas the other variables are stationary at the first difference. So, the model to be used is a VAR *in difference* because a VECM model can only be used if the variables in the equation have the same stationarity level. Optimal lag determination takes into consideration some key criteria as well as additional criteria. The first smallest value obtained by using the *Akaike information criterion* (AIC) is found in lag 1. Unlike the AIC,

**Table 4.1**  
**Stationarity Test, Results of Data Processing with EViews**

<i>Variables (in log)</i>	<i>Test Statistics</i>	<i>Mc Kinon critical value</i>			<i>Information</i>
		<i>1%</i>	<i>5%</i>	<i>10%</i>	
PDB	-3.139210	-3.711457	-2.981038	-2.629906	Stationary
Sukuk	-2.741315	-3.661661	-2.960411	-2.619160	Stationary
Sdgv	-0.979859	-3.699871	-2.976263	-2.627420	Not stationary
Sdkorp	0.842224	-3.670170	-2.963972	-2.621007	Not stationary

the SC value indicates that the optimum lag value lies in lag 0. However, other criteria show the optimum lag value lies in lag 1. Therefore, the decision was made to use lag 1. A stability test also shows that this model is stable.

**Table 4.2**  
**Granger Causality Test, Results of Data Processing with EViews**

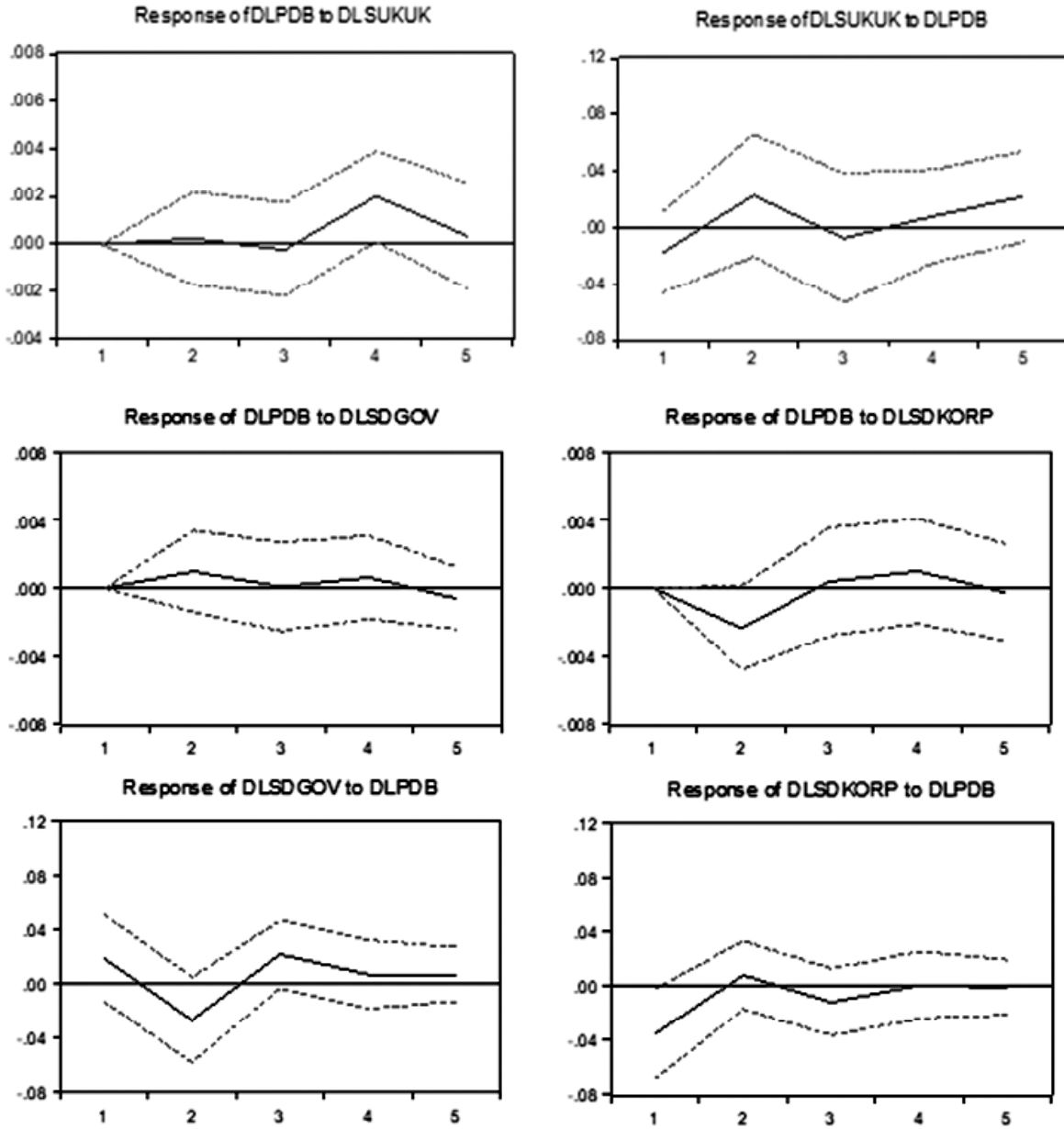
<i>H<sub>0</sub></i>	<i>F statistics</i>	<i>Prob&gt; F</i>	<i>Information</i>
Sukuk does not Granger cause PDB	8.49629	0.0015	H0 rejected
Sdgv does not Granger cause PDB	5.52771	0.0055	H0 rejected
Sdkorp does not Granger cause PDB	0.07044	0.9751	H0 accepted
PDB does not Granger cause Sukuk	10.5103	0.0005	H0 rejected
PDB does not Granger cause Sdgv	11.4070	0.0001	H0 rejected
PDB does not Granger cause Sdkorp	0.80622	0.5039	H0 accepted

After passing the stability test stage, a Granger causality test is conducted to determine the direction of causality between the variables. Table 4.2 depicts the relationship between sukuk in aggregate, domestic sovereign and corporate sukuk with Indonesian GDP. Hypothesis 0 in the Granger causality test states that there is no Granger causality between the two variables. The criteria for rejection can be observed by looking at the *F-statistics* value which is greater than the critical value of 10%, or we can use *Prob> F* smaller than 0.1 confidence level. Referring to the result, there are supply leading relationship (e.g. sukuk granger causes GDP) on Sukuk and Sdgv. And demand leading relationship (e.g. GDP granger causes sukuk) on Sdkrop.

Graph 4.1 shows the estimated VAR results. Since the beginning of the period, *ceteris paribus*, GDP positively respond to the shock of sukuk in aggregate and domestic sovereign sukuk. Reaching the peak, respectively in the second period with 0.000241 or 0.024% and in the fourth period with 0.000632 or 0.063%. It took respectively three and five quarters for GDP to return to its long-term equilibrium. While GDP does not respond to the shock on domestic corporate sukuk in the first quarter, but negatively respond in the second quarter with 0.001007 or 0.1% and took three quarters to return to its long-term equilibrium.

In the opposite direction, sukuk in aggregate and domestic corporate sukuk negatively respond to the shock of GDP. Reaching the peak in the first period with -0.017098 or -1.7% and -0.035240 or 3.5%. It takes two quarters to return to its long-term equilibrium. While domestic sovereign sukuk positively respond





**Graph 4.1: IRF results, Results of Data Processing with EVIEWS**

to the shock of GDP, reaching the peak in the first period with 0.018852 or 1.9%. It also takes two quarters to return to its long-term equilibrium.

VD result in table 4.3 shows that 1.72% and 9.65% of GDP shock is attributed, respectively to the shock of domestic sovereign sukuk and domestic corporate sukuk. Both effects reaching the peak on the fourth period and then starting to descent. In the opposite direction, GDP contributes 4.74%, and 14.93% respectively on the shock of domestic sovereign sukuk and domestic corporate sukuk since the beginning. Reaching the peak on the fourth period and then start to descend.

**Table 4.3**  
**VD results, Results of Data Processing with EViews**

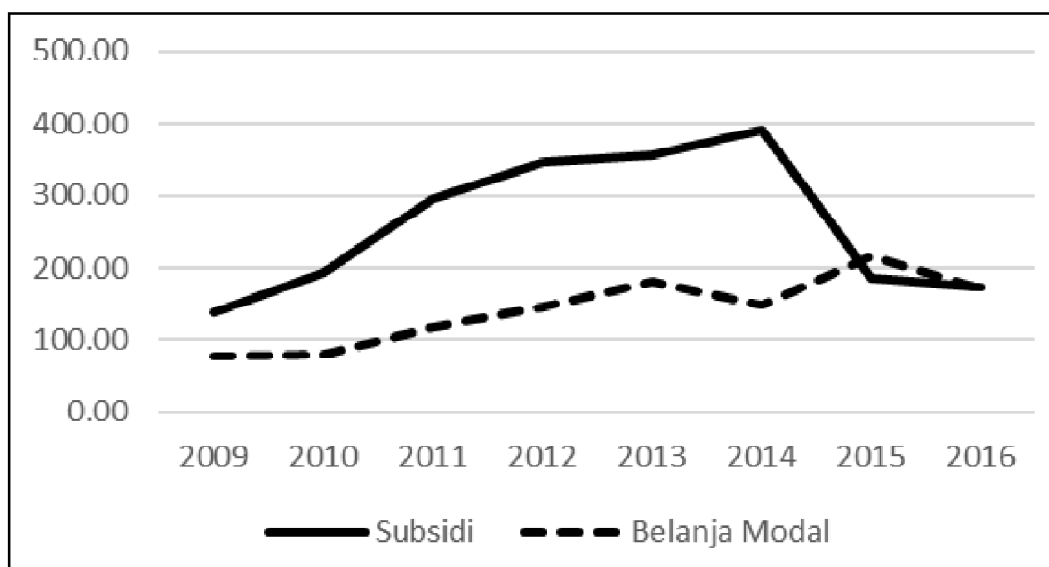
<i>Variance Decomposition of DLPDB</i>				
<i>Period</i>	<i>S.E.</i>	<i>DLPDB</i>	<i>DLSDGOV</i>	<i>DLSDKORP</i>
1	0.005705	100.0000	0.000000	0.000000
2	0.007574	88.63602	1.713637	9.650346
3	0.007651	88.60359	1.690858	9.705551
4	0.007764	86.59113	2.304998	11.10387
5	0.009069	89.62374	2.154601	8.221664
<i>Variance Decomposition of DLSDGOV</i>				
<i>Period</i>	<i>S.E.</i>	<i>DLPDB</i>	<i>DLSDGOV</i>	<i>DLSDKORP</i>
1	0.086571	4.742003	95.25800	0.000000
2	0.107841	9.402420	87.45565	3.141927
3	0.110041	12.87004	84.08991	3.040045
4	0.112644	12.64056	82.04664	5.312805
5	0.115395	12.38938	81.21958	6.391044
<i>Variance Decomposition of DLSDKORP</i>				
<i>Period</i>	<i>S.E.</i>	<i>DLPDB</i>	<i>DLSDGOV</i>	<i>DLSDKORP</i>
1	0.091198	14.93167	0.084223	84.98410
2	0.095916	14.21978	1.112578	84.66764
3	0.099521	14.63853	1.791976	83.56949
4	0.100685	14.30950	1.896476	83.79403
5	0.101505	14.08921	2.176766	83.73402
<i>Cholesky Ordering: DLPDB DLSDGOV DLSDKORP</i>				

## 5. DISCUSSION

The positive influence given by the shock of sukuk to GDP, supported by significant granger causality test result, proves the rationalization of Harrod-Domar and IS-LM theories as discussed earlier. Harrod-Domar theory states that all savings fund is assumed to be equal to investment ( $S = I$ ). In this case the proceeds of sukuk on the public sector (government) as well as the private sector (corporation) will be directly used as additional capital expenditure ( $K$ ). While the capital output ratio ( $c$ ) shows the capital productivity of the economic output ( $K / Y$ ). So, the positive effect of sukuk will depend on the productivity of the proceeds which have known by the prospectus.

Considering the results of the Granger causality test, VAR, and VD, in aggregate, sukuk market has positive influence on Indonesian GDP. While in detailed, domestic sovereign sukuk market has the biggest influence on Indonesian GDP. Sovereign bond funds can be freely used for various purposes that primarily finance the APBN (Government Budget) deficit, closing short-term cash shortages due to inconsistencies between the cash flow of revenues and expenditures from the state treasury account (Rekening Kas Negara)

within a budget year, as well as managing debt portfolio (Law of the Republic of Indonesia Number 24 Year 2002 on Sovereign Debt Securities Article 4 points a, b, c). According to Suminto (2017), insignificant impact of sovereign bonds to GDP is caused by the use of bond proceeds prior to 2014 is relatively large, earmarked for unproductive subsidies rather than for productive capital expenditure. Meanwhile, most of the funds generated by sukuk are consistently allocated for capital expenditure. Graph 4.2 shows comparison between expenditure on subsidies and capital expenditure.



**Graph 4.2: Comparison of Subsidies and Capital Expenditure (in billion rupiah), Government Financial Statements**

Unlike bonds, sukuk is relatively more directed for the economic development use. Sovereign sukuk has a lot bigger proportion than corporate sukuk in Indonesia financial market. While the sovereign sukuk instruments traded in Indonesia are dominated by the Retail and Project-Based Sukuk. This sukuk is predominately used for government projects and the funds are mainly directed towards infrastructure development programmes (energy, telecommunications, transportation, agriculture, manufacture, and property), the provision of public services, the empowerment of local industries, and other development programmes in accordance with the government's strategic plan. So, it is logical to say that domestic sovereign sukuk has a concrete positive influence on GDP shock while domestic corporate sukuk has not.

In the reverse direction, only domestic sovereign sukuk market which significantly influenced by GDP. It positively responds to the shock in GDP. The positive influence that GDP gives on domestic sovereign sukuk proves the theory of bond demand. Which means that an increase in GDP or public purchasing power in general also increases the number of outstanding sukuk. Even though the liquidity of sukuk is relatively low, Said *et al.* (2013) found that the market share of sukuk is dominated by investors who tend to be passive and hold until the end of the maturity (hold to maturity type of investor). It shows that sukuk has their own market segment, and its segment growing quite fast. Other possible reason for the underlying result is a relatively high return of sovereign sukuk. And because it is sovereign, it is quite promising and relatively has no risk.

## 6. CONCLUSIONS AND RECOMMENDATION

By this research, we can confidently conclude that the effects of sukuk market developments on GDP depend on the productivity of using the funds. Sukuk require its underlying assets must be executable by the investor when default occurs. So, at least sukuk issuance will have an impact as much as the underlying assets. It could leverage GDP more than its underlying assets depend on its productivity uses. Moreover, the positive influence of sukuk is almost certainly due to the characteristics of the securities that would require to be used for profitable use.

The government is urged to provide greater incentives to encourage the development of the sukuk market which has proven to have a positive impact on the economy. As the current government is heavily committed to building infrastructure, it is strongly advised to issue more sukuk. In future research, other variables such as the international sovereign bond and sukuk market could be incorporated into the model to explore whether the risk of exchange rate fluctuation could be minimized using sukuk.

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