INDUSTRIAL ANALYSIS OF LIQUIDITY RISK MANAGEMENT IN ISLAMIC BANKING
(Case of Indonesia)

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Abstract. Islamic banking industry is so prospective over the years. Although depositors mainly locate their funds in long-term deposit but their investment motive is not for long-term perspective, rather it is for regular transactions followed by expectation for short-term return. Islamic banks respond the potential of short-term liquidity needs by releasing most of the funds into short-term financing contracts together with preparing some liquid instruments for regular liquidity demanded. There are three tiers of liquid instruments to mitigate any liquidity problem involving internal and external sources of bank’s liquidity. Lastly, the role of central bank and government completes the liquidity risk management mechanism.

Keywords: rate of return, NPF, FDR, liquidity

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1. INDONESIAN ISLAMIC BANKING INDUSTRY

1.1. Industrial Performances

The Indonesian Islamic banking industry is in a growing path after the establishment of the first Islamic bank in 1992. People’s awareness to employ Islamic banking spurred by government and Indonesian Moslem Scholars Council (MUI) has made the industry meaningful. Up to March of 2009, there are five Islamic Commercial Banks (BUS) followed by twenty six Islamic Banking Unit (UUS) and one hundred thirty three Islamic Rural Banks (BPRS) integrating 888 offices around the country (see Table 1 below).

<table>
<thead>
<tr>
<th>BANKING INDICATORS</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Islamic banks (unit)</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Islamic banking units (unit)</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>8</td>
<td>15</td>
<td>19</td>
<td>20</td>
<td>25</td>
<td>27</td>
<td>26</td>
</tr>
<tr>
<td>Islamic rural banks (unit)</td>
<td>79</td>
<td>81</td>
<td>83</td>
<td>84</td>
<td>88</td>
<td>92</td>
<td>105</td>
<td>114</td>
<td>131</td>
<td>133</td>
</tr>
<tr>
<td>Total offices (unit)</td>
<td>146</td>
<td>182</td>
<td>229</td>
<td>337</td>
<td>443</td>
<td>550</td>
<td>567</td>
<td>683</td>
<td>951</td>
<td>888</td>
</tr>
<tr>
<td>Total asset (trillion Rp)</td>
<td>1.79</td>
<td>2.72</td>
<td>4.05</td>
<td>7.86</td>
<td>15.33</td>
<td>20.88</td>
<td>26.72</td>
<td>36.53</td>
<td>49.55</td>
<td>51.67</td>
</tr>
<tr>
<td>Total financing (trillion Rp)</td>
<td>1.27</td>
<td>2.05</td>
<td>3.28</td>
<td>5.53</td>
<td>11.49</td>
<td>15.23</td>
<td>19.53</td>
<td>27.94</td>
<td>38.19</td>
<td>39.30</td>
</tr>
<tr>
<td>Total deposit (trillion Rp)</td>
<td>1.03</td>
<td>1.81</td>
<td>2.92</td>
<td>5.72</td>
<td>11.86</td>
<td>15.58</td>
<td>20.67</td>
<td>25.65</td>
<td>36.85</td>
<td>38.04</td>
</tr>
</tbody>
</table>

*Source: Bank Indonesia, data up to March 2009

Fortunately, those figures are further enhanced by a healthy financial intermediary function and prudential operations. Financing to Deposit Ratio (FDR) has been lying on 107.89% on average from January 2001- March 2009 (while conventional LDR is 58.45% on average in the same period). Non Performing Financing (NPF) is between 2%-4%, when conventional one records 5%-8%. Other measures, like total assets, financings and deposits grow annually for more than 50%-60% on average. Lately, total assets have reached Rp51.67 trillion with total financings of Rp39.30 trillion, beyond its total deposits of Rp38.04 trillion.

Despite the above achievements, the share of Islamic banking in the total banking industry is still very small. Total assets are around 2% (2.22%) of total banking asset. Less competitive, repositioning of banks in people’s mindset and less synergy with other financial institutions are some of the weaknesses of the Islamic banking industry (Blue Print, 2005:18-22). Most importantly, some fundamental problems leading to liquidity risk challenge the industry, especially depositors’ sensitive liquidity behavior and investment motives, limited liquid Islamic

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2 Islamic banking industry consists of Islamic Commercial Banks (BUS), Islamic Banking Unit (UUS) and Islamic Rural Banks (BPRS). Islamic Banking Unit (UUS) is a special sharia banking unit in conventional bank (windows system or dual banking system) while Islamic Rural Banks (BPRS) names Islamic banks operated in suburb / rural areas.

3 As reported in Bank Indonesia annual report 2006.
banking instruments, the industry’s fragility and unfavorable macroeconomics issues; etc (Ismal, 2008a: 9-12). Nonetheless for the near future, regulators and stakeholders are trying to make the Indonesian Islamic banking industry the most attractive one in ASEAN in 2009 and the leader in ASEAN in 2010 (Grand Strategy, 2008:4).

1. 2. The General Framework on Liquidity Risk Management

The liquidity risk management in the Indonesian case adopts internal and external approaches. Internally, Islamic banks design an organizational structure which is suitable to control liquidity risk internally and balance assets and liabilities accordingly. Meanwhile, the external approach is to build good relations (communication and coordination, full information, credit monitoring, etc) between the banks and their stakeholders (entrepreneurs, depositors, regulators as well as other banks). Finally, to fill out regular liquidity demanded or liquidity pressure after setting up both internal and external approaches, they have some usable liquid instruments to be occupied when needed as seen in figure 1 below.

Figure 1. Liquidity Risk Management in Indonesian Islamic Banking Industry

<table>
<thead>
<tr>
<th>Internal Organizational Structure</th>
<th>Relationship with the Depositors</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Having special risk management division/department</td>
<td>- Educating depositors about Islamic banking principles and operation</td>
</tr>
<tr>
<td>- Having risk monitoring committees</td>
<td>- Sustaining payment on profit/revenue sharing to maintain loyalty</td>
</tr>
<tr>
<td>- UUS coordinates risk management with parent company</td>
<td>- Improving the performance, increasing network, etc to maintain trust.</td>
</tr>
<tr>
<td>- President Director is one of the most responsible persons</td>
<td>- Guaranteeing the payment of every fund withdrawals</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Asset Liability Balancing</th>
<th>External Relationship with the Central Bank / Government</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liability Side</td>
<td>- Implementing proper risk management set by BI</td>
</tr>
<tr>
<td>- Offering Mudarabah time deposit to gain long term investment funds</td>
<td>- Utilizing BI's Islamic monetary instruments</td>
</tr>
<tr>
<td>- Adjusting PLS ratio to make it competitive with interest rate return</td>
<td>- Having reserve requirement as stipulated by BI</td>
</tr>
<tr>
<td>- Analyzing type of deposit, tenor, etc for financing purposes</td>
<td>- Possibility to use BI's emergency liquidity &amp; deposit insurance</td>
</tr>
<tr>
<td>- Analyzing type of depositors, withdrawing factor, etc.</td>
<td></td>
</tr>
<tr>
<td>- Retaining profit and allocating risk investment reserves</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Asset Side</th>
<th>Relationship with Business Partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Concentrating financing on short term debt based financing</td>
<td>- Cooperation, communication and sharing information</td>
</tr>
<tr>
<td>- Preferring liquid, profitable and highly returnable economic sectors</td>
<td>- Maintaining sustainable payment on debt/equity based contracts</td>
</tr>
<tr>
<td>- Preferring SME which has low record of NPF and manageable</td>
<td>- Monitoring the performance of entrepreneurs</td>
</tr>
<tr>
<td>- Funds in short term financing is bigger than short term deposit</td>
<td>- Business partner's selection and default policy</td>
</tr>
<tr>
<td>- Financing monitoring, evaluation, cooperation and coordination</td>
<td></td>
</tr>
<tr>
<td>- Cooperation among Islamic banks for joint investment financing</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>External Relation with Other Banks</th>
<th>Islamic Banking Instruments for Managing Liquidity Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Placement of funds directly &amp; indirectly to other Islamic banks</td>
<td>Cash Reserves</td>
</tr>
<tr>
<td>- Interbank cooperation in the Islamic money market</td>
<td>Placement of funds in Bank Indonesia (Positive Bank’s Account + SWBI)</td>
</tr>
<tr>
<td></td>
<td>Placement of funds in other Islamic banks</td>
</tr>
<tr>
<td></td>
<td>Islamic Money Market (PUAS) Instruments</td>
</tr>
<tr>
<td></td>
<td>Emergency Liquidity Facility from B exploding</td>
</tr>
</tbody>
</table>

Source: Compiled from various sources.
2. ORGANIZATIONAL APPROACH ON LIQUIDITY RISK MANAGEMENT

2.1 Islamic Bank (BUS)

The general organizational structure of the Islamic banks (BUS) includes three bodies which conduct risk management activities. The first is risk-monitoring committee, set up by Board of Commissioners. The second is the Directorate of Compliance and Risk Management, which has special risk management division/department running the general operation of risk management within the entire bank. Finally there is the risk management committee chaired by the President Director that functions as a central command of liquidity risk policy for all directorates and is supported by internal supervisor committee as seen in figure 2 below.

However, the focus of this organizational structure is merely on the internal side of the liquidity management while the integrated banking industry nowadays requires cooperation and coordination with the external side of the organization such as with banking regulators, business partners, depositors and the public in general. As such, the structure needs to have a risk management committee which integrates and incorporates banking regulators as the guardian of availability of liquidity in the industry, entrepreneurs to know the management of the funds, and depositors/ general public to understand their liquidity behaviors.
2. 2. Islamic Banking Unit (UUS)

In UUS, the organizational structure has some dissimilarity. The President Director of the parent company has the highest level of responsibility, commanding a specific Director\textsuperscript{4} who deals with UUS operations. The UUS itself is chaired by the head of the UUS who guides operational activities such as the treasury department and the operational department where Islamic funding and financing takes place. Liquidity risk management is conducted within the activities of these two departments. Lastly, the management of risk is centralized in a risk management department in the parent company supported by an Asset Liability Committee (ALCO) (see figure 3 above).

Therefore, liquidity risk management as part of risk management is not managed and tackled by a special internal department/team in the UUS considering that its operation has different characteristics and values with the holding company. The funding and financing divisions in UUS should also be complemented with an internal risk management division to cover liquidity risk issues. Hence, the function of ALCO in parent companies should be optimized to capture issue of liquidity risk management (Arani, 2006:25). Therefore in the UUS, the responsibility of the President Director, the Sharia Supervisory Board and the Sharia/Treasury Director to manage liquidity risk should be supported by risk management and monitoring committee like the ones in BUS.

3. LIABILITY SIDE RELATED TO LIQUIDITY RISK MANAGEMENT

3. 1. Sources of Funds and Its Provisions

There are two categories of sources of public funds in Indonesian Islamic banking industry. These are public funds either in Islamic banking deposits or in the form of non-bank deposits. The former comprises of (1) wadiah\textsuperscript{5} demand deposits, (2) mudarabah saving deposits, and (3) mudarabah time deposits. In the latter there are (1) received financing, (2) securities issued by banks, (3) inter bank liabilities, (4) liabilities to Bank Indonesia (BI); and (5) other payables.

Public funds in banking deposits, especially Mudarabah time deposits, have various tenors from 1 month to more than a year. Any withdrawal out of the due date period is commonly charged a penalty. Nevertheless, unlike most conventional banking rules, the penalty

\textsuperscript{4} Such as Sharia Director or in other UUS it is under Treasury or Small and Medium Enterprise (SME) Director

\textsuperscript{5} Generally is under Wadiah Yad Dhomanah contract.
is based on a fixed amount of money not connected with nominal amount of time deposit. Furthermore, in relation to liquidity risk management, some banks do not have any communication with depositors regarding allowable time for depositors to liquidate their time deposit (Ismal, 2008b:7-20).

In a specific case when a bank does not have enough liquidity to pay a mature or immature time deposit, some of them often request extra time to provide enough liquidity, which is quite inconvenience for depositors. But in normal liquidity conditions and as liquidity runs never happen in this industry, banks just use their internal cash reserve based on liquidity forecasting (Ismal, 2008b:7-20). Other liquidity sources also available in case of high and sudden demand of liquidity, even BI provide emergency liquidity for this concern and will be assessed in the latest part of the analysis.

### 3.2. Liquidity Risk Analyses on the Liability Side

#### 1. Breakdown of Liability Side

Mudarabah time deposits are the largest types of deposits accounting for 54.64% of total deposits of Islamic banks, followed by Mudarabah saving deposits at 31.77% and Wadiah demand deposits at 13.59%. Therefore, total amount of liquid deposit (both Wadiah demand deposit and Mudarabah saving deposit) is 45.36%, almost the same amount as less liquid deposits (Mudarabah time deposit). This means that only around half of total deposits which can potentially be used for long term financing. Further, if public funds in non-banking deposits, which are liquid, are included, total liquid deposits becomes 50.65%, leaving less liquid deposit in of only 49.35% (see figure 4).

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**Figure 4. Liability Breakdown based on Type of Fund**

<table>
<thead>
<tr>
<th>Public funds in banks deposit</th>
<th>Mudarabah Time Deposit (54.64%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(70.3% in 1 month) - liquid deposit</td>
</tr>
<tr>
<td>Public funds in non banks deposit</td>
<td>Mudarabah Saving Deposit (31.77%)</td>
</tr>
<tr>
<td>Interbank, Securities, Received Financing, Liability to BI, etc</td>
<td>Wadiah Demand Deposit (13.59%)</td>
</tr>
<tr>
<td>less liquid deposit (54%) (long term deposit)</td>
<td>liquid deposit (46%) (short term deposit)</td>
</tr>
<tr>
<td></td>
<td>liquid deposit (51%) (short term deposit)</td>
</tr>
</tbody>
</table>
As liquid deposits are allowed to be withdrawn anytime, the demand for executing has to be accurately predicted. Even, such 54.64% less liquid deposit should be anticipated as well because 70.35% of it is a 1-month tenor with automatic rolled over (ARO) upon requested. Facing these realities, specific risk management strategies must be occupied by Islamic banks.

Another reason is because of the type of owners of the accounts. On average, 97.44% of 4.3 million total accounts belong to individuals with deposits ranging between Rp2-5 million and frequency of depositing money 2 times per month (Mars, 2008:20). Mudarabah time deposits are found to be the dominant one with Rp13.2 trillion (94.08% of total accounts) and Bank Muamalat Indonesia is their favorite bank for this account. Short-term deposits are recorded Rp0.47 trillion (5.92% of total accounts). Predicting liquidity behavior of individual depositors is indeed more difficult than companies. Moreover, the majority of Mudarabah time deposits in fact have a 1-month tenor as illustrated in figure 5.

On the other hand, although non-individuals (companies and government) account for 2.55% of the total industry’s accounts, they have an unavoidable nominal value of Mudarabah time deposit of Rp7.50 trillion, more than half of total deposits of individuals. Particularly, their short-term deposits are Rp4.69 trillion, much bigger than individuals. Thus, they tend to use Islamic banks for transaction purposes rather than investment purposes.

Therefore, in terms of liquidity pressure, non-individuals drive the short-term liquidity demand (from wadiah demand deposits and Mudarabah saving deposits) and both individuals and non-individuals jointly determine the long-term liquidity demand (from Mudarabah time deposits). In addition, since 1-month time deposits constitute 70.35% of the total Mudarabah time deposits, they are treated as potential short-term liquidity demand as well.

**Figure 5. Liability Breakdown based on Owner of Fund**

<table>
<thead>
<tr>
<th>Short term deposit* (44.52%) Rp4.69 trillion</th>
<th>Corporate accounts (2.55%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long term deposit** (55.47%) Rp7.50 trillion</td>
<td>Individual accounts (97.44%)</td>
</tr>
<tr>
<td>Short term deposit* (5.92%) Rp0.47 trillion</td>
<td></td>
</tr>
<tr>
<td>Long term deposit** (94.07%) Rp13.2 trillion</td>
<td></td>
</tr>
</tbody>
</table>

* Mudarabah saving deposit + wadiah demand deposit
** Mudarabah time deposit
2. Other Analysis Related to Liquidity Demanded

Prior investigation of breakdown of liability becomes a basis to identify Islamic banking strategy to manage liquidity. First of all, Islamic banks know that individual depositors seek maximum deposit return from Mudarabah time deposits. The need for regular transactions by individuals is low revealed by their small portion (5.92%) of short-term deposits. As such, although their liquidity behavior is more difficult to predict, their short-term liquidity demand can still be managed if the 1-month time deposits are always rolled over or at least anticipated and well-recorded by banks. In fact, Islamic banks have been successfully convincing individual depositors to roll it over by offering competitive revenue sharing ratios.

Secondly, for non-individuals, Islamic banks seem their second best investment option after conventional banks. Generally, non-individuals still expect to receive interest return like that offered by deposits in conventional bank. The minimum number of bank accounts (2.55%) and moderate nominal value of long-term deposits (Rp7.5 trillion) prove it. Although the ratio of short-term and long-term deposits is roughly 1:2, more than half of long-term deposits are indeed 1-month tenor, meaning that their main purpose is truly to meet regular transactions (liquidity).

Considering those facts, short-term liquidity demand from non-individuals can be high because of their non-profit motive and high portion of short-term and 1-month long-term deposits. Moreover, some of non-individual depositors are private companies, whose behaviors can not be predicted as easily as government institutions\(^6\). Ideally, widening Islamic banking products should be employed to bind companies with long-term investment and to make liquidity management much easier (Wilson, 2007: 5).

Finally, potential short-term liquidity demand can be estimated. Assuming 33.05% of non-individuals’ time deposits are 1-month ARO and 37.29% for individuals, combined with information from market players, the predictions are as in the following:

*Individual depositors*

- Short-term deposits are Rp0.47 trillion (1.26% of total industry’s deposits).
- 1-month time deposits are Rp4.95 trillion (13.02% of total industry’s deposits).
- Total short-term liquidity demanded: Rp5.43 trillion (14.28% of total industry’s deposits).

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\(^6\) Islamic banks might know government institutions’ activities. For example the Ministry of Religion is active during hajj, idul fitr, etc. Furthermore, no liquidity withdrawal commitment takes place as mentioned earlier.
Non-Individuals depositors

- Short-term deposits are Rp4.69 trillion (12.33% of total industry’s deposits).
- 1-month time deposits are Rp2.48 trillion (6.52% of total industry’s deposits).
- Total short-term liquidity demanded: Rp7.17 trillion (18.84% of total industry’s deposits).

Grand Total Short Term Liquidity Demanded by Type of Deposit

- Short-term deposits are Rp5.17 trillion (13.59% of total industry’s deposits).
- 1-month time deposits are Rp7.43 trillion (19.53% of total industry’s deposits).
- Grand total is Rp12.60 trillion (33.13% of total industry’s deposits)

3. Tracing The Potential of Short Term Liquidity Demanded

After finding some industrial facts and prediction of the demand for short-term liquidity, it is realized that Indonesian Islamic banking industry faces potential of liquidity pressure if it is not handled properly. As long as the industry can offer competitive banking returns, appropriate services and networks, liquidity distress will not hopefully occur. But if they are less competitive, paying low returns, and not attractive enough to depositors, the potential of short-term liquidity withdrawal may appear in the industry anytime.

The following discussion below will explore the behavior and sensitivity of the demand of liquidity (based on secondary data) and whether it can cause severe liquidity risk problems in Islamic banks. First, macroeconomic affect will see whether short-term deposits are very sensitive with high interest rate due to response of conventional monetary policy against unpleasant economic pressure. Second, daily transactions will tell how active is the short-term liquidity demanded because banks prepare more liquidity when it is more intense. Third, time deposit withdrawals for tenor adjustment are going to elaborate switching behavior for a better return/liquidity. Finally, the potential of rational depositor is another imperative thing to know what the source of short-term liquidity demanded is including depositors’ liquidity behaviors.

Macroeconomic Affect

External issues often affect the Indonesian economy. The increasing in world oil prices, the huge foreign capital inflows, the problems in US’s economy and the current global financial crisis are some examples of factors affecting the domestic economy. When tight monetary policy applies in response to negative external factors, the Islamic banking industry is automatically affected. Nonetheless, in reality, among three kinds of deposits, only Wadiah demand deposits, which react to the movement of interest rate as displayed in figure 6. Others seem unaffected and
keep growing in the inflating rate of interest rate. But it is realized that all types of deposit might be affected if the industry does not improve its performance and meet depositors’ expectation.

**Daily (Routine/Regular) Transactions**

Short-term liquidity pressure can be identified from a daily (routine) transaction. It is reflected in the movement of the bank cash reserves, inter bank activities and the position of bank’s accounts in the central bank. Cash reserves as an indicator of depositors’ daily transaction tend to be more active over time. Not exceptionally inter bank activities and bank’s account in Bank Indonesia, all of them are going progressively (see figure 7). They reveal that depositors’ routine transactions tend to be active and various short-term liquidity reserves should be prepared by banks.

However, because total deposits of the Islamic banking industry increase continuously, liquidity turnover is positive (incoming funds is bigger than outgoing funds). Moreover, a liquidity shortage has rarely occurred because Islamic banks have anticipated any liquidity demanded and studies a normal pattern of routine business transactions.

**Tenor Adjustment in Mudarabah Time Deposit**

One rationale of liquidating a time deposit is for profit motive tenor adjustment. Triggered by factors like high return offered by shorter tenor, flexibility, liquidity, uncertainty of economic condition, etc, depositors prefer placing funds in a 1-month tenor instead of a long one. In fact, the indication of tenor adjustment from long term into medium/short term tenor appears from more than 12-months tenor into 6-months, 12-months and 3-months. An average decreasing rate in more than 12 months tenor is 54.54% per month; 2.91% for 6-months; 2.77% for 12-
months; and 2.30% for 3-months whilst 1-month tenor solely goes up 1.26% on average per month within the period of December 2000 – March 2009.

From the liquidity risk management point of view, Islamic banks have to readjust this depositor mindset towards tenor by offering a more attractive and convincing return of a longer tenor. Ideally, Islamic banks should bind potential depositors in specific financing projects through a Mudarabah muqayyadah contract. Indeed with this contract, a more promising and higher return sharing can be provided besides an effort to refocusing financing orientation from debt based into equity based financing (Ismal, 2007:10-17). Then, hopefully, the withdrawals for tenor adjustment will happen the other way around, from the short-term placement into the longer-term.

The Potential of Rational Depositors

Amongst other factors, rational behavior that indifferently position Islamic banking and conventional banking is one of the most important issues. The sensitive investment decisions ending up with a displaced commercial risk has to be anticipated by the industry. One way to detect such behavior is by tracing the owners of Wadiah deposits (demand and saving deposits) and 1-month Mudarabah time deposits. Wadiah deposit holders consist of 246,192 individual accounts and 48,566 non-individuals’ accounts while 1-month time deposits holders belong to 70,017 individuals and 41,479 non-individuals. In total, all of them take over 9.52% of the total bank account holders. Because these deposit instruments are very liquid, depositors can take their funds anytime when needed.

Meanwhile, the public funds invested in non-bank deposits such as received financing, securities issued by banks, inter bank liability, liability to BI, and other payables, etc are assumed manageable. It is because Islamic banks attach directly with such deposits that they know precisely the due dates and withdrawal schedules.

4. ASSET SIDE RELATED TO LIQUIDITY RISK MANAGEMENT

4.1. Alternatives for the Allocation of Funds

Continuing the liability side analysis, Islamic banks advance public funds into four places, namely (a) direct financing to the real sector, (b) indirect financing to the real sector; (c) placement in the central bank, and (d) internal placement for liquidity reserve. Each of these has its own instruments as explained below:

7 Companies or individuals that have big amounts of funds in existing deposits or to be deposited.
1. Direct financing to the real sector uses equity-based instruments (long-term financing) mainly Mudarabah and Musharakah; debt-based instruments (short-term financing) such as Murabahah, Istisna, Salam and Leasing (Ijarah); service-based instruments (short-term financing) such as wakalah, ujrah, kafalah, hawalah, sharf; and qardh (benevolent loan).

2. Indirect financing to the real sector (short-term financing) consists of buying Islamic securities, placement of funds in other banks (inter bank asset), lending money through Islamic money market (PUAS), and equity participation.

3. Placement in Bank Indonesia (BI) consists of (1) positive bank accounts in BI comprised of reserve requirements and excess reserves and; (2) Bank Indonesia Sharia Certificate (SBIS).\(^8\)

4. Internal bank reserves consist of (a) cash reserves and; (b) allowances for earning asset losses (PPAP) as stipulated by the central bank.

   Preferably, the biggest portion of the funds should go to the direct financing as it contributes significantly to the economy. In particular, equity based financing attaches directly with the business activities compared with debt based financing. Nonetheless, in fact, indirect financing dominates the whole financing meaning that most of the investment projects are not prospective enough to be financed by Islamic banks. Placement in the central bank also reveals the anticipation of short-term liquidity withdrawal rather than profit seeking. Lastly, cash reserves are held to fulfill the demand of liquidity for a daily transaction.

4.2. Bank Financing with Respect to Liquidity Management

In the Indonesian Islamic banking industry, most of the fund allocation is in debt-based financing, which is short-term placement. It accounts for 74% of total industry’s financing whilst long-term placement is only 26%. It is not surprising as 46% of total deposit is in short-term deposit as mentioned previously. Therefore, all of the short-term deposits are fully occupied to finance short-term financing. Even if public funds in non-bank deposits are included, all of them are occupied for short term financing as well. Finally, not only are short-term deposits being fully utilized, but also small part long-term deposits are used for this purpose, as seen in figure 8. And, due to high demand of short-term financing, the industry records above 100% financing to deposit ratio (FDR).

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\(^8\) Formerly named as Bank Indonesia Wadiah Certificate. It became SBI shariah starting from March 2008.
From the perspective of liquidity management, this financing strategy is reasonable. It enables Islamic banks to balance liquidity on the liability and asset side, so that short-term liquidity demand is not a big problem so far. Further, compared with the long-term financing, this short-term financing strategy provides a well-scheduled (certain) and positive payment of return, which is very essential to maintain the positive expectations and loyalty of depositors. However from the macroeconomic perspective, the advantageous of such system have not yet been optimized. Long-term financing, as a reflection of the investment activities should indeed be the ultimate orientation of depositors and Islamic banks in order to make a significant impact on and contribution to the economy.

Exploring short-term financing in detail, Islamic banks adopt two priority steps of financing. The first step is extending short-term non-bank deposits into short-term indirect financing such as placement in Bank Indonesia, placement in other banks, purchasing securities, and equity participation. Surely, this is the right way to secure such funds, gain profit and anticipate for any short-term liquidity requirement from this type of deposit.

The second step is releasing public funds from short-term bank deposit into short-term direct debt-based financing. An average of nine years data records that Murabahah accounts for 61% of the total financings, the highest among others, followed by Istitisna at 6%; Ijarah and other debt based financing at only 1%. Usually, the demand for short-term financing exceeds the funds available in short-term deposits, so that it pulls long-term deposits. As a result, Mudarabah
financing takes only 30% of the total financing or half of Murabahah portion while Musharakah is left behind with only 2% as seen in figure 9 and 10 below.

![Figure 9. Financing Breakdown](image1)

![Figure 10. Deposit & Financing](image2)

Furthermore, since FDR sometimes exceeds 100%, some part of the first step financing supports the second one\(^9\). And in general, this high FDR happens 62% times of the total financing history especially from 2000 until 2003. Between 2004 and mid 2005 FDR dropped into less than 100% because of some unfavorable economic conditions especially high domestic inflation due to the government adjustment on domestic oil price. The impact is not only felt by the real sector but also by the financing activities of the Islamic banks.

On the other hand, Islamic banks employ polling of fund financing approach with no strict obligation to propose the same tenor on instruments of liability and asset. The long-term deposits, for example, should not always be placed to the long-term financing. Extending funds into short-term financing is the most preferable option expecting for profitability, certainty and liquidity. It is also in line with short-term investment motive of depositors as previously identified. Moreover, long-term financing requires long-term financing commitment, which is more risky and asymmetrical nature of risk and strongly determined by macroeconomic performances which banks can not easily afford (Wilson, 2007:4).

So long with the short-term placement, which is pro liquidity management and positive regular return, Islamic banks use BI’s facility to locate their end of the day idle liquidity. On average, there is 6% placement in SBIS of the total public deposits. Besides its security, SBIS offers monthly bonuses (fees), which are usually linked with the BI-Rate (central bank rate). In

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\(^9\) FDR is calculated based on total direct financing over total deposit.
fact, SBIS is actually a liquid instrument for Islamic banks which is available to be repurchased (repo) by BI if banks are in urgent liquidity need.

Unlike the conventional banks, which locate funds in Bank Indonesia Certificate (SBI) for the sake of high interest rate return\(^\text{10}\), Islamic banks do not position SBIS as their ultimate alternative for funds allocation. It is found that locking money in SBIS does not link with the bonuses being promised. Islamic banks rely on returns from short-term direct financing rather than bonus of SBIS. For example, when the bonus goes up, they do not automatically increase the outstanding number of SBIS as proven by figure 11 afterwards.

![Figure 11. Allocation of Fund in SWBI](image1)

Figure 11. Allocation of Fund in SWBI

![Figure 12. Other Indirect Financing](image2)

Figure 12. Other Indirect Financing

The other indirect financing alternatives such as interbank asset, equity participation, securities purchasing, and PUAS do not gain much allocation as well. Of the total financing, significant placements are only in the interbank placement (4.10%) and the purchasing of Islamic securities (6.1%). Participating in the Islamic money market through PUAS is not so intensive not only because of the modest rate of profit return but also because of the limited number of participants. Nonetheless, releasing the funds into these liquid indirect financing has to some extent increase the liquidity of the industry (see figure 12).

Generally, the industry’s profit by implementing those financing strategies increases over time as shown by figure 12. From March 2002 until March 2009, total profit has been rising 81% or Rp0.22 trillion on average per year together with the persistent positive value of return on asset (ROA). Indeed, profit from equity-based financing shows proper business cooperation between banks and entrepreneurs, besides the profit from debt based financing.

\(^{10}\) Based on data from 2001-2009, conventional banks place 11.45% of their deposit in SBI whilst sharia banks place only 6% of their deposit in SBIS.
However, the increase in non-performing financing (NPF) often goes behind the upper trend of profit. NPF was up consistently since January 2004 until mid of 2007 for about 5% of the total deposits on average. Precisely during the world oil price rises and internal economic pressure, the NPF of the long term based financing dragged total NPF up in 2006 from 2.8% into 4.8%. But after strong efforts from the banking authority and industry’s players, it slowly went down and under control. In this case, to mitigate business loss and serious non-performing financing, Islamic banks prepare allowance for earning asset losses (PPAP) as ruled by Bank Indonesia.

PPAP is prepared mainly to prevent Islamic banks from the future business losses. It is around 2% of the total assets in the last five years. As drafted in figure 13, in line with expansion of financing and increasing trend of NPF, the total amount of PPAP has also increased. Fortunately, this preventive action has maintained depositors trust in the industry and made it possible for Islamic banks to provide competitive returns and have healthy banking operations.

On the other hand, exploring the distribution of funds based on economic sectors indicates that most of the deposits are given into sectors, which are very liquid and operate in a short-term period. Of all financing, 29.95% goes to commercial services sector, 26.22% to miscellaneous, and 11.66% to the trade sector\(^{11}\) (see table 2). Specifically, financing in these sectors is in the form of working capital financing (52.30%), consumption (26.7%) and investment (20.90%).

\(^{11}\) Composed of trade, hotel and restaurant
Table 2. Financing Base of Economic Sector & Type of Business

<table>
<thead>
<tr>
<th>Economic Sector / Type of Business</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Forestry</td>
<td>729</td>
<td>777</td>
<td>690</td>
<td>667</td>
<td>1,039</td>
<td>1,241</td>
</tr>
<tr>
<td>Mining</td>
<td>171</td>
<td>552</td>
<td>594</td>
<td>399</td>
<td>620</td>
<td>993</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>652</td>
<td>910</td>
<td>989</td>
<td>1,116</td>
<td>1,463</td>
<td>1,326</td>
</tr>
<tr>
<td>Water, Gas, Electricity</td>
<td>23</td>
<td>31</td>
<td>80</td>
<td>51</td>
<td>195</td>
<td>283</td>
</tr>
<tr>
<td>Construction</td>
<td>818</td>
<td>1,497</td>
<td>1,687</td>
<td>1,915</td>
<td>3,198</td>
<td>3,303</td>
</tr>
<tr>
<td>Hotel, Trade, Restaurant</td>
<td>1,082</td>
<td>1,627</td>
<td>2,297</td>
<td>3,898</td>
<td>4,303</td>
<td>4,521</td>
</tr>
<tr>
<td>Transportation, Communication</td>
<td>789</td>
<td>1,144</td>
<td>1,265</td>
<td>1,363</td>
<td>1,834</td>
<td>2,869</td>
</tr>
<tr>
<td>Commercial Services</td>
<td>2,385</td>
<td>3,928</td>
<td>5,003</td>
<td>6,829</td>
<td>10,45</td>
<td>11,617</td>
</tr>
<tr>
<td>Social Services</td>
<td>779</td>
<td>1,102</td>
<td>1,349</td>
<td>1,653</td>
<td>2,395</td>
<td>2,464</td>
</tr>
<tr>
<td>Other</td>
<td>1,537</td>
<td>2,465</td>
<td>4,099</td>
<td>5,633</td>
<td>8,407</td>
<td>10,168</td>
</tr>
<tr>
<td>Small Medium Enterprise (SME)</td>
<td>7,661</td>
<td>10,830</td>
<td>12,447</td>
<td>16,757</td>
<td>23,972</td>
<td>27,399</td>
</tr>
<tr>
<td>Non SME</td>
<td>1,303</td>
<td>3,204</td>
<td>5,612</td>
<td>6,768</td>
<td>9,872</td>
<td>11,384</td>
</tr>
</tbody>
</table>

These facts clarify the previous findings that Islamic banks concentrate financing into very liquid and short-term contracts providing positive and continuous return. Although those economic sectors are profitable and provide sustainable liquidity, in the long-run perspective, financing agriculture and forestry, mining, manufacturing, and construction would give wider benefit to the economy (Timberg, 2002:3-5). So far, those long-term natural resource based investments are captured by only small allocation of the funds through long-term deposit after being used to support short-term deposits as mentioned previously.

Further assessment of the types of business enterprise reveals that 70.65% of financing goes to small and medium enterprise (SME) as figured in table 2. It is widely known that financing SME has less risk of business loss. SME also operate in the large scale of consumer business transactions and returnable projects with continuous payment of return. These make Islamic banks comfortable to deal with them.

5. INSTRUMENTS TO MANAGE DEMAND FOR LIQUIDITY

The potential of short-term liquidity withdrawal has been sorted out through sustainable effort to balance asset and liability as mentioned above. The assessment of liquidity risk management through liquidity risk management index results in indifferent findings. Three Indonesian Islamic banks capturing almost 80% market share achieve a “good” grade category of the index (Ismal, 2008b:7-20).\(^\text{13}\)

\(^{12}\) Such as trade, restaurant, retail business, etc.
\(^{13}\) The liquidity risk management index has four grading categories: excellent, good, satisfactory and poor.
However, as part of the liquidity risk management, some set of liquid instruments grouped in this research into 1st, 2nd and 3rd tier are prepared by Islamic banks. First of all, any unpredictable liquidity withdrawals from Wadiah demand deposit and Mudarabah saving deposit is served by the 1st tier liquid instruments which are (a) cash reserves, (b) placement of funds in BI, and (c) borrowing from Islamic money market (PUAS). Then, combining liquid instruments in the 1st tier with the other three instruments creates the 2nd tier liquid instruments prepared to tackle any demand of liquidity from termination of 1-month Mudarabah time deposit.

The three liquid instruments accompanying the 1st tier are: (i) withdrawing inter bank placement, (ii) repurchasing Bank Indonesia Sharia Certificate or SBIS and, (iii) withdrawing equity participation. Finally, in the case of a liquidity run, the 1st and the 2nd tier above are coupled with the 3rd tier containing (a) the central bank’s intra day emergency funds (FLI and FPJP), (b) deposit Guarantee Institution (LPS) and (c) capital of the bank.

5.1. Liquid Instruments Prepared for Demand and Saving Deposit Withdrawals

The first instrument used by Islamic banks to serve regular liquidity withdrawal from both Wadiah demand deposits and Mudarabah saving deposits is cash reserves. On average, Islamic banks reserve 1.83% of their total deposits in this instrument. If the demand exceeds the stock of cash reserve, banks will use the second instrument namely placement of funds in Bank Indonesia which consists of reserve requirement and excess reserves. Bank Indonesia does not pay any remuneration on these two accounts as their ultimate function is for settlement of the transactions. In total, Islamic banks locate 17.95% of total deposits into these two liquid instruments.
If the demand for liquidity still goes beyond cash reserves and placement of funds in BI, borrowing funds from Islamic money market (PUAS) by using IMA instrument is the next alternative. This is a tradable instrument and the quickest way of getting instant liquidity although it needs a strong cooperation among Islamic banks. This instrument accounts for 3.22% of the total deposits. As shown by figure 14, the 1\textsuperscript{st} tier liquid instruments have settled down any withdrawal from both Wadiah demand deposit and Mudarabah saving deposit.

5. 2. Liquid Instruments Prepared for Time Deposit Withdrawals

If the liquidity demanded is added to withdrawals from Mudarabah time deposits, the 2\textsuperscript{nd} tier liquidity reserve is available to provide extra liquidities. Besides instruments in the 1\textsuperscript{st} tier, withdrawing inter bank placement supplies additional liquidity. This is actually a short-term allocation of Islamic bank’s fund into other banks and accounts for 5.41% of total deposits on average. If it is still not enough, alternatively, Islamic banks may repurchase their funds in SBIS from Bank Indonesia. SBIS is actually functioning as Islamic monetary instrument which absorbs short-term excess liquidity in the industry. Thus SBIS gives direct return to banks. Nonetheless, for banks, SBIS functions as a liquid instrument to fill out liquidity needs by repurchasing it to Bank Indonesia. In proportion to total deposits, SBIS only accounts for 6.01%.

Finally, equity participation is another supplier of liquidity which can be used to strengthen the role of the 2\textsuperscript{nd} tier of liquid instruments when needed. This instrument accounts for 0.11% of total deposits, but can support the supply of liquidity of this tier. In total, the 2\textsuperscript{nd} tier liquid instruments offer liquidity equivalent to 34.53% of total deposits (see figure 15).

5. 3. Liquid Instruments Prepared for Liquidity Run Conditions

When the need for short-term liquidity still surpasses liquidities prepared above, Islamic banks can use the last option which is the 3\textsuperscript{rd} tier liquid instruments. First is FLI. Although it requires some specific pre-requisite from the monetary authority, this is an instant way to gain the on-the-spot liquidity. Islamic banks can also use their capital as long as it does not violate the capital adequacy ratio\textsuperscript{14} (CAR) requirement. Finally, asking for help from government institution called Deposit Guarantee Institution (LPS) may guarantee depositors funds in the banks.

\textsuperscript{14} Capital required for Mudarabah time deposit located to Mudarabah financing is only 1%; wadiah demand deposit and mudarabah saving deposit placed in Mudarabah and non Mudarabah is ranging from 0%-35% and 150% if being located in Musharakah financing.
6. CONCLUSION

The Indonesian Islamic banking industry can be described from the liquidity risk management perspective as follows:

1. Sources of fund are lead by short-term deposit with the potential withdrawal from rational depositors. Allocation of fund is mostly located in also short term financing considering structure deposit; liquidity management purposes; macroeconomic condition; and limited banking financing instruments.

2. Upon the potential of short-term liquidity demanded, the asset and liability balancing implemented by the industry has been so far very successful. Even great economic pressure such as high interest rates has not impacted the industry very much.

3. For regular and irregular liquidity demanded in every type of deposit, Islamic banks have certain liquid instruments available to be used. Moreover, they are also facilitated by FLI from BI and backed up by LPS from the government in case of liquidity runs.

BIBLIOGRAPHY


