A SHARIA RETURN AS AN ALTERNATIVE INSTRUMENT FOR MONETARY POLICY

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Abstract

Rapid development in Islamic financial industry has not been supported by sharia monetary policy instruments. This study looks at the possibility of sharia returns as the instrument. Using both error correction model and vector error correction model to estimate the data from 2002(1) to 2010(12), this paper finds that sharia return has the same effect as the interest rate in the demand for money. The shock effect of sharia return on broad money supply, Gross Domestic Product, and Consumer Price Index is greater than that of interest rate. In addition, these three variables are more quickly become stable following the shock of sharia return.

Keywords: Sharia return, islamic financial system, vector error correction model
JEL classification numbers: E52, G15

Abstract

Perkembangan pesat industri di keuangan Islam belum didukung oleh instrumen kebijakan moneter syariah. Studi ini melihat kemungkinan penggunaan returns syariah sebagai instrumen kebijakan moneter. Menggunakan Model Koreksi Kesalahan dan Vector Koreksi Kesalahan untuk mengestimasi data dari tahun 2002(1) to 2010(12), makalah ini menemukan bahwa return syariah memiliki efek yang sama seperti tingkat bunga dalam permintaan uang. Efek dari *shock* return syariah atas penawaran uang dalam arti luas,Produk Domestik Bruto, dan Indeks Harga Konsumen adalah lebih besar dari *shock* suku bunga. Selain itu, ketiga variabel tersebut lebih cepat menjadi stabil pasca *shock* return syariah.

Keywords: return syariah, sistem keuangan islam, vector error correction model
JEL classificationn umbers: E52, G15

INTRODUCTION

The development of Islamic financial system in Indonesia is rapidly increasing in recent years. Islamic banking assets has been growing significantly at 47.6% (y.o.y.). On the other hands, the national banking assets only expand 18.7% (y.o.y.). In addition, the growth of fund of Islamic banking are very high i.e. 45.06% in 2010.

With rapid development of this industry so it is very possible that in the future the money demand of sharia banking will be the same or even greater than conventional banking. As an implication, monetary policy needs adjustment for its monetary policy by including the new Islamic economic variable. One of the adjustments is by involving the sharia return component or profit sharing onto the monetary policy variable in the dual financial system.

In the conventional financial system, interest rates have a significant role in monetary policy, especially on money demand. It will be risky because the interest is clearly prohibited in Islam. If it is then only eliminate the interest rates as raised by Kaleem (2000) then this main problem has not solved yet. It is because the interest is the

main feature of the conventional financial system, whereas sharia return is the hallmark of Islamic financial system (for further discussion on islamic monetary system, please see Chapra, 1996; Sakti, Kaleem and Isa, 2006, 2007 and Hasanah et al., 2008, among others).

Kaleem (2000) estimated the conventional and Islamic demand for money by eliminating the interest rate variable from the conventional money demand and did not add sharia return variables into Islamic demand for money. The results show that the conventional money demand is the same as the sharia one in which both system are not resistant to any shocks. In aggregate, variables of $M1$ and $M2$ are related to the price level both in conventional and Islamic system.

Meanwhile Hasanah et al. (2008) studies the behavior of aggregate monetary variables in the double financial system or banking in Indonesia from 2001-2006. In this study, the variables of sharia return was incorporated into the model of Islamic demand for money as developed by Kaleem (2000) in order to distinguish with the conventional model for money demand. The results show that conventional $M1$ achieve the stability longer after shocks in interest rates. Instead $M1$ get stable faster after shock of sharia return. The stability of the conventional $M2$ was also not faster than sharia $M2$. Another study conducted by Ascarya et al. (2007) examines the demand for money and monetary stability in the double financial system in Indonesia. This study uses a Vector Autoregression (VAR) and Vector Error Correction Model (VECM). The study concludes that the sharia return have negative effect on all the variables such as Islamic money demand, wadiah demand deposits, mudharabah savings and Mudharabah deposit. Demand for money was also stable fastly in response to the shocks from other variables. Meanwhile, in the conventional demand for money, the interest rates affect significantly the behavior of money demand up to 20%-29%. In contrast in the Islamic demand for money, the return of mudharabah almost have no influence on the behavior of money demand (see also Astiyah and Anugrah, 2006)

In monetary policy side, there are two paradigms in the management of conventional monetary transmission i.e. passive money paradigm and paradigm of active money. The main target of passive money paradigm is the achievement of the inflation target set by using the short-term interest rates as monetary instruments (Figure 1). While the main target of the active money paradigm is the controlled rate of inflation by using money supply as an operational target (Figure 2).
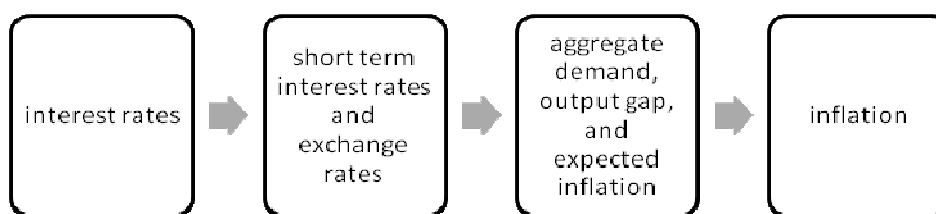

Figure 1: Passive Money Paradigm

Figure 2: Active Money Paradigm

On the other sides, the rationale of monetary management in the Islamic concept is the stability of money demand for the more important and productive purpose. Thus, any instrument that could potentially lead to instability and unproductive allocation of financial resources will be aborted (Karim, 2007).

Meanwhile Ascarya (2007) explains the fundamental differences between the conventional monetary system with a conceptual and contemporary Islamic financial system. In the conventional system, the monetary system is a fiat money system and use fractional reserve banking system. Interest rate is one of the main instruments of monetary policy. Meanwhile, the monetary system in conceptual Islamic perspective is fully backed money and 100 percent reserve banking system. Whereas in contemporarty Islamic monetary system, the system is still a fiat money system with fractional reserve banking system. In this Islamic monetary system, both system use sharia return or profit-sharing rather than the interest system. Thus the main difference between Islamic and the conventional monetary system is the use of interest in the conventional system and the use of profit-sharing in sharia system (see also Said and Ismail, 2005; and Dar and Presley, 2001)

Hasanah et al. (2008) explains that the characteristics of the system of interest is very different from the characteristics of the system of revenue sharing. Interest rates may be determined at any time by the banking authorities and its nominal movement can be seen by the public. Thus, its movement can lead to speculative activities. In contrast, the *nisbah* is set and its value remains valid throughout the contract. Meanwhile, the returns will follow the actual business. In a profit-sharing system (sharia return), profits will be shared as well as the loss will also be shared. Therefore, profit-sharing system will ensure the fairness and neither party will be harmed. In Islamic banking, profit-sharing system can be shaped as wadha contract, musharaka, mudharaba.

In the conventional banking system, interest rate is the percentage of the funds deposited or borrowed and the amount has been set at the beginning of the transaction. Consequently the interest rate could be calculated regardless of whether there will be gains or losses. Shakti (2007) argues that in the conventional economy, system of usury, fiat money, fractional reserve system and speculation lead to the creation of money as well as absorb the money into the monetary sector for profit activity without any risk. As a result, some of the money or the investment will run to the monetary sector rather than allocated into the real sector for productive purposes. This will inhibit the growth and even shrink the real sector. The creation of money without any added value will cause inflation. Ultimately, the goal of economic growth will be retarded (Figure 3).

Figure 3: The Implication of Interest Rate System on Economy

Figure 4: The Implication of Sharia System on Economy

Meanwhile, profit-sharing system can encourage productive investments climate if it is accompanied by zakat system and the prohibition of speculation. This will ensure improved distribution of wealth and income as well as develop the real sector. Increased productivity, employment opportunities and business will encourage economic growth and prosperity. From fundamental differences between interest rates in conventional economic system and Islamic system, the study aims to determine the possible attachment of a sharia return rate in money demand equation that is useful for supporting double financial systems (conventional and Islamic) as a whole

METHODS

This study used two approaches of econometric time series models i.e. error correction model (ECM) and vector auto regression model (VECM). ECM model of Domowitz-El Badawi (Domowitz and Elbadawi, 1987) is applied to the equation of conventional and Islamic money demand (M2). The ECM equation for the conventional model is

$$\Delta \ln M2_t = \beta_0 + \beta_1 \ln \Delta GDP_t + \beta_2 \Delta R3_t + \beta_3 \Delta \pi_t + \beta_4 \ln GDP_{t-1} + \beta_5 R3_{t-1} + \beta_6 \pi_{t-1} + \beta_7 EC_t + \delta e_1 \qquad (1)$$

where
$M2_t$ = the conventional $M2$ money demand
GDP = the real output
$R3_t$ = the interest rate of 3 month time deposit (%)
π_t = the consumer price index, 2002 = 100
β_0-β_6 = the coefficient of each variable
β_7 = the coefficient of EC_t
δe_1 = the standard error
EC_t = $\ln GDP_{t-1} + R3_{t-1} + \pi_{t-1} - \ln M2_{t-1}$
Δ = the firt difference ($\Delta\ln GDP_t = \ln GDP_t - \ln GDP_{t-1}$)

From those short run ECM equation of conventional demand for money, it also can be formed the long run estimation of demand for money. By dividing each estimated coefficient by the estimated value of β_7, it will be obtained the long run coefficient. So the long run constant is β_0/β_7, long run coefficient to GDP is $(\beta_4 + \beta_7)/\beta_7$, the long run coefficient of the interest rate is $(\beta_5 + \beta_7)/\beta_7$, and the long run coefficient of CPI is $(\beta_6 + \beta_7)/\beta_7$.

Meanwhile, the ECM equation models of the Islamic money demand is

$$\Delta \ln M2S_t^* = \beta_0 + \beta_1 \ln \Delta GDP_t + \beta_2 \Delta Retr3_t + \beta_3 \Delta \pi_t + \beta_4 \ln GDP_{t-1} + \beta_5 Retr3_{t-1} + \beta_6 \pi_{t-1} + \beta_7 EC_t + \delta e_1 \qquad (2)$$

where
$M2S_t^*$ = the Islamic broad money demand
GDP = the real output
$R3_t$ = the interest rate of 3 moths time deposit (%)
π_t = the consumer price index 2002 = 100
β_0-β_6 = the coefficient of each variable
β_7 = the coefficient of EC_t
δe_1 = the standard error
EC_t = $\ln GDP_{t-1} + Retr3_{t-1} + \pi_{t-1} - \ln M2S_{t-1}$
Δ = the first difference ($\Delta\ln GDP_t = \ln GDP_t - \ln GDP_{t-1}$)

From those short run ECM equation of Islamic demand for money, the long run equation can be arranged. The technique is by dividing each variable by the value of the estimated coefficient of β_7. In the long run, each variable will have the estimated coefficient of β_0/β_7 for the constant, $(\beta_4 + \beta_7)/\beta_7$ for the GDP, $(\beta_5 + \beta_7)/\beta_7$ for the sharia return, and $(\beta_6 + \beta_7)/\beta_7$ for the CPI.

The operational definitions of each variables are (1) $M1$ is currency and demand deposit of conventional commercial banks measured in unit of billion rupiah,

(2) *M*2 is M1 plus time deposits on a conventional commercial bank measured in unit of billion rupiah, (3) MS1 is narrow money supply in the Islamic financial system whose components consist of currency and wadi'ah contract of demand deposits at commercial banks and sharia business units measured in unit of billion Rupiah; (4) *MS*2 is *MS*1 plus Mudharabah savings and Mudharabah time deposits measured in unit of billion rupiah, (5) *GDP* is the level of real output as the representation of income levels measured in unit of billion rupiah, (6) *INF* is the inflation rate, in unit of percentage, (7) *R*3 is the rate of 3-month commercial bank deposit measured in unit of percentage; (8) Retr3 is sharia return as rate ratio of Islamic banks (equivalent rate) which is the return of sharia 3-month deposits measured in unit of percentage.

The data used in this study is quarterly data 2000(1) - 2010(4) obtained mainly from Bank Indonesia, Bank Syariah Mandiri Report.

RESULTS DISCUSSION

The results of testing against all the conventional variables indicate that the *M*2, *GDP*, *R*3 and *CPI* are not stationary at level and first difference. The ADF statistic values of each variable is smaller than its critical value at 5 percent level of significance. However, at the second difference all variables are stastioner because the value of ADF statistic is greater than its critical value at 5 percent level of significance (Table 1).

From those information, it can be concluded that all variables have the same order of integration or it is called as cointegration. This study perform three cointegration tests which are (1) The test of cointegration between the *M*2 and *GDP* variables; (2), The test of the cointegration between the *M*2 and *R*3 variables; (3), The test of cointegration between the *M*2 and *CPI* variables. The cointegration test results indicate that the variable of *M*2 and *GDP* are cointegrated. It is also found the cointegration between variable of *M*2 and *R*3 as well as between variable of *M*2 and *CPI*. It can be inferred from the value of the LR statistic of each variable which is greater than their critical value at 5 percent level of significance (Table 2)

Table 1: Unit Root Test of Conventional Variables

Variable	ADF Statistics			Mackinnon Critical Value at 5% Level		
	Level	1st Diff	2nd Diff	Level	1st Diff	2nd Diff
LnM2	0.449952	-2.038724	**-10.548950**	-2.960411	-2.960411	**-2.960411**
LnGDP	-1.057292	-2.405514	**-8.599051**	-2.957110	-2.960411	**-2.960411**
R3	**-3.782550**	**-3.429166**	-5.084220	**-2.951125**	**-2.954021**	-2.957110
IHK	-0.129155	**-5.011990**	-6.826903	-2.948404	**-2.951125**	-2.957110

Source: Data estimation

Table 2: Cointegration Test of Conventional Variables

Model	LR Stat	(trace statistic)
ln*M*2 - LnGDP	**17.7278**	2.796017
ln*M*2 - R3	**19.83962**	0.52581
ln*M*2 - IHK	**33.09506**	0.006529
5 % critical value LR	**15.49471**	3.841466

Source: Data estimation

After all the data are cointegrated, then the ECM estimation is performed on the conventional equation model The estimation results yield

$\Delta \ln M2_t =$
$1.186154 - 342244 \ln \Delta GDP_t +$
$0.001010 \, \Delta R3_t + 0.000360 \, \Delta IHK_t -$
$0.081172 \ln GDP_{t-1} - 0.201468 \, R3_{t-1} -$
$0.198882 \, IHK_{t-1} + 0.199449 EC_t$ 　　(3)

$R^2 = 0.485746$, F-stat $= 3.643319$, t-stat of $EC = 2.168348$

From the above estimated equation, the value of error correction coefficient (EC) is 0.199 in which it value of t-statistics is greater than its critical value. These results indicate that the specification model of ECM used in this equation is valid to analyze the behavior of conventional demand for money.

Meanwhile, changes in real *GDP* are negatively significant in influencing on the demand for money. While the changes of R3 (interest rate) and the *CPI* do not significantly affect the demand for money. Lag *GDP* does not significantly influence the demand for money, while the lag of *R3* (interest rate) and *CPI* marks a significant negative effect.

From the estimation results above it can be prepared a long-term regression equation of conventional demand for money. The equation is

$5.9472 + 0.5930 \ln GDP_t$
$\quad + 0.0028 \, IHK - 0.0101R3$ 　　(4)

Those two estimated model above has already freed from the problems of autocorrelation, heteroskedastisitas, and stability / liniearity based LM test, White test, and Ramsey RESET, respectively. Each value and probability is LM (2) = 1.165806 (0.558275); White = 15.85915 (0.322052); and Ramsey RESET = 1.279087 (0.268394).

Same as the unit root test on all conventional variables, the study also perform the unit root tests on all the Islamic variables. The variables of *MS*2, *GDP*, *CPI* and *Retr*3 are not stationary at level and first difference. However, these variables are stationary at the second difference because the value of ADF statistic of each variable is greater than its critical value at 5 percent level of significance (Table3).

As in the cointegration test of the conventional model, cointegration test in the Islamic model is also divided into three: (1) the cointegration test between the variables of *GDP* and *MS*2; (2) the cointegration test between the variables of *Retr*3 and *MS*2; (3) the cointegration test between the variables of *CPI* and *MS*2 . The test results show that each variable has the value of LR statistic that is higher than the critical value at 5 percent level of significance. Thus between the variables of *GDP* and *MS*2 are cointegrated. It also happened between the variables of *Retr*3 and *MS*2, and between the variables of *MS*2 and *CPI* (Table 4).

Table 3: Unit Root Test of Sharia Variables

Variable	ADF Statistics			Mackinnon Critical Value at 5% Level		
	Level	1st Diff	2nd Diff	Level	1st Diff	2nd Diff
LnMS2	-0.796945	**-3.202278**	**-13.421510**	-2.960411	**-2.960411**	**-2.960411**
LnGDP	-1.057292	-2.405514	**-8.599051**	-2.957110	-2.960411	**-2.960411**
Retr3	**-3.825862**	**-6.848925**	**-6.353949**	**-2.948404**	**-2.951125**	**-2.960411**
IHK	-0.129155	**-5.011990**	**-6.826903**	-2.948404	**-2.951125**	**-2.957110**

Source: Data estimation

Table 4: Cointegration Test of Sharia Variables

Model	LR Stat	(trace statistic)
$\ln M2 - \ln$GDP	17.85126	0.176594
$\ln M2$ - Retr3	16.46595	0.287693
$\ln M2 -$ IHK	19.28323	0.581777
5 % critical value LR	15.49471	3.841466

Source: Data estimation

After all variables are identified as cointegration, the ECM estimation results of the Islamic money demand is

$$\Delta \ln M2_t = -0.672708$$
$$-0.236726 \ln \Delta GDP_t$$
$$-0.003564 \, \Delta R3_t$$
$$+ 0.005170 \, \Delta IHK_t$$
$$-0.059186 \ln GDP_{t-1}$$
$$-0.937556 \, R3_{t-1}$$
$$-0.928591 \, IHK_{t-1}$$
$$+0.928695 EC_t \qquad (4)$$

$R^2 = 0.580326$, *F-stat = 5.333668*, *t-stat* of *EC* = 5.451807

From the estimated equation of Islamic demand for money, it is found that the variable of error correction (*EC*) have a significant effect. This result indicates that the ECM model specification used in this study is valid to analyze the Islamic demand for money. The changes in *GDP* (Δlog*GDP*) is negative and significant in influencing the Islamic demand for money, the effect of *Retr*3 change (profit sharing) are negatively insignificant, whereas the change of *CPI* does not significantly affect the demand for money. While the lag of the of *GDP* has no significant effect as well as the lag of the variable of *Retr*3 (interest rate). In contrast, the lag*CPI* has significantly negative effect on Islamic demand for money.
Meanwhile, the estimated regression for long-term Islamic demand for money is

$$\ln \widehat{MS2}_t = -0.7244 + 0.9363 \ln GDP_t$$
$$+0.00013 IHK$$
$$-0.00953 Retr3 \qquad (5)$$

Further tests of the classical assumptions suggest that this model of free from the problems of autocorrelation, heteroskedastisitas, and stability/linearity based on LM test, White, and Ramsey RESET. The value and probability of each test are the LM (2) = 3.902291 (0.142111); White = 19.66856 (0.140942); Ramsey RESET = 0.03431 (0.854486).

In this study also examined the 1-5 lags of the variables 1-5 using AIC and SIC. From the test results to all conventional and Islamic variables it is obtained that the smallest absolute value is in the lag 2, except for *CPI* variable where the smallest is in the first lag. That requires the comparison of the value of R^2. From the comparison result it is obtained that the highest value of R^2 is in the lag 2. Thus, the optimal lag of the conventional and Islamic VECM models is 2 lags.

Further analysis of the above equation is the impulse response analysis of *M*2 from the shock of interest rate for the conventional equation model, and the impulse response of *MS*2 shock to the sharia return for the Islamic equation model. *M*2 response was negatively fluctuated in the period of 1 to 9 ranging from -0.02 to -0.1, then it began to permanently negative in the period of 19. Meanwhile *MS*2 response was -0.3 in the second period and then fluctuated between -0.15 to 0,18. The response

began to permanently negative at the period of 13 with a value of -0.18 (Figure 5).

Meanwhile, the *GDP* response to the shock of interest rate was positive in the period of 1 to 6. Next responsenya was fluctuating negatively and eventually began to permanently negative in the period to 22 at the value of -0.12. The response of *GDP* to shock of sharia return was -0.18 percent in the first periode. Then it fluctuated negative with a range of 0.08 to 0.15 percent. The *GDP* response was permanently stable at - 0.14 percent (Figure 6).

Response to Cholesky One S.D. Innovations

Response of LOG(M2) to R3

(a)

Response to Cholesky One S.D. Innovations
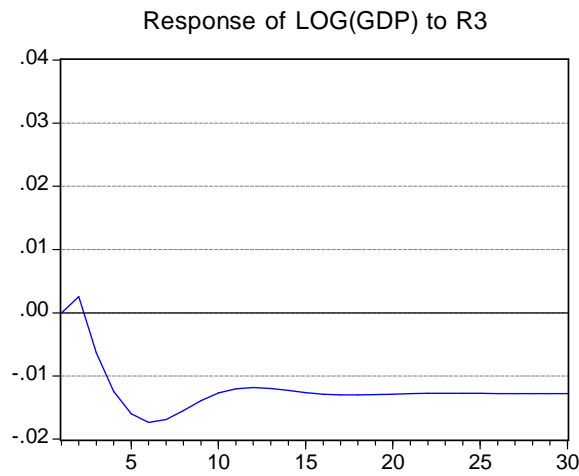
Response of LOG(MS2) to RETR3

(b)
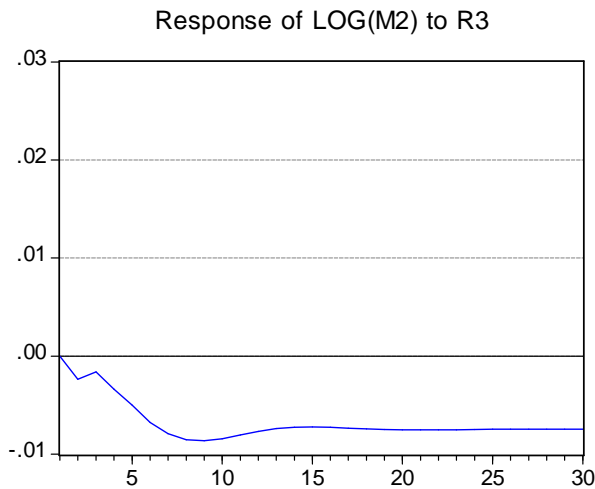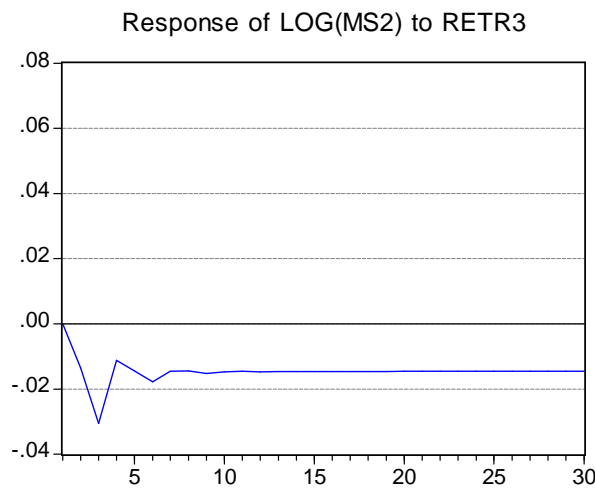
Source: Data calculation
Figure 5: Impulse Response of *M2* to Shock of Interest Rates and the Impulse Response of *MS2* to Shock of Sharia Return

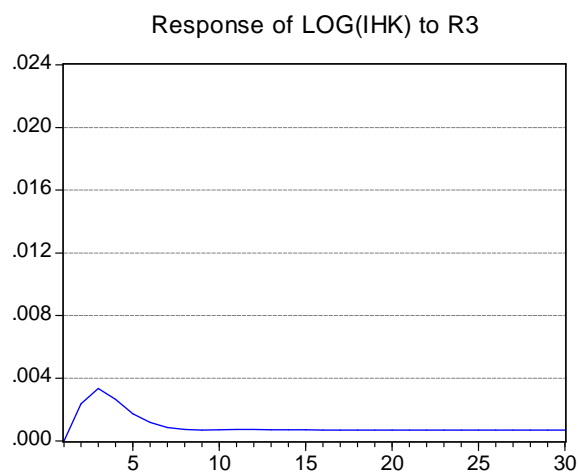Response to Cholesky One S.D. Innovations

Response of LOG(GDP) to R3

Source: Data calculation

Figure 6: Impulse Response of GDP to Shock of
Interest Rates and Sharia Return

Response of *CPI* to the shocks of
the interest rate was 0.003 percent, then it
fell to 0.001 percent. *CPI* Response was
permanently stable at the value of 0.001
percent after the period of 13. The response
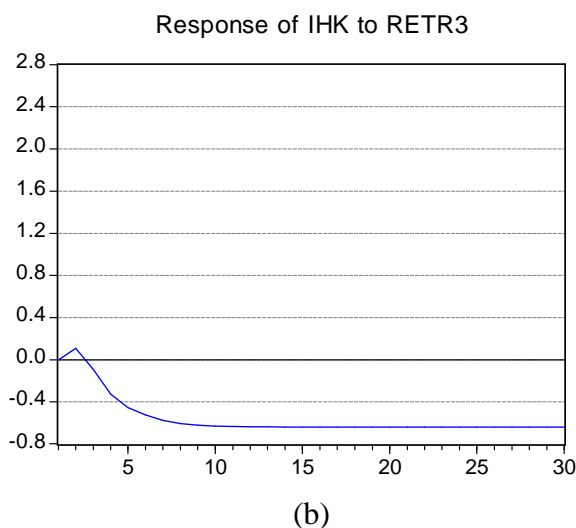of *CPI* to the shock of sharia return is a

positive of 0.01 percent at the beginning of
the period and then fell to negative value at
0.6 percent. Response *CPI* began to stable
in the period of 13 with a value of 0.6 per-
cent (Figure 7).

Response to Cholesky One S.D. Innovations

Response of LOG(IHK) to R3

(a)

Response to Cholesky One S.D. Innovations

Response of IHK to RETR3

(b)

Source: Data calculation

Figure 7: Impulse Response of *CPI* to Shock of
Interest Rates and Sharia Return

CONCLUSION

Estimation results using ECM and VECM show that in the long-term interest rates negatively affect the conventional money demand. Similarly, the return of sharia also negatively affects the Islamic demand for money. Nevertheless, the effect of interest rates was larger than that of the sharia return.

In the long run, the macroeconomic variables such as *GDP* and *CPI* show the same effect on both conventional and Islamic demand for money. Meanwhile, the VECM estimation results show that the effect of the shock of sharia return and the interest rate to all endogenous variables tested (*M*2, *MS*2, *GDP*) is relatively similar. The only difference was the variable of *CPI* and this difference meets to both conventional economic theory and existing Islamic economics. The average effect of the shock of sharia return is greater than that of the conventional interest rate. In addition the results of other tests also show that the ability of the variables *M*2, *MS*2, *GDP*, and *CPI* for the stable back to the shock of sharia return was faster than in case of shocks on interest rates.

The implication of the above results is that the sharia return could be an alternative in the Islamic money demand equation in the dual financial system like in Indonesia. Considering from its effect on money demand the sharia return could be as an instrument of monetary control in Indonesia Islamic banking. The government should gradually change the conventional monetary policy to the double monetary policy. Moreover the government should also start think about the possibility in using the sharia return as one of the instruments of monetary policy.

REFERENCES

Ascarya, A. (2007), "Optimum Monetary Policy under Dual Financial/Banking System," Universiti Sains Islam Malaysia (USIM) Islamic Economics Conference (IECONS 2007), Kuala Lumpur, Malaysia, 17-19 Juli.

Astiyah, S. And D.F. Anugrah (2006), "Kebijakan Moneter Terpadu dalam Dual Banking System," Biro Riset Ekonomi, Direktorat Riset Ekonomi dan Kebijakan Moneter Working Paper, Bank Indonesia.

Bank Indonesia, *Statistik Ekonomi dan Keuangan Indonesia*, Various years, Bank Indonesia, Jakarta.

Bank Indonesia, *Statistik Perbankan Syariah*, Various years, Bank Indonesia, Jakarta.

Chapra, M.U. (1996), "Monetary Management in an Islamic Economy," *Islamic Economic Studies*, 4(1), 1-34.

Dar, H.A. and J.R. Presley (2001), "Lack of Profit Loss Sharing in Islamic Banking: Management and Control Imbalances," *Iqtishad Journal of Islamic Economics*, 2(2), 1-12.

Domowitz, I. and I. Elbadawi (1987), "'An Error Correction Approach to Money Demand: The Case of Sudan," *Journal of Development Economics*, 26, 257-275.

Hasanah, H., A. Ascarya, and N.A. Achsani (2008), "Perilaku Agregat Moneter dalam Sistem Keuangan/Perbankan Ganda di Indonesia," *Jurnal Ekonomi dan Bisnis Indonesia*, 23(2), 143-162.

Kaleem, A. (2000), "Modeling Monetary Stability under Dual Banking System: The Case of Malaysia," *International Journal of Islamic Financial Services*, 2(1), 21-42.

Kaleem, A. and M.M. Isa (2006), "Islamic Banking and Money Demand Function in Malaysia: An Econometric Analysis," *Pakistan Economic and Social Review*, 44(2), 277-290.

Karim, A. (2007), *Ekonomi Makro Islami*, 2nd Edition, PT. Raja Grafindo Persada, Jakarta.

Said, F. and A.G. Ismail (2005), "Monetary Policy, Capital requirement and Lending Behaviour of Islamic Banks in Malaysia," *Third International Islamic Banking and Finance Conference*, Monash University Malaysia.

Sakti, A. (2007), *Sistem Ekonomi Islam: Jawaban atas Kekacauan Ekonomi Modern*, Paradigma and Aqsa Publishing, Jakarta.