The Growth of Islamic Banking and SMEs Financing in Indonesia

Ahmad Syarif
Graduate Student of Economics UGM

Abstract

This research presented Islamic Banking which continuously experienced growth in the banking system in Indonesia. Banking was expected to strengthen the SMEs in accessing the business financing with the concept of profit and loss sharing. This research was done to find out whether the increasing growth of Islamic Banking gave a positive response to the SMEs financing and other variables in line with the rising of Islamic Banking portofolio. The study was based on secondary data and mostly collected from the Islamic Banking Statistics 2011-2015 published by Bank Indonesia. Method of Vector Error Correction Model (VECM) was used for data analysis and variables were financing in SMEs (UKM), depositor funds (DPK), non performing financing (NPF), number of worker (PKJ) and financing to desposit ratio (FDR). The result of the dynamic response analysis that the variables of Islamic Banking contributed positively to the financing of SMEs in Indonesia. DPK (2.17%), FDR (1.26%), NPF (1.2%) and PKJ (4.68%) contributed to the SMEs growth. The interesting findings were the similarity of the results of VECM Analysis, IRF Analysis and Variance Decomposition Analysis who asserted the need of Depositor Funds (DPK) as the driver of SMEs growth in Indonesia.

Keywords: Islamic Banking, Small and Medium Enterprises (SMEs), Vector Error Correction Model (VECM)

Abstrak

Penelitian ini dipresentasikan Perbankan Islam yang terus mengalami pertumbuhan dalam sistem perbankan di Indonesia. Perbankan diharapkan untuk memperkuat UKM dalam mengakses pembiayaan bisnis dengan konsep profit and loss sharing. Penelitian ini dilakukan untuk mengetahui apakah peningkatan pertumbuhan perbankan syariah memberi respon positif terhadap pembiayaan UKM dan variabel lain sejalan dengan meningkatnya portofolio Perbankan Islam. Penelitian ini didasarkan pada data sekunder dan sebagian besar dikumpulkan dari Statistik Perbankan Syariah 2011-2015 yang diterbitkan oleh Bank Indonesia. Metode Vector Error Correction Model (VECM) digunakan untuk analisis data dan variabel pembiayaan di UKM (UKM), DPK (DPK), non performing financing (NPF), jumlah pekerja (PKJ) dan pembiayaan untuk rasio desposit (FDR). Hasil analisis respon dinamis yang variabel Perbankan Syariah memberikan kontribusi positif terhadap pembiayaan UKM di Indonesia. DPK (2,17%), FDR (1,26%), NPF (1,2%) dan PKJ (4,68%) memberikan kontribusi terhadap pertumbuhan UKM. Temuan menarik adalah kesamaan hasil Analisis VECM, Analisis IRF dan Variance Analisis Dekomposisi yang menegaskan kebutuhan Deposan Dana (DPK) sebagai pendorong pertumbuhan UKM di Indonesia.

Kata Kunci: Bank Islam, Small and Medium Enterprises (SMEs), Vector Error Correction Model (VECM)

Introduction

Small and Medium Enterprises (SMEs) play a very important role in contributing to economic development in many countries. This is supported by many researchers such as Holcombe (1995), Khandker (1998), Otero and Rhyne (1994), and Remenyi (1991) where in a way they agreed that SMEs are considered as "driving engine" of economic growth and hence, it act as stimulants towards reducing poverty and unemployment at national level. In the case of Indonesia, SMEs account for more than 90 percents of all companies and in employment

Small and Medium Enterprises (SMEs) are usually feeder industries for larger industries and they are crucial for economic growth and development (Kongolo, 2010). Small and medium enterprises (SMEs) are now considered to be the major source of dynamism, innovation and flexibility in emerging and developing countries, as well as to the economies of most nations. They contribute substantially to economic development and employment generation (Koh et al., 2007).

Small and Medium Enterprises (SMEs) form as a potential economic back-bone of many regions and make a large contribution to employment than large companies (Chin et al. 2012). But, although they play a crucial role in economic growth and employment the Small and Medium Enterprises (SMEs) in developing countries face a financing gap (Beck and Demirguc-Kunt, 2006; Dube, 2013) related to difficulties in small and medium enterprises (SMEs) access to finance that undermines economic prosperity Small and Medium Enterprises (SMEs) are a fundamental part of the economic fabric in developing countries, and they play a crucial role in furthering growth, innovation and prosperity. Effort to overcome one of the problems relating to the financing of SMEs is the use of implementing community development approach that has the potential sustainability. Islamic Banking can be the hope for the development of SMEs with the concept for the results and build community spirit of the medium in the development of SMEs that actually develop the economic potential.

Based on the provisions of Article 1 (13) of Law No. 10 of 1998, Sharia interpreted as treaty rules based on Islamic law between the bank and other parties to deposit funds and or finance business activities or other activities stated in accordance with sharia, among others financing based on the principle of profit

sharing (*mudharabah*), financing is based on the principle of equity (*musharakah*), the principle of buying and selling goods with profit (*murabahah*), or the financing of capital goods is based on the principle of rent pure without selection (ijara), or with the selection of the transfer of ownership of goods leased from the bank by another party (*ijara wa iqtina*).

By looking at understanding Islamic principles as stated in Article 1 paragraph 13 of Law No. 10 of 1998, it remains clear that Islamic Banking products are more varied in comparison with conventional bank products. Where it is felt the product on Islamic banks can meet the needs of depositors and debtors in accordance with their real needs. Especially in terms of distribution of benefits to society, the financing scheme can be tailored to customers' requirements.

While the economic sector in Indonesia is factually supported mostly by Small and Medium Enterprises, or known by the acronym SMEs. At the time of the economic crisis also appeared this sector is able to survive, meaning that the SME sector has an advantage and the potential to be developed further through an appropriate policy and support from the appropriate institution. The main problems faced by the SME sector in the form of capital, where sometimes in obtaining capital from banks in trouble. One of the things that led to this case is the high lending rates and the need for material guarantees (collateral minded) which are difficult to fulfill.

With the splendor of the development of Islamic Banking sector, especially after Law No. 10 of 1998, it is expected to further help the development of SME's. Through financing provided by Islamic banks with different characteristics to the credit loan of conventional banks, SMEs will be able to meet the capital requirements referred. The existence of Islamic Banking can be hope for SME development with the concept of profit and loss sharing and become an alternative source of financing for SMEs. The development of Islamic Banking has experienced unprecedented growth, both in terms of asset growth and the growth of institutional or network. However, the rapid growth of Islamic Banking does provide a positive response in the SME finance portfolio, increasing in line with rising Islamic Banking portfolio for the finance portfolio in the SME sector.

The purpose of this study as follows:

1) to describe the effects of the Growth Variables of Islamic Banking in financing portofolio in the SME sector

2) to analyse the dynamic response of SMEs to shocks the variables of Islamic Banking

Literature Review

Researchers have written much about the financial concerns of SMEs. Typically, studies focus more on the critical reasons that prevented SMEs from using available financial packages. The Philippine Senate (2012) identified access to finance as the most serious constraints to MSME growth and development. Aldaba (2012) underscored that SMEs had been unable to access funds because oftheir limited track record, limited acceptable collateral, and inadequate financial statements and business plans. Banks turn down financial requests of SMEs because of poor credit history; insufficient collateral; inadequate sales, income or cash flow; unstable business type; and poor business plans.

Sastrawan et al. (2013) resulted that the development of Islamic Banking is influenced by the variable of operational expenses ratio to operational revenue, financing in SMEs, depositor funds, non performing financing, number of worker, and asset growth. Data analysis is used for Method of Vector Autoregression (VAR) and inferential statistics to find out the office channneling policy to sharia banking variables.

Numerous studies that use firm-level survey data demonstrate that access to finance and the cost of credit do not only pose barriers to SME financing, but also constrain SMEs more than large firms. Small firms find it difficult to obtain commercial bank financing, especially long-term loans, for a number of reasons, including lack of collateral, difficulties in proving creditworthiness, small cash flows, inadequate credit history, high risk premiums, underdeveloped bank-borrower relationships and high transaction costs (IFC, 2009). This is evidenced in the works of Scholtens (1999), Schiffer and Weder (2001), Galindo and Schiantarelli (2003), IADB (2004), Beck *et al.* (2006), and Beck and Demirgüç-Kunt (2006). In particular, Beck et al. (2008a) conclude that smaller firms and firms in countries with underdeveloped financial and legal systems use less external finance, based on data from a firm-level survey in 48 countries.

Data and Methodology

The study conducted on Islamic Banking were Islamic banks and business units Sharia, started in February to March 2016. The data used was secondary data

in the form of monthly statistics derived from Indonesian Financial Statistics - Bank Indonesia (SEKI-BI) and the Indonesian Islamic Banking Statistics (SPS-BI). Data was a monthly time series data from the years 2011-2015, there were six variables used in the study, namely: 1). Funding granted Islamic Banking in the SME sector (UKM); 2) Depositor funds (DPK); 3). Non Performing Finance, which is the ratio of financing nonperforming loans to total financing (NPF); 4) The number of workers as human resources in Islamic Banking (PKJ); 5) Financing to desposit ratio, which is the ratio of financing problems of the total financing. Processing and data analysis use statistical software of Eviews 8 and Microsoft Excel.

Analysis Model

Vector Autoregression Method (VAR) is a system of equations showing each variable as a linear function of the intercept and the value of the variable lag itself as well as the lag value of other variables that exist in the system. VAR ordo p with n as a dependent variable of time t can be modeled as in equation 1 (Enders 1995).

$$Yt = Ao + A1\ Yt\text{-}1 + A2\ Yt\text{-}2 + \ldots\ldots + Ap\ Yt\text{-}p + ut \quad ...(1)$$

Explanation :

Yt = vector of dependent variable (Y1t, Y2t,…Ynt) sized n x 1

A0 = vector of intercept sized n x 1

Ai = parameter matrix sized n x n, for every y = 1,2, ..., pk

ut = vector of residual (u1t, u2t,…unt)

VAR analysis method is used when the data is stationary and has no cointegration. Whereas if the data used is not stationary but has cointegration, analysis methods of Vector Error Correction Model (VECM) used. VAR model is a form autoregressive caused by the rise of the value of lag disturbance of the dependent variable and the error term on the right side of the equation. The models VAR in matrix form as follows:

$$\begin{bmatrix} UKM_t \\ DPK_t \\ FDR_t \\ NPF_t \\ PKJ_t \end{bmatrix} = \begin{bmatrix} a_1 \\ a_2 \\ a_3 \\ a_4 \\ a_5 \end{bmatrix} + \begin{bmatrix} a_{11}a_{12}a_{13}a_{14}a_{15} \\ a_{21}a_{22}a_{23}a_{24}a_{25} \\ a_{31}a_{32}a_{33}a_{34}a_{35} \\ a_{41}a_{42}a_{43}a_{44}a_{45} \\ a_{51}a_{52}a_{53}a_{54}a_{55} \end{bmatrix} \begin{bmatrix} UKM_t \\ DPK_t \\ FDR_t \\ NPF_t \\ PKJ_t \end{bmatrix} + \begin{bmatrix} \epsilon_{1t} \\ \epsilon_{2t} \\ \epsilon_{3t} \\ \epsilon_{4t} \\ \epsilon_{5t} \end{bmatrix}$$

Sixth variables influence each other so that if the VAR model presented in the form of the following equation:

$UKM_t = a1 + \sum b1jUKM_{t-j} + \sum c1jDPK_{t-j} + \sum d1jFDR_{t-j} + \sum e1jNPF_{t-j} + \sum f1jPKJ_{t-j} + \varepsilon 1$

$DPK_t = a2 + \sum b2jDPK_{t-j} + \sum c2jUKM_{t-j} + \sum d2FDR_{t-j} + \sum e2jNPF_{t-j} + \sum f2jPKJ_{t-j} + \varepsilon 2$

$FDR_t = a3 + \sum b3jFDR_{t-j} + \sum c3jUKM_{t-j} + \sum d3jDPK_{t-j} + \sum e3jNPF_{t-j} + \sum f3jPKJ_{t-j} + \varepsilon 3$

$NPF_t = a4 + \sum b4jNPF_{t-j} + \sum c4jUKM_{t-j} + \sum d4jDPK_{t-j} + \sum e4jFDR_{t-j} + \sum f4jPKJ_{t-j} + \varepsilon 4$

$PKJ_t = a5 + \sum b5jPKJ_{t-j} + \sum c5jUKM_{t-j} + \sum d5jDPK_{t-j} + \sum e5jFDR_{t-j} + \sum f5jNPF_{t-j} + \varepsilon 5$

There are some analysis tests :

1. Stationary Test

   The stationary measurement data used Augmented Dickey Fuller (ADF) test. If

   ADF statistic value <MacKinnon critical value then the data is stationary. However, if the value of ADF statistic > MacKinnon critical value then the data is not stationary. If the ADF test has been performed on the data time series and it is known that the result is not stationary then the difference is made non stationary process (Enders 1995).

2. Determination of Optimal Lag

   Determination of the optimal lag is used Akaike Information Criteria (SC), to establish the most optimal level of lag, VAR or VECM model must be estimated with a level different lag. SC smallest value used as a benchmark in the most optimal level of lag, because it describes the the smallest residual (Enders 1995).

3. Cointegration Test

   Cointegration can be interpreted as a long-term relationship between variables

   have met the requirements during the process of integration that is where all the variables have been stationary at the same degree that the degree of co integration 1. Test used is Johansen- cointegration with the hypothesis as follows:

   H0 = no cointegration, H1 = cointegration s

   If the trace statistic > critical value, then reject H0 or accept H1 which means going cointegration. Analysis of Vector Error Correction Model (VECM) can be continued after the number cointegrated equation known.

4. Test and Granger Causality Analysis (Granger Causality)

   To measure the strength of the relationship between variables and show the direction of causality as a result, where X causes Y, Y causes X, or X causes Y and Y causes X. Granger causality test was trusted far more meaningful than the correlation test (Ascarya : 2009).

   The data is processed and analyzed in accordance with the method of analysis used, the following flow chart from process analysis and statistical tests are presented in Figure 1.

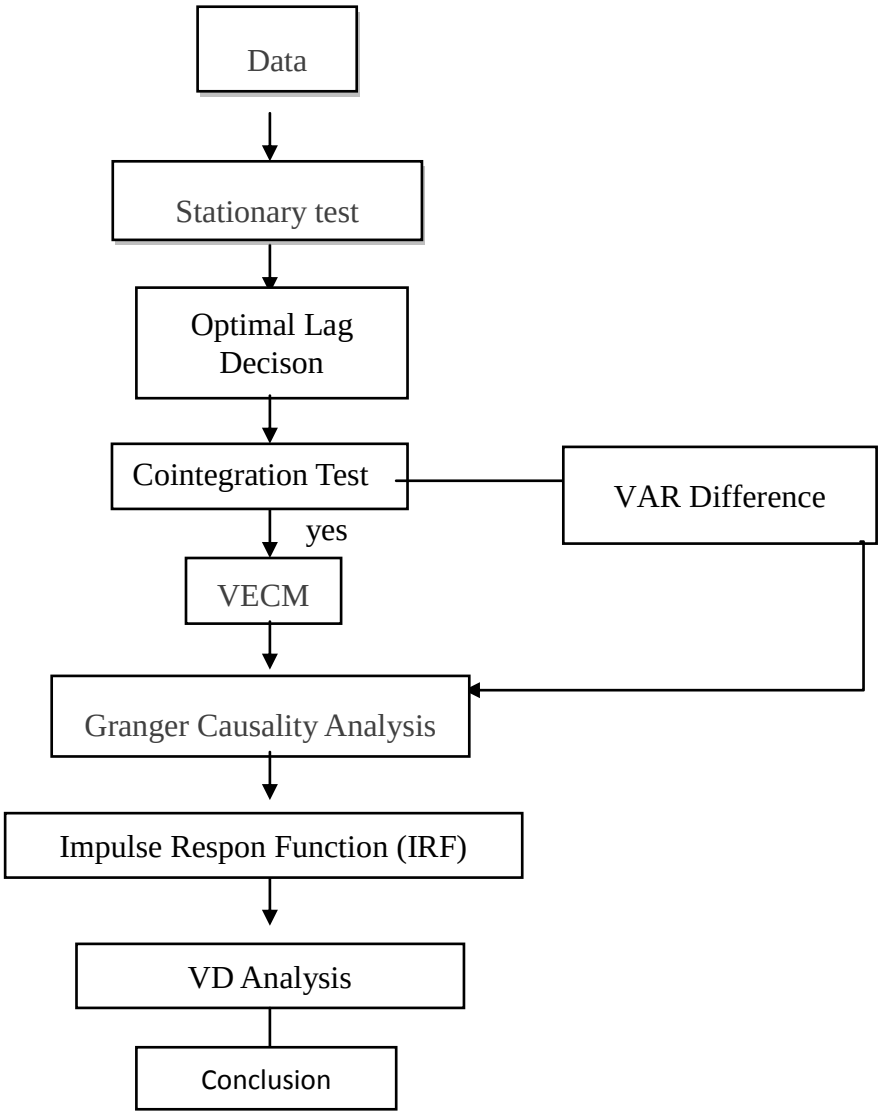

Figure 1. Analysis Process dan Statistical Test

Result and Discussion

1. Unit Root Test

One of the formal concepts that are used to determine the data is through the stationary unit root test (unit root test). This test is a popular test developed by

David Dickey and Wayne Fuller called Augmented Dickey-Fuller (ADF) Test. If a data time series is not stationary on the order zero, I (0), then the stationary data can be searched through the next order to obtain the level of stationary in order n-th (first difference or I (1), or a second difference or I (2), and so on. Augmented Dickey Fuller is tested on 5% significance level. If the ADF t-value is less than the critical value MacKinnon, then the data used is stationary (does not contain a unit root) and vice versa.

Table 1. Stationary test result

Variables	ADF value		MacKinnon Critical Value 5%	
	Level	1 Difference	Level	1 Difference
DPK	-1.650.497	**-7.469.201**	-2.917.650	-2.933.158
FDR	-2.828.098	**-7.846.653**	-2.917.650	-2.918.778
NPF	**-5.592.542**	**-7.734.366**	-2.917.650	-2.919.952
PKJ	-1.904.183	**-2.918.778**	-2.917.650	-6.891.894
UKM	-2.678812	**-2.918.778**	-2.917.650	-7.471.370

Bold number indicates significant at the 5% level

A stationary test result (Table 1) shows the variables in this study don't entirely stationary at the level, except NPF has stationary data. Therefore, the test continues at the level of the first difference, the results of all variables data are stationary at 5% significant level. This means that all data are used in this research on the order of 1. This shows all of the time series data after the difference and the chosen model is the vector error correction model (VECM).

2. Optimal Lag Decison

Table 2. optimal lag test result

Lag	LogL	LR	FPE	AIC	SC	HQ
0	266.2253	NA*	1.61e-11*	-10.66226*	-10.46921*	-10.58902*
1	279.5946	23.46441	2.61e-11	-10.18753	-9.029276	-9.748092
2	291.8068	18.94140	4.54e-11	-9.665583	-7.542111	-8.859941
3	303.6362	15.93346	8.46e-11	-9.128007	-6.039321	-7.956163
4	323.4036	22.59136	1.24e-10	-8.914433	-4.860532	-7.376389

* indicates lag order selected by the criterion

To test the causality and VAR test, it is necessary to determine the optimal lag length, because the causality test and VAR test are very sensitive to many optimal lags. In this research, researcher determines the optimal lag length by looking at the most minimum value of Schwarz Information Criteria (SC). SC lag for each of values (Table 2) is obtained the minimum value at lag 1, so

determining the optimal lag is the lag 1. Further cointegration test, VECM and Variance Estimation Decomposition will be conducted at the optimal lag.

3. Cointegration Test

Table 3. Cointegration test result

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.637185	149.5185	60.06141	0.0000
At most 1 *	0.516448	97.81155	40.17493	0.0000
At most 2 *	0.438305	60.75512	24.27596	0.0000
At most 3 *	0.307535	31.33852	12.32090	0.0000
At most 4 *	0.218846	12.59614	4.129906	0.0005

Trace test indicates 5 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Johansen Cointegration test with cointegration testing criteria based on trace statistics, if the value of the trace-statistics < critical value, the value of the variable is not cointegrated. Conversely, if the value of the trace-statistics > critical value, the value of the variable cointegrated. Cointegration test result (Table 3) shows that there are five cointegrated equations at the 5% significant level. This shows that each variable is mutual influencing and relationship of stability or balance and moving equality in the long run.

4. Vector Erorr Correction Model Estimation

Table 4. Estimation Result of The Growth of Islamic Banking Variables

Short Run	coefficient				
Variable	PKJ	NPF	FDR	DPK	UKM
D(PKJ(-1))	-0.323579	-0.191029	-0.062259	-0.205374	0.620933
D(NPF(-1))	0.218122	0.289748	0.016530	0.089820	-0.189283
D(FDR(-1))	-1.977.577	0.131799	-0.169385	-0.920204	0.683183
D(DPK(-1))	0.210614	0.163941	0.027236	0.224167	-0.343668
D(UKM(-1))	0.158583*	-0.047257	-0.001279	-0.027442	0.053940
C	-0.001494	-0.000580	-0.001366	0.000594	0.003089
Short Run	t-statistic				
Variable	PKJ	NPF	FDR	DPK	UKM
D(PKJ(-1))	[-1.17628]	[-1.07029]	[-0.73415]	[-0.68967]	[1.48057]
D(NPF(-1))	[0.92266]	[1.88901]	[0.22681]	[0.35098]	[-0.52518]
D(FDR(-1))	[-3.09545]	[0.31796]	[-0.86003]	[-1.33059]	[0.70143]
D(DPK(-1))	[0.71914]	[0.86276]	[0.30166]	[0.70708]	[-0.76970]
D(UKM(-1))	[1.23876] *	[-0.56894]	[-0.03241]	[-0.19802]	[0.27638]
C	[-0.08569]	[-0.05127]	[-0.25424]	[0.03149]	[0.11626]

Long Run	coefficient				
Variable	PKJ	NPF	FDR	DPK	UKM
UKM(-1)	1.144.146	0.022062*	0.060531*	0.501450*	-
C	0.011916	0.000385	-0.000305	0.011784	-
Long Run	t-statistic				
UKM(-1)	PKJ	NPF	FDR	DPK	UKM
C	[5.00395]	[0.39987]	[1.21181]	[2.53119]	-

Asterisk mark (*) indicates significant at the 5% level

VECM estimation results estimation equations for each variable of Growth of Islamic Banking (Table 4). PKJ equation as an endogenous variable is influenced positively and significant at the 5% level by UKM variable (0.04%) in the short run, which means that every increase 1% in workers in Islamic Banks, the Growth of SMEs will rise by 0.04%.

The relationship among FDR, NPF, and DPK to UKM are positive. Equation NPF as an endogenous variable in the long run is influenced by positive and significant on UKM variable (0.02%), meaning that each increase of 1% NPF, there will be an increase in the growth of SMEs by 0.02%. Furthermore, FDR equation as an endogenous variable in the long run has a signifcant positive coefficient value (0.06%) related to UKM variable, when there is an increase of 1% FDR, then the financing to SMEs rise by 0.06%. DPK Variable is also influenced positive significantly by the UKM variable (0.5%) in the long run, meaning that each increase of 1% FDR, there will be an increase in the growth of SMEs by 0.5%.

From the above results we can conclude that encourage the growth of SMEs in the short run is the PKJ variable, meaning that it takes a lot of manpower and competent in Islamic banks to expand and help the growth of SMEs in Indonesia, whereas in the long run, FDR variable, DPK, and NPF are driving the growth of SMEs in Indonesia.

5. Granger Causality Test

Table 5. Causality Test Result

Null Hypothesis:	Prob.	Null Hypothesis:	Prob.
NPF-FDR	0.8665	PKJ-NPF	0.4668
FDR-NPF	0.0150*	NPF-PKJ	0.6715
DPK-FDR	0.6039	UKM-NPF	0.4603
FDR-DPK	0.3902	NPF-UKM	0.8523

PKJ-FDR	0.7973	PKJ-DPK	0.3735
FDR-PKJ	0.3998	DPK-PKJ	0.8900
UKM-FDR	0.8354	UKM-DPK	0.7890
FDR-UKM	0.1912	DPK-UKM	0.5867
DPK-NPF	0.2286	UKM-PKJ	0.9689
NPF-DPK	0.6524	PKJ-UKM	0.8291

Asterisk mark (*) indicates significant at the 5% level

Granger causality test is used to see whether or not causal direction among variables. To see the relationship among variables can be seen from the probability, if the probability value < 5%, it can be stated there is a causal relationship. Granger causality test result (table 5) shows FDR variable has one-way relationship with NPF, the other word, FDR and NPF are dependence. Whereas, the others have no causality in one direction or both directions.

6. Impuls Respone Function (IRF) Analysis

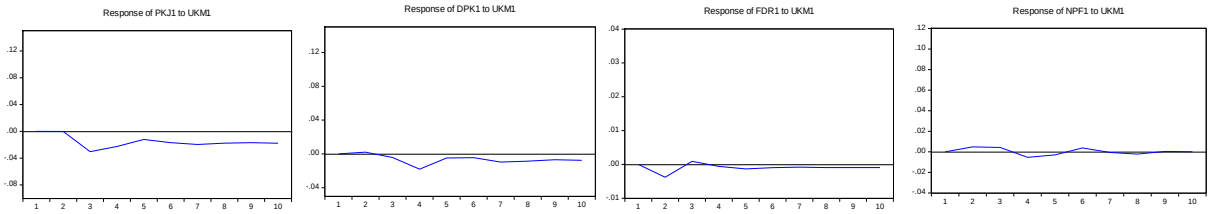

Figure 2. Response of Islamic Banking variable to shocks UKM

IRF analysis is focused on the variable of Islamic Banking response to UKM. The function of IRF analysisis is to determine the effect of a standard deviation (SD) shock against changes in the value of endogenous variables in the present and in the future. The horizontal axis refers to period of 10 months. Meanwhile, the vertical axis shows the change of variable growth of Islamic Banking to UKM

PKJ variable responds shock of UKM variable negatively average of 0,015 SD for 10 periods. In the period 3, it declines sharply of 0,031 SD and in the period 6 to 10 tend to be stable. Based on the test results of the IRF, the responses received as a result of their shock at DPK variable is negative, it shows that the smaller the number of workers in Islamic banks will lower the amount of financing to the SME sector. In the long-term conditions, human resources need to be increased in order to support the success of Islamic Banking operations in an

effort to speed up the process of financing services provided in the SME sector in the next period.

Based on the result of IRF found that the response received by the NPF as a result of shock is positive implications for the decline in UKM financing due to rising NPF. In the period 3, the NPF response rises by 0.05 and 0.04 SD in the period 6. Shock received by NPF variable during the 10 period is an average of 0.00024 SD. Islamic banks must reduce the ratio of NPF (bad loans) to improve financing in the SME sector

Furthermore, UKM variable shock responds to FDR negatively average of 0.00095 SD for 10 periods, as shown by the graph IRF which is below the horizontal line. FDR's response has declined sharply below a horizontal line in the period 2 of 0.004 SD to 0.001 SD stabilized in the period 10. Based on the result of IRF that the smaller number of FDR in Islamic Banking will lower the amount of financing to the SME sector. Sharia Banking must channel greater funding to the SME sector than non-SMEs.

Besides, DPK shock responds to UKM negatively average of 0,006 SD for 10 periods. The highest decrease exists in the period 4 amounted to 0,018 SD. Based on the result of the IRF, the response received as a result of DPK shock is negative, it shows that the smaller the amount of depositor funds in Islamic banks will lower the amount of financing to the SME sector. The function of depositor funds is not maximized, so that the distribution of funding to the Small and Medium Enterprise sector is still lacking.

SMEs has been unable to access funds because of their limited track record, limited acceptable collateral, and inadequate financial statements and business plans (Aldaba, 2012). This is evidenced in the works of Scholtens (1999), Schiffer and Weder (2001), and WB-IDB Report (2015). The smaller firms with underdeveloped financial and legal systems use less external finance (Beck et al, 2008a).

7. Forecasting Error Variance Decomposition Analysis

Table 6. Decomposition Result of the Growth of Islamic Banking Variables

Endogenous Variable	Period	Explained by shock				
		PKJ	NPF	FDR	DPK	UKM
PKJ	1	**100.0000**	0.000000	0.000000	**0.000000**	0.000000

	3	**53.74683**	1.677274	8.535185	**32.95385**	3.086865
	5	**45.19032**	2.211718	8.848488	**39.83028**	3.919197
	7	**38.83806**	2.371214	9.703743	**44.70559**	4.381390
	10	**33.65071**	2.572007	10.32.443	**48.76550**	4.687345
NPF	1	0.266951	**99.73305**	0.000000	0.000000	0.000000
	3	0.657001	**96.90464**	1.353050	0.553814	0.531496
	5	0.797158	**96.14205**	1.527874	0.564656	0.968263
	7	0.825596	**95.76786**	1.651685	0.612021	1.142835
	10	0.842988	**95.63687**	1.665443	0.654614	1.200087
FDR	1	0.006374	9.506712	**90.48691**	0.000000	0.000000
	3	3.882984	8.810025	**83.15867**	3.195008	0.953315
	5	4.015068	8.711221	**81.78202**	4.425552	1.066135
	7	4.254625	8.621421	**80.52443**	5.455996	1.143532
	10	4.575910	8.474629	**78.72172**	6.959556	1.268184
DPK	1	**56.89039**	0.058794	8.923856	**34.12696**	0.000000
	3	**44.69483**	0.905467	12.23397	**42.06863**	0.097108
	5	**42.79729**	1.131487	12.05878	**42.54160**	1.470843
	7	**40.71702**	1.259700	12.16203	**44.09508**	1.766170
	10	**38.34095**	1.461755	12.17414	**45.85234**	2.170816
UKM	1	4.731566	0.000663	17.94821	**27.04611**	**50.27345**
	3	10.07758	0.114309	17.21715	**28.83478**	**43.75618**
	5	10.09721	0.925057	16.40861	**34.03590**	**38.53323**
	7	11.18676	1.138558	15.82381	**37.60696**	**34.24392**
	10	12.09840	1.481516	15.26103	**41.48513**	**29.67392**

Variance decomposition provides information about the relative importance of each random innovation in influencing variables in the VAR. Dynamic structure between variables in VAR can be seen through analysis of Forecasting Error Variance Decomposition (FEVD).Ordering FEVD variable in the analysis is based on Cholesky factorization. The results are presented in Table 6.

Variable of PKJ in the first period is influenced by variable of PKJ (100%) and the others are not response. UKM starts affecting the next period, this is followed by the other variables in the period 3, namely DPK (32.95%), FDR (8.5%), NPF (1.6%), PKJ (53.7%) and UKM (3.08%). These results indicate that the variable of PKJ is influenced by the great response by two variables, namely PKJ and DPK. Variable of PKJ is able to contribute to the enhancement of UKM (4.68%).

In the forecasting period of interval 1, NPF fluctuation is influenced by FDR (9.97%) up to a period of 10 (9.5%).While the other variables are no significant effect on the period 1 and the shocks start in the next period, FDR is

influenced by shocks all variables up to period 10. FDR is able to contribute to the enhancement of UKM financing (1.2%). Due to the shock that occurs at the FDR explains NPF shock (9.04%) in period 1, NPF gives a shock to FDR (9.5%), FDR (9.04%), and PKJ (0.006%). While DPK and UKM do not provide a significantly shock response. FDR able to contribute to the enhancement of UKM (1.26%)

In the first period, fluctuations on variable of DPK are influenced by DPK shock (3.4%), while the influences of the other variables have already seen, except UKM. In the subsequent period, UKM provides DPK shock response. It has increased in the next interval period to period 10 (4.58%). The increases in fluctuation are also followed by variables of FDR and NPF. DPK variable is able to contribute to the enhancement of UKM (2.17%).

Variable of UKM is influenced heavily by UKM and DPK, (5.02%) and (2.07%) respectively at 10 observation period. NPF variable has not responded significantly in the early period. PKJ is the greatest influence to UKM (4.73%) in the early period than the others.

Based on the test above found generally that variables of Islamic Banking contribute positively to the growth of SMEs in Indonesia. Jasra et al. (2011) and Mukras (2003) stressed that the financial resources are the most important factors that affect the success of SMEs and on which the whole business depends.. These findings imply that the future of growth of SMEs is influenced strongly by the depositor funds, FDR ratio, NPF ratio and Human Resources. Islamic Banking increases the operational expenses, depositor funds and asset growth as well to encourage the growth of SMEs in Indonesia (Sastrawan et al. 2013) Strengthening the SMEs in carrying out its activities must be supported to overcome the financial constraint (Ali, 2013; Salam, 2013)**.**

Conclusion and Recommendation

The results of the study explained that **firstly**, the UKM variable is influenced by the Growth of Islamic Banking data with the previous period (lag 1). There are 5 cointegrated equations of Granger Causality Test concluding that there is a relationship 1 direction of FDR to NPF. Estimates of VECM provide results that SMEs are affected by PKJ in the short run and NPF, FDR, and DPK in the long run

Secondly, the results of the overall IRF analysis, Islamic Banking variables have not been significant in encouraging the growth of SMEs in Indonesia. Sharia Banking is not maximized in terms of collecting DPK from the depositors. lack of FDR ratio, high NPF and the lack of human resources, so that the distribution of funding to the SME sector is not maximized.

Thirdly, Based on Variance Decomposition Test showed generally that the variables of Islamic Banking contribute positively to the growth of SMEs in Indonesia. DPK (2.17%), FDR (1.26%), NPF (1.2%) and PKJ (4.68%) contribute to the SMEs growth. These findings refer to the future growth of SMEs are strongly influenced by growth of Islamic Banking variables.

The interesting findings are the similarity of the results of VECM Analysis, IRF Analysis and Variance Decomposition Analysis who assert the need of depositor funds (DPK) as a driver of growth of SMEs in Indonesia.

Three of these findings led to the empirical implications that Islamic Banking will further continue to grow significantly and is able to make a major contribution towards the SME sector in the AEC (ASEAN Economic Community) era and AFTA (ASEAN Free Trade Area) in the future. However, the surveillance systems, especially the provision of financing that is expansive runs consistently. Efforts to increase the capacity of Islamic Banking financing could be through depositor funds (DPK) as a source of funding to improve the capacity of SME financing. In the short run conditions, to support the success of Islamic Banking operations in the distribution of funding needs to improve human resources, which will accelerate the process of financing services provided in the SME sector in the next period. However, the level of achievement of each variable in order to encourage the growth of SMEs in Indonesia must be improved. The Movement of Sharia Economic Program which was launched in 2013 would strengthen the Islamic Banking system and regulatory terms The economic policy makers must focus on the establishment of formal financial markets to overcome the financial constraints faced by the SMEs.

References

Aldaba, R. M. (2012). Small and Medium Enterprises' Access to Finance, *Discussion Paper Series of the Philippine Institute for Development Studies, 2012-05*, 17. Philippines: Makati.

Ali, Sharafat (2013), The Small And Medium Enterprises and Poverty In Pakistan : An Empirical Analysis, *European Journal of Business and Economics*, Volume 8, Issue : 2 ISSN 1804-5839.

Ascarya (2009). Toward Optimum Synergy of Monetary Policy in Dual Financial/Banking System, *Journal of Indonesia Economy and Business*, Vol.24 No.1

Banumath, Karunanithy.,Ramachandran Azhagaiah. (2014). Long-Run and Short-Run Causality between Stock Price and Gold Price: Evidence of VECM Analysis from India, *Management Studies and Economic Systems (MSES*), 1 (4), 247-256.

Beck, Thorsten, and Demirgüç-Kunt (2006). Small and Medium-Size Enterprises: Access to Finance as a Growth Constraint, *Journal of Banking & Fina*nce 30: 2931-2943

Beck, Thorsten, Demirgüç-Kunt, and Vojislav Maksimovic.(2008a). Financing Patterns Around the World: Are Small Firms Different?, *Journal of Financial Economics,* 89: 467-487.

Beck, Thorsten, Demirgüç-Kunt, Luc Laeven, and Vojislav Maksimovic (2006). "The Determinants of Financing Obstacles," *Journal of International Money and Finance* 25(6): 932-952.

Chin, T. A., Hamid, A. B. A., Rasli, A., & Baharun, R. (2012). Adoption of Supply Chain Management in SMEs. Procedia-Social and Behavioral Sciences, 65, 614-619.

Enders W (1995). Applied Econometric Time Series. New York (US): J Wiley

Galindo, Arturo and Fabio Schiantarelli (2003). Credit Constraints and Investment in Latin America, *RES Working Papers 4305*, Inter-American Development Bank, Washington D.C.

Holcombe, S. (1995). Managing to Empower: The Grameen's Bank Experience of Poverty Alleviation, London: Zed Press

IADB (Inter-American Development Bank) (2004). *Unlocking Credit: The Quest for Deep and Stable Lending*, Baltimore, MD: Johns Hopkins University Press.

IFC (International Finance Corporation) (2009). The SME Banking Knowledge Guide, The World Bank Group, Washington D.C.

Jasra, J. M., Khan, M. A., Hunjra, A. I., Rehman, R. A., & Rauf-I-Azam, A. (2011). Determinants of Business Success of Small and Medium Enterprises. *International Journal of Business and Social Science,* 2(20), 279

Joint World Bank-Islamic Development Bank Policy Report Leveraging Islamic Finance for Small and Medium Enterprises (SMEs), (2015), *Joint World Bank-Islamic Development Bank Policy Report*, International Bank for Reconstruction and Development/ The World Bank, , Washington DC 20433

Khandker, S., R. (1998). Fighting Poverty with Microfinance: Experience in Bangladesh. Washington, D.C: Oxford University Press for the World Bank

Otero, M. & Rhyne, E. (1994). The New Word of Microenterprise Finance. London: IT Publications

Philippine Senate. (2012). The MSME Sector at a Glance. Senate Economic Planning Office.

Remenyi, J. (1991). When Credit is Due. London: IT publications

Salam, Md. Abdus, Effects of Lease Finance on Performance of SMEs in Bangladesh, *International Journal of Science and Research (IJSR,)* ISSN (Online): 2319-7064, Volume 2 Issue 12, December 2013

Sastrawan, Uding., M. Syamsun and M. Najib (2013). The Office Channeling Policy, the Development of Islamic Banking, and SMEs Financing in Indonesia, *Jurnal Sains Terapan* ,Edisi III Vol-3 (1) : 82 – 94.

Schiffer, Mirijam, and Beatrice Weder (2001). Firm Size and the Business Environment: Worldwide Survey Results, *Discussion Paper 43*, International Finance Corporation, Washington, DC.

Scholtens, Bert (1999), Analytical Issues in External Financing Alternatives for SMEs, *Small Business Economics* 12: 137-148.