

# **ANALYSIS OF THE ISLAMIC BANKS' DEPOSITORS BEHAVIOR IN INDONESIA: A VARIANCE AUTO REGRESSIVE APPROACH**

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## **Abstract**

Basically, Banks as practiced are defined as intermediary institution, including Islamic Banks. Islamic Banks are operationalised through Shariah principle and Islamic approach. Perhaps, that is one of the cause of the significance growth of Islamic banks are. So that, Islamic banks are expected to save their performance in order to keep and maintain the trust and interest to them. Deposit instrument is considered as one of Islamic Banks products that the purposive is to service their customer as loan and financing and also assert Islamic Banks as source of society development. Therefore, Islamic deposit is able to be utilized as the measurement to gauge the Islamic Banks performance.

Furthermore, the main purpose of this study is to quantify the purported link between the level of deposit of Islamic Banks in Indonesia and its measurement determinant, such as rate of return, interest rate, and stock market return. In spite of the level of deposit is highly influenced by conventional rate, Islamic Banks should put more attention on this matter by keeping and also improving their efficiency in order to remain competitive. Stock market return is apparently considered as external factor that indirectly has been creating the public preference in putting their money in. Therefore, this paper is attempting to convey the Islamic Bank's behavior within the conventional banks policy issued-by changing in interest rate policy-, and capital market behavior-by looking at the return- monthly. Variance Auto Regressive (VAR) approach is then trying to implement and VAR approach is expected able to show the dynamic behavior and finally trying the answer whether there are short and long long-run relationship between those variables observed. Finally, having known that phenomenon, Islamic banks are able to minimize the commercial risk emerged as the conduct of conventional and stock market behavior.

*Keywords: Islamic Banks, Interest Rate, Stock Market, and VAR approach*

## **Introduction**

Islamic banks are considered as one of Islamic financial institution which has recorded as tremendous growth for last two decades. Indonesia as the largest Muslims Population regard the growing fast of Islamic banks as an opportunity as well as challenge to optimize the potential resources owned, both in the basis of wealth and also in the name of faith, Islam. Interestingly, since it was established in 1992, Islamic banking sector has been enormously grown at compounded annual growth rate above 65% in the last five tears, and also targeted to have 15% share in the asset penetration of the total national banking system on 2015 (Bank Indonesia, 2008).

Bank Indonesia as monetary authority in Indonesia has shown the greatest attention in regulating and supervising the run of Islamic Banks. Several policies has been issued to ensure that Islamic Banks have well-structured and well organized. Bank Indonesia has mandated National Shariah Board (NSB) for example as single authority in issuing fatwa on Islamic Institution instrument, and also pointed out Shariah Supervisory Board (SSB) as a shariah government to ensure an Islamic bank operation satisfy and comply with shariah requirements. In addition, Bank Indonesia has made and arranged Islamic Banking Development Program as stage to establish Indonesia Financial System Architecture (ASKI). Hence, Islamic banks which are positioned as part of Indonesia financial system are able to run in line to national economic objective, such as enhancing economic growth, poverty alleviation, and reducing unemployment.

Naturally, financial institution, including Islamic banks generally have single objective, is that, as intermediary institution which pooled any potential fund and then circulated into economy through financing instruments. Islamic banks supposedly have to be different and should be outside the common activities which have been done extensively by conventional banks. The underlying reasons, Islamic banks are positioned in the area not only standing as financial services but also established to uphold the truth of Islam faith, through financial services. Thus, Islamic banks in reality are able to be really helpful and open-handed in serving the needs of people, notably Muslims Ummah.

In valuing the Islamic performance, we are able to evaluate that Indonesia Islamic banks have successfully performed well and marvelous. Those can be observed from the indicators published by Bank Indonesia over 7 years, whereby generally speaking, Islamic bank has continued to show strong performance and reached the business volume USD 4, 77 billion with accounting for 2, 13% share of the national banking industry. Indirectly, it has described that Islamic banks have been really respond well and very welcome by Indonesian citizen. Again, it represents that Islamic economic has been positioned as the central basis by Muslims in Indonesia.

Table 1.1.  
Islamic Banking Indicators, 2002-2008

	2002	2003	2004	2005	2006	2007	2008 Aug
<b>A. Islamic Bank Channel</b>							
<b>Full-fledged Islamic Bank (BUS)</b>	2	2	3	3	3	3	3
<b>Shariah Business Unit (UUS)</b>	6	8	15	19	20	26	28
<b>Number of Office (BUS &amp; UUS)</b>	146	253	355	415	531	594	650
<b>Number of office channeling</b>	-	-	-	-	456	1,195	1,394
<b>Islamic Rural Bank (BPRS)</b>	83	84	88	92	105	117	128
<b>B. Indicators</b>							
<b>Total Asset (RpT)</b>	4.05	7.86	15.31	20.88	26.7	36.5	44,3
<b>total asset of SB to banking industry</b>	0.36%	0.74%	1.20%	1.42%	1.55%	1.84%	2.15%

<b>Deposit Fund (RpT)</b>	<b>2.92</b>	<b>5.72</b>	<b>11.86</b>	<b>15.58</b>	<b>20.67</b>	<b>28.01</b>	<b>36.6</b>
<b>Financing (RpT)</b>	<b>3.28</b>	<b>5.53</b>	<b>11.49</b>	<b>15.23</b>	<b>20.44</b>	<b>27.94</b>	<b>32.4</b>
<b>FDR</b>	<b>112.3%</b>	<b>96.9%</b>	<b>96.9%</b>	<b>97.8%</b>	<b>98.9%</b>	<b>99.8%</b>	<b>113.02%</b>
<b>NPF (gross)</b>	<b>4.1%%</b>	<b>2.3%</b>	<b>2.4%</b>	<b>2.8%</b>	<b>4.8%</b>	<b>4.1%</b>	<b>4.04%</b>
<b>ROA</b>	<b>1.6%</b>	<b>0.7%</b>	<b>1.4%</b>	<b>1.4%</b>	<b>1.6%</b>	<b>1.78%</b>	<b>1.76%</b>
<b>ROE</b>	<b>10.3%</b>	<b>7.0%</b>	<b>24.8%</b>	<b>26.7%</b>	<b>36.9%</b>	<b>54.0%</b>	<b>64.67%</b>

Source: Bank Indonesia, Various Reports

However, some economists argue that Islamic banks in Indonesia actually can grow more as compared with which have been achieved until today. They continue to argue that it is because of the Muslims in Indonesia do not really put in their money and save their accounts in Islamic banks. Hence, the lack of deposit in Islamic banks have been causing the limitation of movement and enlarging the share in their assets and operations. Some reasons also come up, for example Nyimas, 2006 has found that the behavior of depositors in Indonesia are still not Islamic. She asserted that they are still considering profit rather than the beneficial behind that. This evidence is supported by Haron and Shanmugam (1995) had done research which looked at the strength of the relationship between the total deposit of Islamic banks and its profit rate. They found that there is inverse effect between the rate of profit and the level of deposits. It implies that Islamic bank customers are being considered the profit rate given on deposits rather than the spirit behind. Moreover, according to the research conducted by Kotler 1998, et al, stated that the current challenge of each institution which are growing up, is that, the ability to compete and survive, including banks which are not only competing among each other, but also with non-bank financial institution. It means the consumers awareness should be laid in the center position.

As far as concerns, the awareness of Islamic bank consumers can be evaluated through their behavior in depositing their financial assets. In financial economics, we have known that assets are divided into two types, cash money and bonds (investment assets). The willingness of consumers in investing their wealth depends on their level of transaction and the return rate of financial instrument offered. In the context of wealth allocation, Islamic banks need to manage their profit rate and maintain its competitiveness, mainly to the movement in the interest rate of conventional banks.

Therefore, this paper are trying to analyze whether the behavior of Islamic banks consumers Islamic, and also which macroeconomic indicators which are closely correlated in influencing the movement of Islamic banks deposited. This paper comprises of five chapters, are that, chapter 1 describes the introduction and background of the study. Chapter 2 contains the literature review of the study, chapter 3 could be methodology of research, chapter 4 and 5 are considered as findings and conclusions.

## **LITERATURE REVIEW**

### **2.1 Islamic Banking definition, Principles, and Products**

Banking refers to a system of banking which is considered consistent with the principles of Islamic law (sharia) and its application through the development of Islamic economics. Islamic banking principles are totally avoided and prohibited any transaction which is committed to Riba. It means, any transaction that intentionally or unintentionally have an excess, increase, and addition in principle without mutual consent and creating of nothing.

In the case of principles, Islamic banking has totally different of conventional banking. However, in terms of the purpose is no different, is that, optimize the fund deposited to productive activities. In accordance with the rules, Islamic banking is really based on Shariah, known as Fiqh al-Muamalat (Islamic rules on transactions). Furthermore, the basic principle f Islamic banking is the sharing of profit and loss and the prohibition of riba (usury). Common terms used in Islamic banking include profit sharing (mudharabah), safekeeping (Wadiah), joint venture (Musharakah), cost plus (Murabahah), and Leasing (Ijarah).

Having mentioned above that one of Islamic Banking transaction is mudharaba instrument. Mudharaba (joint venture with capital) is an arrangement or agreement between two or more partner, whereby one partner provides funds to be used in venture. Any profits generated from partnership are shared between the partners according to a pre-agreed ratio. In the case of Islamic banking, the level of deposit can be measured by total of mudharaba investment which is including 1, 3,6,12 month investment deposit, both in Rupiah or valas. The mudharabah investment deposit is positioned as the main type of deposit in Islamic banks which capture more that 50% (Bank Indonesia, various sources).

### **2.2. Determinant of Islamic Banks Deposit**

Several researches and empirical studies conducted in looking at the relationship between the Islamic bank's deposit and its determinants. Haron and Norafifah (2000) had tried to examine the effects of profit rate and interest rate on funds deposited in Islamic banks in Malaysia. Then, the result provided clearly information that the rate of profit has

strong positive impact on Islamic bank's deposits. Interestingly, the interest rate generated by conventional banks has strong negative relationship. Similarly, the research was accomplished Sukmana and Roslin (2005) attempted to look into the relationship between the rate of return on Islamic bank's deposits, conventional interest rate, and the amount of saving deposits in Islamic banking. They found that interest rate remained to be a significant variable in determining people to deposit in Islamic bank. They also underlined that as long as an economic system is implementing dual banking system, it probably occurs the pulling effect between Islamic and conventional rate of return. Due to the fact that the products of both two types of banks are considered as substitutes rather than complements which the up and down of the return in Islamic banks will be inversely responded by conventional banks. A recent study also attempted to convey which employed several macro economic variables to measure the link between the levels of deposit of Islamic banks in Malaysia. They finally come out with the suggestion that Islamic bank's deposit are seemly sensitive upon the movement in financial variables, such as Base Lending Rate, Kuala Lumpur Composite Index, consumer Price Index, money supply, and Gross domestic product. They also remained in exploring a conclusion that Islamic banks should also put into accounts in terms of the ability in overlooking not only the profit rate given but also to unpredictable or movement in the interest rate generated by conventional banks.

Based on those empirical studies above, we are coming up with the notion that commercial risk may happen in the case of rate return is lower than conventional rate offered. This is quite rational and normal in spite of Islamic banks are part of our national banks which is also noted as part of the national saving of a country. However, the phenomenon of shifting out in saving behavior can be avoided if the consumers, particularly Muslims consumers have looked in Islamic banks as part of Ibadah and obedience in terms of wealth bestowed by Almighty God. Hence, profit motive which is commonly taken into economic transaction is able to diminish or even abolish.

### **2.3. Islamic Bank's Depositors Behavior**

Having investigated the deposit bank's determinants, we simply move to take a look the determinant the behavior of Islamic bank's depositor in investing or depositing their funds. Several studies have been done in knowing how the response will be call back in the cases that Islamic banks announce to issue policies concerning the level of profit distributed in a certain period of time.

Erol and El-Bdour (1989) tried to examine the motive of customers toward Islamic banks in Jordan. The interesting result showed that the religious motive is not their desire in putting their funds, but tended to pursuit the profit motive. Therefore, they asserted to withdraw their funds from Islamic bank's deposit in the basis they decided not to distribute their profits. Unlike Erol and El-Bdour, study done by Gerrard and Cunningham expounded that Muslim customers are not influenced whether Islamic banks will share or distribute their profits, so will the Muslims. However, the important issues that need to be noted, is that, both Muslims and Non-Muslims likely remain in keeping their funds since they are more urged in banking services, such as a various type of services provided, bank's reputation, and also the reliability of bank's performance.

Furthermore, Metawa and Almosawi (1998), Haron, Ahmad, and Planiek (1994), and Nasel, Kamal, and Al-Khatib (1999) indicated a findings that customers chosen Islamic banks in spite of profit, religious, facilities offered, and also location.

Finally, we are able to justify that we can determine precisely and correctly whether Muslim customers are more “Islamic” than Non-Muslims. There is no enough evident that the main motive of Muslims put their funds in spite of the religious desire. It indicates that Muslims are still viewing Islamic banks objectives as the same as conventional do. Thus, we are not surprised when the depositors are fast in shifting out their funds since the change of policy announced both in the side of Islamic banks and conventional banks.

## METHODOLOGY

### 3.1. Data and Variables

In this chapter, we discuss data and methodology that utilized in measuring the data distribution. In answering the question raised on chapter one, this paper will implement a quantitative approach which intentionally employ several selected indicators to be analyzed further. In general, we identify several variables which are considered significantly effect to the bank’s deposit behavior. Accordingly, to ensure that the measurement of bank’s deposit behavior are correctly identified, a model need to be developed. This paper is attempting to follow a model introduced by Shrestha and Chowdhury (2005), the model is written as follows:

$$LMSA_t = \beta_1 + \beta_2 RRM_t + \beta_3 SMR_t + \beta_4 DRC_t + e_t \dots \dots \dots (3.1)$$

where : LMSA is the Mudaraba saving account deposit in Islamic banks (in log form), RRM is the rate of return for 1-month mudaraba-investment in Islamic banks, SMR is the stock market rate of return in Jakarta Stock Index, and DRC is the discount rate issued in conventional banks.

The level of deposit is measured by using the total of mudaraba investment deposits in Islamic banks. And then we use rate of return in Mudaraba investment to measure the return may be gotten by consumers at the end of period. Thus, the relation between the rate of return and the level of deposit is estimated to be positive. The increase in rate of return would push up the level of deposit, vice versa. Then, we also utilize conventional rate which is generated from discount rate in conventional banks. The link of discount rate to deposit would be negative relationship. Hence, the increase of conventional rate will affect on the preference of consumers in funds allocation, whether

remain in Islamic Banks or shift out to conventional (displaced commercial risk). Accordingly, we also employ stock market return which is taken from Jakarta Composite Index. According to loan able fund theory, the investors will look for several investment instruments which potentially restore and give better return in the future, based on the value of money hold today as compared with the future expectation of wealth holdings. Thus, presumably, stock market return will be inversely correlated with the level of deposits in Islamic Banks.

The analysis of Islamic banks behavior considers the interactions mudaraba saving accounts and 3 selected macroeconomic variables. The data are monthly for the period from January 2003 to December 2009.

### 3.2. Research Methodology

We try to employ vector auto regression approach whereby it takes several steps and stages, such as testing stationary data. Since our data used is identified as time series data which is consisted of stochastic term. Thus, stationary data needs to ensure that our data have the same mean, and variance over period of observation. Table 1 report the ADF test without a time trend. The upshot tends to suggest non-stationary in level of the variables but stationary in their first difference (I(I)). So, we proceed by contending that all variables belong to the I(1) process.

**Table 3.1: ADF Results**

Variables	t- Test	Probability
MSA	-8.222757***	0.0000
RRM	-9.287996***	0.0000
SMR	-10.39280***	0.0001
DRC	-4.259934***	0.0010

Note : Significance at  $\alpha = 1\%$

Source: Eviews. 4.1

Since the variables are noted to be I (1), there exists the possibility that they share a long run equilibrium relationship. To test this, we apply multivariate co integration test of Johansen (1968); Johansen and Juselius (1990) and report the trace statistic and maximal eigenvalue statistics from these tests at particular lag length

**TABLE 3.2.**  
**JOHANSEN-JUSELIUS COINTEGRATION TESTS**

<b>Null Hypothesis (Lag 1)</b>	<b>Trace</b>	<b>Max. Eigenvalue</b>
r=0	81.27343**	38.28263**
r<1	42.99080**	21.16253
r<2	21.82827*	14.82860
r<3	6.999668**	6.999668**

\*(\*\*) denotes rejection of the hypothesis at the 5 % ( 1%) level

Source: Eviews 4.1.

The other approaches used to explain the results, we specify a dynamic model using VAR framework by generating variance decomposition and impulse response functions to examine short-run dynamic interactions among variables. Again, we also examine the direction among variables in the system by using Granger causality test. We intend to convey whether granger interpreted as unidirectional causality, feedback/bilateral causality or independence.

## **FINDINGS**

### **4.1 Islamic Bank Performance in Indonesia**

Tragically, although the Muslim population in Indonesia reaches more than 70%, the establishment of Islamic banks was relatively late as compared to the neighboring country, Malaysia. The first Islamic bank namely Bank Muamalat Indonesia (BMI), which was established in November 1 1991, was gained highly supported by the then President of Indonesia, Suharto. Unlike Malaysia, up to current time, Indonesia does not have an Islamic Banking Act. The existing Islamic banks are under the revision of the conventional banking act which mentions that the banks have been allowed to operate other system instead of using interest. Besides Islamic banks, there existed also the Islamic Rural Banks and Islamic Banking Unit.

Eight years after the establishment of the first Islamic bank, the second was established, the Bank Syariah Mandiri. It was a conversion of the conventional bank, Bank Susila Bakti. In the same year, Islamic Banking Unit was established. It is a unit

within conventional bank which offer Islamic banking product. However, the difference between Malaysia and Indonesia is that Malaysia uses Islamic window, whereby within the office of conventional banks, there exists a different counter for Islamic banking product. In Indonesia, conventional banks should have a separate building as well as separate management.

After two decades, Indonesia's government evaluates that Islamic Banks record the furnish growth, and it has push up the government finally to moderate in establishing many Islamic banks. In 2000, there were only three Islamic banking units namely: Bank IFI syariah, Bank Jabar Syariah, Bank BNI Syariah. The third Islamic full fledged bank was established in 2004, the Bank Syariah Mega Indonesia. At the end of 2007, as many as twenty-six Islamic banking units were established (Sukmana, 2009).

**TABLE 4.1**  
**NUMBER OF ISLAMIC BANKING IN INDONESIA**

<b>Year</b>	<b>Islamic Bank</b>	<b>Islamic Banking Unit</b>
1992	1	0
1993	1	0
1994	1	0
1995	1	0
1996	1	0
1997	1	0
1998	1	0
1999	2	1
2000	2	3
2001	2	3
2002	2	6
2003	2	8
2004	3	15
2005	3	19
2006	3	20

2007	3	26
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Source: Syariah Banking Report 2007

Bank Muamalat performed well in the early years of its commencement. In the second year of its existence, deposit increased from 20,800 million Rupiah in 1992 to 60,320 million in 1993. Similarly, Financing also increased very significantly, from 32,650 million Rupiah to 92,000 million Rupiah in the subsequent year (Table 2.10 below). The following years, BMI was able to maintain good performance. However, the Asian crisis in 1997 created damage to the banking system. Not only the conventional banks suffer, Islamic Banks were also affected. Table 2.10 shows that in 1998, Islamic banking assets, financing and deposit were declining very significantly. Growth of those three indicators shows contractions of 18.3%, 30, 5%, and 15, 4% respectively.

At that time Bank Indonesia had to increase interest rate in a significant rate to prevent further deterioration of the Rupiah due to capital flight. Consequently, this high interest rate was enough to attract customers to withdraw their funds from Islamic banks to conventional banks. This is called the displacement commercial risk which had to be faced by Islamic banks. It is the risk whereby depositors withdraw their money from Islamic banks and put it in the conventional banks due to more attractive interest rates given by their conventional counterparts. Nevertheless, in 1999, Islamic banks were able to recover. Asset, Financing and Deposit increased to 44.5%, 8.05% and 34.7% respectively.

The growth of Islamic banks in Indonesia, although increased significantly in the nominal term, did not in terms of the percentage share of the total banking asset. In 2000, total Islamic banking asset was Rp 1,790,168 million and that amount accounted for only 0.17% of total banking assets. 2004 marked the year in which the proportion of Islamic banking assets out of total banking asset reached beyond 1% (Monthly Statistical Bulletin, August 2004). Comparing the percentage share of the total banking asset between Malaysia and Indonesia, Malaysia is still far ahead of Indonesia. Currently, Islamic banking asset in Malaysia is over 10% out of total banking assets whereas in Indonesia is around 2%. This is of no surprise given the fact that Islamic banking in Malaysia was established ten years earlier than that of Indonesia.

**TABLE 4.2**  
**PERFORMANCE OF ISLAMIC BANKING IN INDONESIA**

Year	Asset	Financing	Deposit	Growth (%)		
				Asset	Financing	Deposit
1992	120,880	32,560	20,800			
1993	166,960	92,000	60,320	38.12	182.56	190.00

1994	246,080	188,800	132,880	47.39	105.22	120.29
1995	394,400	285,920	275,680	60.27	51.44	107.47
1996	515,200	310,480	396,560	30.63	8.59	43.85
1997	586,720	456,160	463,440	13.88	46.92	16.87
1998	479,200	317,040	391,920	-18.33	-30.50	-15.43
1999	692,800	342,560	528,080	44.57	8.05	34.74
2000	1,790,168	1,271,162	1,028,923	158.40	271.08	94.84
2001	2,718,770	2,049,793	1,806,366	51.87	61.25	75.56
2002	4,045,235	3,276,650	2,917,726	48.79	59.85	61.52
2003	7,858,918	5,530,167	5,724,909	94.28	68.78	96.21
2004	15,325,997	11,489,933	11,862,117	95.01	107.77	107.20
2005	20,879,874	15,231,942	15,582,329	36.24	32.57	31.36
2006	26,722,030	20,444,907	20,672,181	27.98	34.22	32.66
2007	36,537,637	27,944,311	28,011,670	36.73	36.68	35.50

Source: Bank Indonesia Annual Report Various Issues & harahap and Basri (2003)

In terms of the economic sectors which were financed by Islamic banks, there existed two sectors which dominated the Islamic bank financing portfolio. These sectors are: business services sector and trade, restaurants and hotels sectors. The former sector accounted for about 30% and 30.15% in 2005 and 2007 respectively. Meanwhile the trade, restaurant and hotels sector as the second biggest sector financed by Islamic banks accounted for 11.24% and 14.86% in 2005 and 2007 respectively. The sector which was least financed by the Islamic banks was the utilities sector which accounted for 0.43% in 2005 and 0.59% in 2007.

**TABLE 4.3**  
**ISLAMIC BANK FINANCING BY SECTOR IN INDONESIA (%)**

Sectors	2005	2006	2007
Agriculture, forestry and agricultural facilities	4.5	3.40	3.00

Mining	2.59	1.83	1.83
Manufacturing	6.11	4.60	4.91
Water, gas and electricity	0.43	0.08	0.59
Construction	10.14	8.01	8.48
Trade, restaurants and hotels	11.24	14.87	14.86
Transport, cargo storage and communication	8.26	5.70	5.61
Business services	29.49	26.69	30.15
Social services	7.91	7.12	6.81
Others	19.33	27.66	23.76

Source: Indonesian Shariah Banking Statistics. Various Issues

In terms of the types of financing contract in Islamic banks, it has been dominated by the buy and sell concept or *murabahah*. This figure is more or less same with what has existed in Malaysia. *Murabaha* in Indonesia accounted for more than 60% out of the total financing in 2000 (see Table 2.10) whilst the profit sharing concept which uses of *musyarakah* and *mudharabah* achieved more than 30%. Interestingly, over the last four years, the composition mix has changed in that while the trend of the proportion of *murabahah* showed a decrease, the profit sharing concept showed an increasing trend. This is because Islamic banks have been able extend the use of the profit sharing concept to the *koperasi* (cooperative societies) eventhough they extend the funds to their members using the *murabahah* concept. Although it is shariah compliance, the *murabahah* concept is almost similar to that of conventional banking lending. Hence in order for Islamic banks to be differentiated from conventional banks, they should use more on the profit sharing concept.

**TABLE 4.4**  
**ISLAMIC FINANCING BASED ON TYPE OF CONTRACT**

Type of Contract	2000	2001	2002	2003	2004	2005	2006	2007
Musyarakah	0.025	0.026	0.018	0.055	0.111	0.125	0.114	0.158
Mudharabah	0.298	0.196	0.152	0.144	0.179	0.205	0.199	0.200
Murabahah	0.610	0.693	0.709	0.715	0.665	0.623	0.617	0.592

Salam	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Istishna	0.059	0.082	0.067	0.054	0.027	0.018	0.016	0.013
Qardh	0.000	0.000	0.000	0.000	0.009	0.008	0.000	0.000
Others	0.008	0.002	0.053	0.032	0.009	0.021	0.053	0.038

Source: Annual Indonesian Shariah Banking Development Report, 2006 and 2007

## 4.2 Empirical Findings

### 4.2.1. VAR Estimation

According to the stationary and co integration test, we found that the system has indicated that there is a long run relationship among variables. The co integrating vector representing the long run relationship represented by equation below:

$$MSA = 0,02627 + 0,00310 DRC + 0,0056 RRM + 0,000448 SMR$$

The equation above construes that all variables gather together in influencing the level of mudharaba investment in Islamic Banks during the period of observation. F test shows 28,73 which signify all variables simultaneously influence the mudaharaba investment in 1% level. Interestingly, based on the equation, the signs show the positive relationship. Despite the rate of return both in conventional banks and stock markets are higher than Islamic banks return, it still implies the positive impact to mudharaba investment. Thus, we can justify that investment in Islamic banks are more interesting and profitable rather than in the other financial instruments. It also identifies that customers are aware and not solely seeking for profit, but religious aspect seems to be inculcated and penetrated into the soul of Muslims in Indonesia. Those reasons mentioned actually support the empirical studies that previously done by Haron, Ahmad, and Planisek (1994), Gerrard, and Cunningham (1997), and Metawa and Almosawi (1998), which firmly argue that the important factors for both Muslims and non-Muslims in viewing Islamic banks were fast services, friendliness, and confidentiality, bank's reputation as well. The most important reasons were Islamic banks transact and apply shariah principles. Similarly, the customer's view that the motive of them are in terms of the location which is considered closed to their habitats.

**TABLE 4.5.**  
**Variance Decomposition and Impulse Response**

Variance Decomposition	Periods	MSA	RRM	SMR	DRC
MSA	1	96.27894	0.016086	0.870178	2.834798

	6	93.61359	0.178488	4.321547	1.886379
	12	92.59621	0.195219	5.707859	1.500709
	24	92.10325	0.203245	6.382590	1.310912
<b>RRM</b>	1	0.000000	99.98827	0.000000	0.011726
	6	0.094957	99.85523	0.047475	0.002342
	12	0.108822	99.82239	0.067509	0.001276
	24	0.115864	99.80600	0.077367	0.000767
<b>SMR</b>	1	0.000000	0.008918	91.54536	8.445724
	6	0.451065	0.626231	87.55359	11.36911
	12	0.546448	1.079176	83.41117	14.96321
	24	0.707518	1.851875	76.23740	21.20320
<b>DRC</b>	1	0.000000	0,0000	0,0000	100,00
	6	0.269513	0.073248	4.426953	95.23029
	12	0.294261	0.080924	5.428198	94.19662
	24	0.303631	0.083848	5.826542	93.78598

Source: Eviews 4.1.

Variance decomposition (VC) contributes in establishing a different method to describe dynamic system of VAR. Thus, VC is able to measure in the cases of upcoming

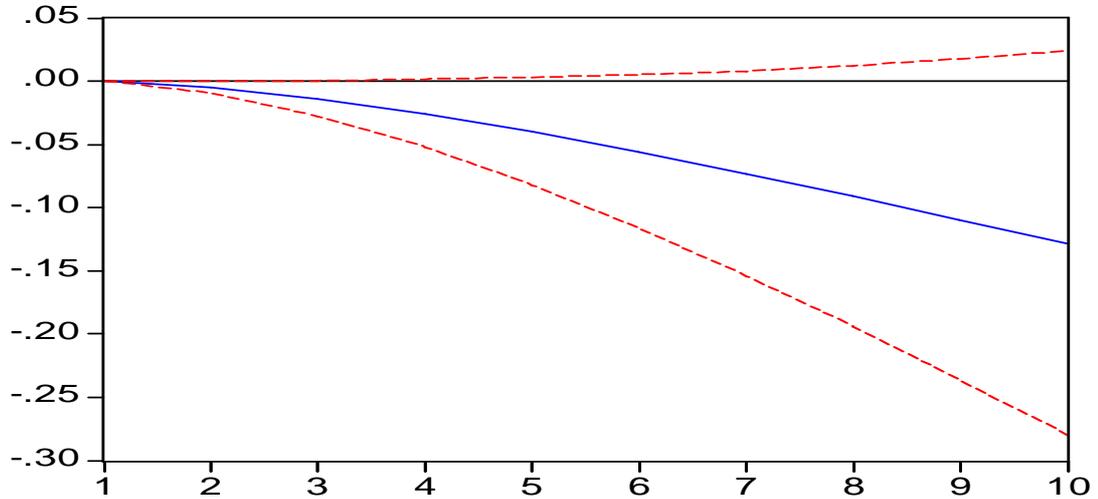
shocks into system. In application, VAR is generally used to predict on contribution of percentage in each variable in spite of the change a certain variable in VAR system as response on current shocks into variable. According to table above, we clearly see that in terms the change of MSA variable is influenced strictly on innovation (change) in variable SMR (stock market return), which records 6,8% in the 24 periods. It also indicates that the movement of Mudharabah Investment variable (MSA) is merely depended on how far the stock market return is up or down, although the 6, 8% is accounted for in a little percentage. In terms of rate of return mudharabah investment variable (RRM) is not too significant affected by the innovations of the other variables. It means, RRM is moving without closely tied on the both conventional and stock market return. Therefore, in the case of Islamic banks, the customers who are going to invest their funds are not solely motivated by profit motive agenda. In terms of Stock market return (SMR), it provides clearly information that Discount rate of Conventional (DRC) is the only one which significantly affect to SMR movements. It supports the theory which is explained concerning the loan able funds in financial market, whereby rational investors will diversify their investment portfolio in order to mitigating risk and optimalize the rate of profits. However, both the rate return and mudharaba investment are not influenced by its movement, so we can conclude that the Islamic banks separately operate and detach their funds which is not considered as shariah complaints activities. Similarly, in the case of discount rate of conventional banks (DRC) is only influenced by the innovation of stock market return.

#### **4.2.3. Impulse Response Function**

Plotting the impulse response function is a practical way to represent the behavior the various shocks of the variables in a certain period of time. Again, IRF is used to trace the respond occurred from endogenous variables in VAR system. In other words, IRF are attempting to trace any responds because of shock or any changing in disturbance variables.

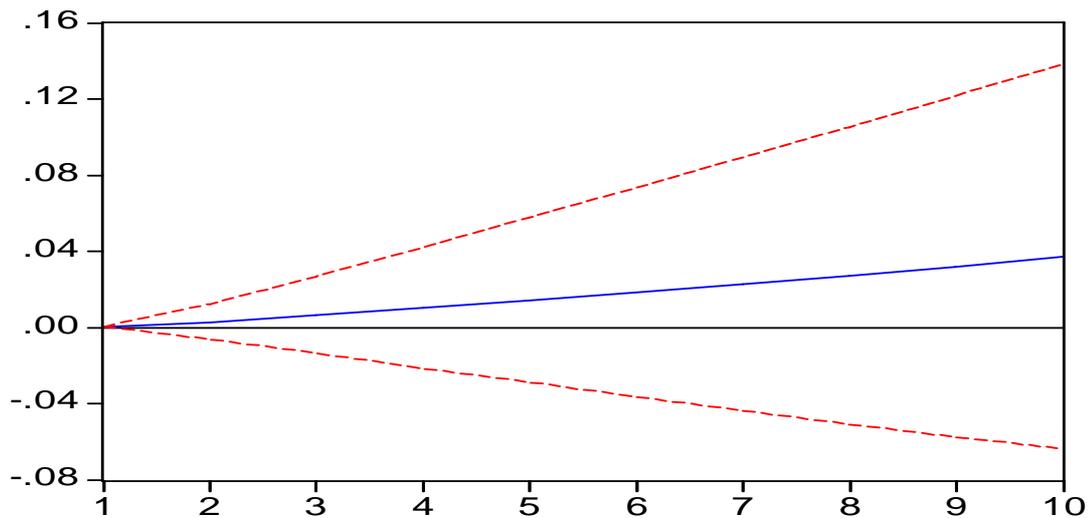
In terms of the Mudharabah Saving Account (MSA) response, any changes or innovations on rate of mudaraba return are apparently depicted in picture below. The picture above shows the response may be given if any shock are incurring in VAR system. It also clearly shows that any shocks occurred whereby rate of return in Mudharabah Investment Account (RRM) will be response negatively by Mudharaba Investment. In the case of Islamic banks mean that any shocks incurred concerning the variable movements seemly do not enhance the level of deposits, and the MSA tends to download sloping to the right meanwhile RRM is moving far away toward MSA line. Generally speaking, it firmly signifies that customers are not too responsive in viewing greater rate of return or seeking profit in motivating their investment action.

Accumulated Response of MSA to Cholesky  
One S.D. RRM Innovation

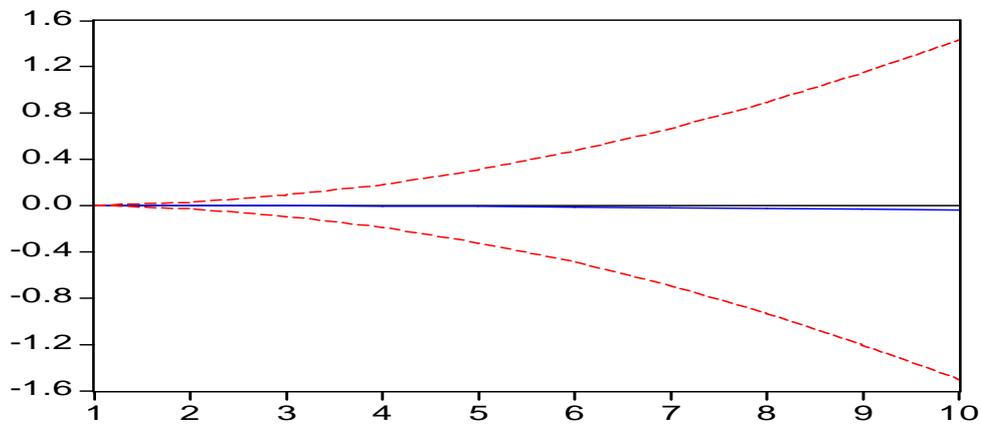


The impulse response function also can be drawn in Stock Market Innovation (SMR) upon MSA response. According to picture below, we can construe that the increase of stock market return will be response similarly and also tend to upswing. It indicates that Islamic banks eager to compete in attracting consumers investment by trying to response the raise of stock market return positively. Therefore, the strategy which probably should keep in mind, is that, Islamic banks remain competitive and minimalize the commercial risk that may occur in spite of the widespread between both return investment assets.

Accumulated Response of MSA to Cholesky  
One S.D. SMR Innovation



Accumulated Response of MSA to Cholesky  
One S.D. DRC Innovation



In terms of the impulse response function MSA on any innovation of Discount rate of Conventional (DSC) is depicted on picture above. Interestingly, any innovation or shocks on conventional rate do not shift out the level of mudharaba investment, even MSA remains in constant level. It represents two indications, firstly, Islamic banks behave like that after investigate deeply that customers are more religious enough and conducting investment actions not solely motivated by profit even higher rate of return. Secondly, Islamic banks are compensating the higher of interest in conventional banks by offering an excellent service during, and post service of Islamic banks transactions. Thus, Islamic banks expect much that those efforts enable to tie up and satisfy them in applying Islamic banks facilities. Therefore, any increase of conventional rate is not too much worrying on any commercial risk, such as decreasing the level of deposits investment put by customers. In summary, despite conventional banks are trying to move up or down its rate, the level of mudaraba will be not shifted out significantly, or less-influenced since the Islamic bank has established, such as credibility, reputation, and also customers motive under lied behind.

#### 4.2.3. Granger Causality Test

Generally, it is used to analyze relationship among variable observed in the system in the short run. Furthermore, granger causality will be applied in investigating, and setting the direction may occur when some variables are interacting each other and finally can be identified whether those variables are closely moving in the same direction. Basically, in granger equation we are familiar with the classification in terms the directional signs that may emerge. Gujarati, 2003 have tried to interpret the function and purpose granger to be Un-directional causality, feedback/bilateral causality, and independence. In the case of our research, the results as follows:

**TABLE 4.6.**  
**VARIANCE DECOMPOSITION RESULTS**

Null Hypothesis:	Obs	F-Statistic	Probability
MSA does not Granger Cause DRC	83	1.33534	0.25130
DRC does not Granger Cause MSA		0.69658	0.40642
RRM does not Granger Cause DRC***	83	7.12364	0.00921
DRC does not Granger Cause RRM		1.93953	0.16758
SMR does not Granger Cause DRC***	83	9.11596	0.00340
DRC does not Granger Cause SMR		0.24939	0.61887
RRM does not Granger Cause MSA**	83	4.07907	0.04677
MSA does not Granger Cause RRM		0.14266	0.70665
SMR does not Granger Cause MSA	83	0.07920	0.77912
MSA does not Granger Cause SMR		0.76585	0.38412
SMR does not Granger Cause RRM	83	1.2E-05	0.99722
RRM does not Granger Cause SMR*		3.09604	0.08231

Source: Eviews: 4.1.

\*\*\*, \*\*, \* = significant at 1%, 5%, and 10%

According to table above, we can evaluate that RRM (Rate return of Mudaraba) has one directional causality to DRC (Discount rate of Conventional). It means, statistically RRM simply can cause the movement of DRC, so does SMR (Stock market rate) to DRC. In the case of the investment preference, customers are observing and coming up with a conclusion that rate of return both in Islamic banks and stock markets are being marked more interesting and profitable as compared with conventional banks.

Similarly, RRM also has causality relationship to MSA (Mudaraba Investment account) and SMR (Stock market return). It indirectly implies that statistically RRM seems to be an important variable in playing important role, specifically to specify and

drive up the potential movement and change in MSA and SMR. Therefore, in regarding the important of RRM in creating and transmitting a potential change in MSA, SMR, even DRC, Islamic banks need to maintain and keep their competitiveness by monitoring, and enhancing their performance.

## **Conclusion**

Islamic bank's deposits behaviour play an important role in the context of Islamic banks growth and competitiveness. Religious and motive aspects are still colouring and affecting the level of preference in depicting the investment behaviour. However, Islamic banks over last two decades have been recording furnish growth, whereby in 2004 the assets accumulation is 0, 17% share from total assets in Islamic banks industry. Islamic banks are realizing that to enhance their portion, they need to attract and push up the flows of deposit circulated into Islamic banks by customers, such as by intensifying the Mudaraba investment account. Nevertheless, the level of mudaraba investment (MSA) are affecting by factors outside and inside the Islamic banks its self, such as Mudarabah Rate of Return (RRM), Stock Market Return (SMR), and Conventional Interest rate (DSC). Furthermore, in synthesizing and also analyzing into details, VAR approach are being utilized, which are also supported by applying the impulse response function, variance decomposition, and granger causality test.

The results show that MSA is positively influenced by the changes in SMR, DSC, and RRM simultaneously. Since the VAR system is co-integrated, it implies that there is long run relationship among dependent and independent variables. Accordingly, the variance decomposition indicates that MSA shock is only contributed by the innovation of stock market return. Any changing in stock market may create higher implication to the preference of customers in investing their funds into investment mudaraba. Similarly, the impulse response function also construes interesting findings. In the case of rate of return, Islamic banks tend to not too responsive and pay more attention in decreasing RRM. Islamic banks are response negatively in regarding small percentage of RRM distributed among customers. In terms of stock market return (SMR) shows that the increasing of SMR will be response positively by Islamic banks. Then, in terms of conventional rate, Islamic banks remain in constant response despite conventional banks are increasing their rate. Customers awareness and Islamic banks improvement, such as service facilities are parts of main consideration not too response excessively on the increasing conventional rate. Later on, by implementing granger causality test, we finally get to know that SMR and RRM cause the movement of DRC, and basically RRM causes the movement of SMR and MSA. Literally meaning based on this research, rate of return is seen to be influential indicator in enhancing Islamic banks performance, particularly in the context of competitiveness, it is used to as main reference in pushing the innovations of SMR in stock markets and DRC in conventional banks. Therefore, in brief, we may take to conclude that depositor's behaviour in Islamic Banks are not solely motivated by seeking profit and short run interest. Nevertheless, religious awareness and Islamic spirit seem to be the main conduct to deal with any facilities as well as services offered by Islamic Banks.

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