

The Effects Of Assets And Liabilities On Sovereign Sukuk : ARDL Analysis For Islamic Bank

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ABSTRACT

The new government regulation on Islamic finance sector has contributed to the growth of Islamic banking in Indonesia. However, the higher demand of financing in Islamic banking business activities not followed by the good growth of funding. This condition, may cause liquidity problem in the future. Furthermore, Islamic bank need to diversify the allocation of funding sources to liquidity instruments such sovereign Sukuk (SBSN) at the right time in order to reduce liquidity risk. This paper aims to analyze the effects of assets and liabilities on sovereign Sukuk (SBSN) based on model Autoregresif Distributed-Lag (ARDL) for Islamic Bank. The data for Islamic Bank collected from The Financial Services Authority of Indonesia (OJK), and sovereign sukuk data collected from Directorate General of Budget Financing and Risk Management Ministry of Finance (DJPPR). Assets and liabilities determinants factors like, third parties fund / DPK (saving and current account), Musharakah, Murabahah, Cash, deposits account owned by Islamic Bank in Central Bank (giro BI), Islamic Securities owned by Islamic bank, and previous period of sovereign sukuk ownership. In general, results of this study shows that the effects of assets and liabilities on sovereign Sukuk (SBSN) influence significantly positif by third parties fund / DPK (saving and current account), Musharakah Financing, and previous period of sovereign sukuk ownership. Whereas influence significantly negative by Cash, deposits account owned by Islamic Bank in Central Bank (giro BI), Islamic Securities owned by Islamic bank, and Murabahah Financing.

KEYWORD: *Assets and Liabilities, Islamic Bank, and Sovereign Sukuk*

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I. Introduction

The growth of Islamic finance in Indonesia begin after government regulation about Islamic banking is issued. Over time, the ability of Islamic banking in expanding its business activities is increasing in line with high Financing to Deposit Ratio (FDR) roughly 90% - 100%. However, high Islamic banking financing is not followed by the good growth of funding. Such condition can make Islamic banking have liquidity problem in the future.

Liquidity risk as defined by Islamic Financial Services Board (IFSB) is the potential losses on Islamic banking caused by inability to fulfill its obligations or to fund increasing assets in the due time. Liquidity risk in banking sector generally can have a systemic impact, Ismal (2011) explain that liquidity risk might affect on insolvency risk, bail out risk and reputation risk. On the other side, liquidity risk is main cause in banking crisis these days (Wuryandani dkk:2014). Banking crisis caused by liquidity risks include the banking crises occurring in 1997-1998s in Indonesia. Subprime mortgage crises in the early 2007 occurring in USA and other crises form in 2008 are caused by liquidity. Based on such conditions, liquidity management become main factor in banking institution especially in Islamic banking (Ismal, 2011; Asy'arie, 2013; Muljawan, 2014).

The condition of Islamic banking in Indonesia based on previous research reveal that Islamic banking in Indonesia is very vulnerable to liquidity risk. Such statement is supported by Ismal (2008) stating that generally customer motivations in saving their money in Islamic banking are as follows: Firstly, short-term profit motive. This kind of motive still dominate among Islamic banking depositor. Secondly, transaction or business motive. This motive is conducted by a small percentage of depositors. The last one, some depositors do not understand about funding activity from their funds saved in Islamic banking.

Actually, the problem of liquidity risk can be avoided with good liquidity management. One of the efforts of liquidity risk management is to diversify the allocation of funding sources to liquidity instruments at the right time in order to reduce risk of loss (Direktorat Penelitian dan Pengaturan Perbankan, 2009). Therefore, Islamic bank is required to place some funds on liquidity instrument which is sovereign *Sukuk* (SBSN). However, base on data from DJPPR-Ministry of Finance Republic of Indonesia show that sovereign *Sukuk* ownership by Islamic bank tends to a small percentage, such as in 2016 approximately 7.75%. Whereas, in the same year conventional bank has portion about 35.61% of sovereign *Sukuk* ownership as a whole. Such phenomena indicate that sovereign *Sukuk* issued by government as a means to improve Islamic financial system in Indonesia has not been optimized yet by Islamic banking institution.

The placement of Islamic bank funds in financing activities depends on the asset and liability management of Islamic bank itself. Therefore, factors which have potential influence for Islamic bank to invest in sovereign *Sukuk* consist of factors in Islamic bank asset and liabilities. Liability factors consist of saving and giro. Fur, asset factors consist of *Murabahah* financing, *Musyarakah* financing, reserve requirement in Central Bank (Bank of Indonesia), other Islamic securities ownership and cash. Furthermore, to find out the relationship of Islamic bank sovereign *Sukuk* ownership to bank performance can conduct analysis through correlation test sovereign *Sukuk* variable toward Islamic bank performance indicators represented by profitability performance (Return on Asset/ROA), liquidity/intermediary performance (Financing to Deposit Ratio/FDR), and equity performance (Capital Adequacy Ratio/CAR).

The methods used in this study are quantitative and qualitative method, using time series data where data is collected from time to time in form of secondary data and retrieved from Directorate General of Budget Financing and Risk Management (DJPPR) and Financial Authority Service (OJK) website per April 2009 – November 2016. Moreover, this study uses regression model using *Autoregressive Distributed-Lag (ARDL)*. Whereas to get qualitative data, this study uses deep interview with some expert Islamic bank practitioners.

II. Literature Review

1.1.1. Sovereign *Sukuk* (SBSN)

Sovereign *Sukuk* as stipulated in the Law of the Republic of Indonesia Number 19 Year 2008 concerning *Surat Berharga Syariah Negara* further abbreviated as SBSN, or also called government securities issued under Islamic principles has purpose for state budget financing (APBN) including project development financing such as infrastructure and energy project, telecommunication, transportation, agriculture, manufacturing, and public housing sectors.

The benefits of investing in sovereign *Sukuk* generally provide competitive returns and safe investment as guaranteed by the government (issuer), can be traded on the secondary market and certified by Indonesian Council of Ulama through DSN-MUI No.69/DSN-MUI/VI/2008.

Particular benefit of the issuance of sovereign *Sukuk* (SBSN) in short-term Islamic treasury bills), is useful for developing Islamic financial market locally and covering short-term cash shortages. Islamic bank which invests in SBSN in short term can be a tool in managing short-term liquidity (Buku Tanya Jawab SBSN, 2010).

1.1.2. Islamic Banking

Islamic banking is a bank operating without interest system as described by Perwataatmadja and Antonio (1997) that Islamic banking is bank that operates in accordance with Islamic principle or in accordance with the procedures of operation referring to Qur'an and Hadith. Based on that description can be concluded that Islamic banking is bank ruled by Islamic foundation such as prohibition of *Riba*, *Gharar*, and *Maisir*. (Muhammad, 2014).

Islamic bank, like financial institutions in general is institution that conducts the financial intermediary process from surplus units to deficit unit among business sectors, government agencies and individuals. The fundamental difference between the Islamic banking and conventional banking is that Islamic banking must comply with Islamic compliance while conventional bank does not.

Main Islamic principles in Islamic finance activities according to Arifin (2009), Soemitra (2009), Muhammad, Sukmana and Omar (2013) include prohibition and suggestion. The prohibitions in Islamic principles are:

- 1) Prohibition of interest (*riba*).
- 2) Avoiding *gharar* (*ambiguity*) in every transaction.
- 3) Prohibition of gambling (*maisir*) or speculation.
- 4) Avoiding invalid transaction (*batal*).
- 5) Prohibition to produce goods banned in Islam such as pork, dog.

Meanwhile, the Islamic principle encouraged in economy activities as follows:

- 1) Using Islamic trade and commerce principles.
- 2) Implementing fair profit sharing which is allowed in Islam
- 3) Paying *Zakat*

The activities of Islamic banking and other Islamic financial institutions are required to obey Islamic principles. Meanwhile, Financial activity in Islamic banking as intermediary institution generally include funding and financing activities. Fund management in Islamic banking is basically an activity to receive money and to distribute money as a means to achieve good liquidity, profitability and solvency (Muhammad, 2014).

1.1.3. Asset and Liability Management

Asset and liability management is a set of actions and procedures designed to control the financial position. Subsequently, bank security and health issues are an important thing in asset and liability management. Therefore, the purposes of these management are to measure bank health, anticipate in changing external factors such as interest rate, exchange rate, inflation, asset and liability controls a way to get optimum profit for Islamic banking. (Muhammad, 2014).

1.1.4. Liquidity Management

Bank liquidity according to Bank for International Settlements (BIS) (2008) is bank ability to fund asset increase and fulfil obligation without causing any harm. The same way explained by Antonio (2001) that liquidity is capability to fulfil cash flow as soon as possible and appropriate cost. Based on the previous description, liquidity risk in Islamic banking is a potential loss in Islamic banking arising from the inability of the bank in fulfilling its obligations or funding the increase of assets in due time. The occurrence of liquidity risk according to BIS (2008) and Ismal (2010) is largely due to the management of banks in transforming short-term funding to long-term financing. Such condition lead to liquidity problem.

2. Data and Methodology

2.1. Data Type and Sources

This study uses secondary data retrieved from Directorate General of Budget Financing and Risk Management (DJPPR) and Islamic banking statistic published by Financial Services Authority (OJK) from April 2009 to November 2016. The results of the study is conducted by deep interview with some head of treasury in Islamic banking.

2.2. The Method of Data Analysis

Analysis method used in this study is *Autoregressive Distributed Lags (ARDL)*, This model combines *Autoregressive* and *DistributedLags* model. This model is used to analyze time series data where dependent variable can be influenced by independent variable at certain period. Fabozzi *et al* (2006) stated that “an *ARDL* model regresses a variable over its own past plus the present and past values of a number of exogenous variables”. On the other hand according to Gudjarati (1991) *ARDL* analysis involve time series explaining not only variable in the present but also in the past (*lagged*). The following is model of *ARDL* model of this research:

$$\Delta(SBSN_t) = c + \beta_1\Delta(SBSN_t) + \beta_2\Delta(TB_{t-i}) + \beta_3\Delta(G_{t-i}) + \beta_4\Delta(KAS_{t-i}) + \beta_5\Delta(BI_{t-i}) + \beta_6\Delta(SC_{t-i}) + \beta_7\Delta(MR_{t-i}) + \beta_7\Delta(MS_{t-i}) + \varepsilon_t(2.1)$$

Explanation :

$\Delta(SBSN_t)$ = (Y) Total of sovereign *Sukuk* ownership by Islamic banking which have been differentiated and lagged

C = Coefficient

$\Delta(TB_{t-i})$ = (X₁) Total of saving in Islamic banking which have been differentiated and lagged

$\Delta(G_{t-i})$ = (X₂) Total of giro in Islamic banking which have been differentiated and lagged

$\Delta(KAS_{t-i})$ = (X₃) Total of cash in Islamic banking which have been differentiated and lagged

$\Delta(BI_{t-i})$ = (X₄) Total of giro in central bank owned by Islamic banking which have been differentiated and lagged.

$\Delta(SC_{t-i})$ = (X₅) Total of Islamic securities owned by Islamic banking which have been differentiated and lagged

$\Delta(MR_{t-i})$ = (X₆) Total of *Murabahah* financing in Islamic banking which have been differentiated and lagged

$\Delta(MS_{t-i})$ = (X₇) Total of *Musyarakah* financing in Islamic banking which have been differentiated and lagged.

ε_t = Error term

2.3. Prerequisite Test for Model

Based on assumption in *ARDL* model, the following are pre-uation test for this model:

- 1) *Stationarity Test*
- 2) *Lag Test*
- 3) *Classic Assumption Test*
- a) *Normality Test*
- b) *Multicollinearity Test*
- c) *Autocorrelation Test*
- d) *Heteroscedasticity Test*
- 4) *Stability Test (Cusum Test / Ramsey Test)*

III. Result And Discussion

2.4. Prerequisite Test Results

2.4.1. Stationarity Test

Stationary test result is presented on the unit root test result of each variable using *Aughtment Dickey-Fuller (ADF)* and *Philips-Perron (PP)*. Unit root test results show that data succeed in first difference as a whole. Therefore, the whole data should be transformed in first difference (Δ). After data in first difference, ADF and PP test results on Δ SBSN, Δ TB, Δ GIRO, Δ KAS, Δ BI, Δ SC, Δ MR, and Δ MS variable have smaller α value than p-value 0,05, so this test can be concluded that whole variables have been stationary in average.

2.4.2. Identification of The Optimum Lag

Determination of optimum lag in ARDL model can be conducted using two way. Firstly, based on *Akaike Info Creation (AIC)* and *Schwarz Information Creation (SC)*. In this study, optimum lag is AIC and SC value which have smallest value. Secondly, using *Alt* and *Timbergen Method*, such methods use sequential procedures to obtain optimum lag of ARDL model starting from testing regression Y_t to X_t and X_{t-1} . After that testing regression Y_t to X_t, X_{t-1}, X_{t-2} , etc. until regression coefficient of lag variable change sign from (+) to (-) or otherwise (Gudjarati, 1995).

Based on regression test result as a whole using Alt and Timbergen Method, There are significant value of variable in lag 0 consisting of Δ TB, Δ KAS, and Δ BI. Meanwhile, significant value of variable in lag 1 consists of Δ SBSN dan Δ SC. Furthermore, significant value of variable in lag 4 is Δ MS, the other variable which has significant value in lag 5 is Δ MR.

2.4.3. Normality Test

Normality test can be identified by *Jarque-Bera* test. The result shows that error in this model is normal. This model has *Jarque-Bera* i.e. 0.597050 and *P-Value* i.e. 0.741912, *P-Value* is above critical value i.e. 0,05.

2.4.4. Multicollinearity Test

The result of this test shows that coefficient value for each independent variable less than 0.8. In addition to that, VIF value < 5 . Therefore, this model can be concluded that there is no multicollinearity problem.

2.4.5. Autocorrelation Test

Autocorrelation problem can be identified by *LM-Series* test, if *prob chi square* is more than 0.05, it can be concluded that error in this model does not have correlation serial problem and otherwise. The results of the LM-series test in this model show that the *F-Static* value i.e. 0.1354152 with *Prob chi-Square* value i.e. 0.2234. Therefore, there is no auto-correlation problem in this model.

2.4.6. Heteroscedasticity Test

This test used *Breusch-Pagan-Godfrey* test, the result shows that *p-value* referred to *prob- Chi square* in *Obs* R-Square* is 0.2354. Based on this test, can be concluded that *p-value* is bigger than significance value i.e. 0,05. Consequently, this model does not have heteroscedasticity problem.

2.4.7. Stability Test (Cusum Test / Ramsey Test)

Cusum test or called by *stability test* shows that model with lag 1, lag 4, dan lag 5 are in stable condition. That can be proved by cusum line in red line in which it is in significant line 0,05.

2.5. The Analysis of Results

The following is ARDL regression estimation using *E-views 09*:

$$\Delta(SBSN_t) = c + \beta_1\Delta(SBSN_{t-1}) + \beta_2\Delta(TB) + \beta_3\Delta(GIRO_{t-5}) + \beta_4\Delta(KAS) + \beta_5\Delta(BI) + \beta_6\Delta(SC_{t-1}) + \beta_7\Delta(MR_{t-5}) + \beta_8\Delta(MS_{t-4}) + \varepsilon_t \quad (3.2)$$

The explanation toward hypothesis testing can be concluded that $H_{01}, H_{02}, H_{03}, H_{05}, H_{06}, H_{07}$, dan H_{08} are rejected as significant value < 0.05 . In the other words, Independent variables which are SBSN(-1), saving account, current account (-5), deposit account in central bank (BI), Islamic securities (-1), *murabahah* financing (-5), and *musyarakah* financing (-4) influence significantly toward dependent variable (Y) sovereign sukuk ownership by Islamic bank. Opposite result show that H_{04} is accepted as significant value > 0.05 . Therefore, cash variable does not effect to dependent variable (Y) i.e. sovereign Sukuk ownership by Islamic Bank.

Tabel 3.1
Model Estimation for Sovereign Sukuk Ownership Using ARDL

<i>Dependent Variable : D(SBSN)</i>				
<i>Independent Variable</i>	<i>Coefficient</i>	<i>t-statistic</i>	<i>Prob</i>	<i>Conclusion</i>
ΔSBSN (-1)	0.185763	2.047856	0.0440	H ₀ ₁ rejected
ΔTABUNGAN	0.227511	3.575523	0.0006	H ₀ ₂ rejected
ΔGIRO (-5)	0.116060	2.448010	0.0166	H ₀ ₃ rejected
ΔKAS	-0.175198	-1.909522	0.0599	H ₀ ₄ accepted
ΔBI	-0.079111	-3.279420	0.0016	H ₀ ₅ rejected
ΔSQ(-1)	0.163321	4.129829	0.0001	H ₀ ₆ rejected
ΔMR (-5)	-0.026931	-2.144781	0.0351	H ₀ ₇ rejected
ΔMS(-4)	0.165552	2.098157	0.0392	H ₀ ₈ rejected
CONSTANT	-80.56457	-0.903774	0.3689	H ₀ ₉ accepted
<i>Diagnostic Analysis</i>		<i>Value</i>	<i>P-Value</i>	<i>Conclusion</i>
<i>R-squared</i>		0.417917		
<i>Adjusted R-Square</i>		0.357441		
<i>Residual Sum of Square</i>		527.4294		
<i>Akaike Info Criterion</i>		15.47267		
<i>F-statistics</i>		6.910444	0.000001	
<i>Jarque Bera</i>		0.597050	0.741912	H ₀ accepted
<i>LM test</i>		1.354152	0.2234	H ₀ accepted
<i>ARCH LM test</i>		0.532523	0.4617	H ₀ accepted
<i>Ramsey Test</i>		3.576440	0.0624	H ₀ accepted

Source: Processed by *E-views09*.

Table above indicates that coefficient value of determination (*R-Squared*) reaches 0.417917, it means that independent variables are able to explain dependent variable in 41.79%. It can be predicted that there are some external variables outside asset and liabilities affecting independent variable such as decision in Asset and Liability Committee (ALCO), characteristic of Islamic bank costumers and internal factor beyond bank control.

The result of simultaneous test in this study shows that *F-Statistics* is 6.910444 and *p-value* is 0.000001, it means *p-value* < 0,05. So, It can be concluded that F test accepts alternative hypothesis (H_α) and reject H₀. The conclusion is independent variables influence dependent variable simultaneously.

Furthermore, the following is correlation test between sovereign *Sukuk* (SBSN) ownership by Islamic bank and Islamic bank ratio performance:

Tabel 3.2
Coefficient of Correlation

Islamic Bank Ratio Performance	SBSN (Y)
ROA (Y1)	-0.593353
FDR (Y2)	-0.333123
CAR (Y3)	0.199357

Source : Processed by *E-views09*.

The correlation test results in table 4.1 shows the value of $r > 0$ in all variables, it can be interpreted that SBSN or sovereign *Sukuk* ownership by Islamic bank toward Islamic banking performance has a fairly close correlation. The correlation value to Islamic banking profit performance (ROA) has a negative relationship by 59%, intermediary performance (FDR) has also negative relationship by 33%. But, the correlation toward Capital Adequacy Ratio (CAR) has a positive correlation by 19%.

Discussion of negative relationship between SBSN ownership by Islamic bank and Islamic bank profit performance (ROA) is contrary to previous research (Said, 2011; Azwar, 2014). In Said (2011) and Azwar (2014) studies, the ownership of SBSN by Islamic bank positively relates to bank profits. Negative relationships in this study may be due to the yield factor offered by the SBSN instrument, the SBSN yields tends to be lower than the average rate of return on other bank assets.

As Islamic banking statistics show that Islamic bank asset instruments, such as *mudharabah* financing has yield (*nisbah*) average by 17.30%, *musyarakah* by 12.88%, and average margin for *murabahah* by 14.76%. The average value of returns offered by SBSN instruments such as in the PBS series, as data retrieved from DJPPR Ministry of Finance on the auction plan February 20, 2018 offers SBSN return with an average rate of return by 6.55%. Based on the data described, Islamic bank activities that has potential to generate profits from the assets side are mostly on *mudharabah*, *murabahah*, and *musyarakah* financing. So Investing Islamic bank funds on SBSN is less profitable than investing on other instruments. Therefore, the negative relationship in this study becomes rational economically.

Meanwhile, the correlation test between the SBSN ownership factor on the liquidity / intermediary performance factor measured by Financing to Deposit Ratio (FDR) shows r value by -0.333123. This means that in the correlation test results there is a moderate and negative relationship between SBSN ownership and the liquidity performance of Islamic bank. The result of this research is accordance with previous studies from

Azwar (2014) and Miyajima (2017). The previous research shows that securities owned by Islamic and conventional banking has negative correlation against Financing to Deposit Ratio (FDR). Consequently, it relates to profit performance (ROA) in Islamic banking.

Based on these results, the allocation of Islamic bank funds in sovereign *sukuk* must be maintained its level of stability, it means in balance position. Azwar (2014) states that the ownership of Islamic securities by Islamic too aggressive will reduce financing activities to society and have potential in decreasing financing performance (financial deepening). As a result, if financing activities are in lower condition, automatically Islamic banking profitability will be low.

Moreover, other correlation test result shows positive relationship between the SBSN ownership to CAR, the result is in accordance with the previous research. Said (2011) explains that there is positive correlation between securities ownership by Islamic and conventional banking against Capital Adequacy Ratio (CAR). Based on that conditions, research result by Kumhof and Tanner (2005) and Degirmen (2007) states that most of bank investing on Islamic or conventional securities issued by government are to avoid high risk financing. The allocation of bank fund on securities is assumed to reduce risky asset share. Another motive of the allocation of Islamic bank fund in securities is to optimize funds in financing, so as to avoid cost of fund. Hence, Islamic banking can reduce idle fund which is not absorbed by financing and will increase profitability as SBSN offers competitive margin. Automatically, The high Islamic bank profit is, the high capital adequacy ratio will be.

IV. Conclusion

Conclusions in this study are obtained based on the analysis and discussion results generally and particularly. In general factors affecting SBSN ownership by Islamic banking in terms of assets and liabilities using *ARDL* model significantly influence with the level of trust 90%. This model is able to explain by 41.79% because there are external factors affecting sovereign *sukuk* ownership outside asset and liability aspect such as decision in Asset and Liability Committee (ALCO), characteristic of Islamic bank costumers and internal factor beyond bank control.

The particular conclusions of this study that SBSN ownership by Islamic banking is still highly dependent on the ability of Islamic banking collecting third party funds such as saving account and current account. Thus saving account and current account has high liquidity fund, it means the fund should be place at the high liquidity financing such as SBSN. Moreover, variable such as *Murabahah* financing and *Musyarakah* Financing also has effect to (Y) SBSN ownership by Islamic banking because thus financing are The most larger financing product used by Islamic Bank in Indonesia. Other variables that has effect to the portion of SBSN ownership by Islamic banking such: cash, the ownership of Islamic securities by Islamic Bank, deposit account in Central Bank, and previous SBSN ownership by Islamic Bank. Furthermore, correlation test results show that SBSN ownership by Islamic banking has a negative relationship on profit growth (ROA). Consequently however, it will influence Financing to the Deposit Ratio (FDR) growth and ability to maintain performance of Capital Adequacy Ratio (CAR) position.

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