イスラーム世界研究　第３巻２号（2010 年３月）54–81 頁
Kyoto Bulletin of Islamic Area Studies, 3-2 (March 2010), pp. 54–81

How Do Islamic Banks Manage Liquidity Risk? An Empirical Survey on the Indonesian Islamic Banking Industry

Rifki Ismal*

I. Background

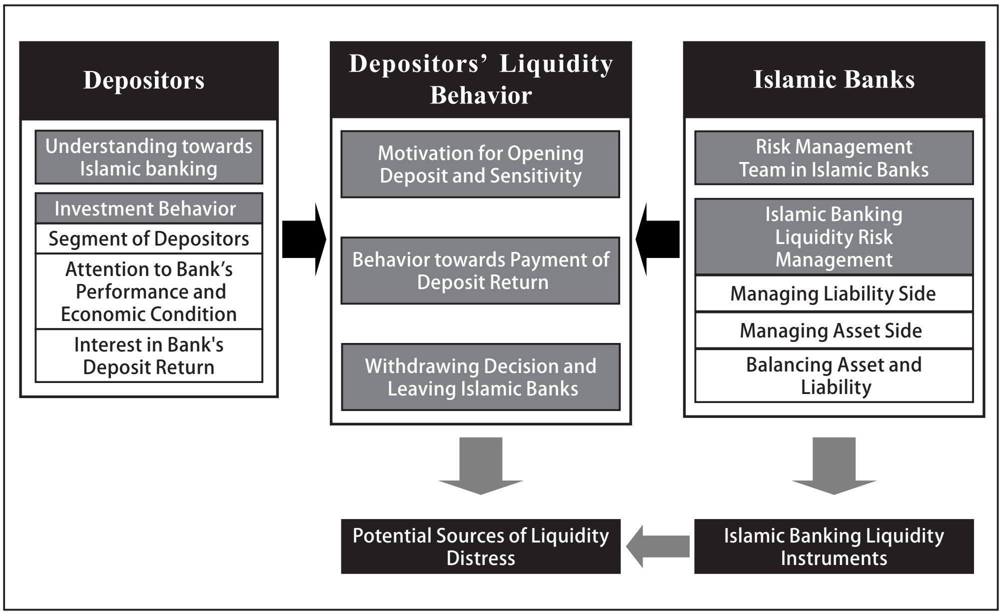
This paper is an empirical survey of Indonesian Islamic bank's depositors and Islamic bankers. By using an online questionnaire posted in survey website provider, namely www.surveymonkey.com, the survey was conducted from January to March 2009. There are 408 depositors and 17 Islamic bankers (Directors, General Managers, Head of Risk Management Team/Division) who participated in the survey. All (five) Islamic banks (BUS) and twelve Islamic banking unit (UUS) have been represented and all banker respondents correspond to 97% of all Islamic banking institutions. Every individual and Islamic banker had the same chance to be selected since there is no category of respondent (simple random sampling).

Individual respondents had a good educational background: 58.5% of them held bachelor degrees, 36.5% post graduate degrees (master and PhD degree) and only 4.9% just graduated from senior high school. Because almost all of them are well-educated individuals and working in business/commercial/government sectors as such as employees, entrepreneurs, lecturers, they can be assumed to be very familiar with banks and have good financial skills to manage their portfolio. Based on location, the respondents come from big islands such as Java, Sumatera, Kalimantan as well as capital city Jakarta which are the locations of most Islamic banking depositors. Hence, this survey is expected to imply the real condition and inform liquidity behaviors of depositors and Islamic bankers.

This paper consists of two parts. The first part shall explain the findings from the survey of depositors which include (i) level of understanding and; (ii) investment behavior (composed of segment of depositors, attention to banks' performance and economic conditions and interest in banks' deposit returns). It then continues with the depositors' liquidity behavior, which is an essential element in liquidity risk management, such as the motivation for opening deposit and sensitivity, behaviors towards payment of deposit return and the decision to withdraw and even leave Islamic banks. The second part is delivering the output of Islamic banking survey such as organization, management of liquidity to address depositors' liquidity behavior. It also explores potential sources of liquidity problems, which can be mitigated with Islamic banking liquidity instruments. The whole process is drawn in figure 1.

* Lecturer in Faculty of Economics, University of Indonesia: E-mail: rifki_ismal@yahoo.com.

Figure 1: Framework of the Survey Analysis



II. Depositors Understanding of Islamic Banking

Depositors understanding of Islamic banking are analyzed from their understanding/usage of the (i) Islamic deposit contracts, (ii) Islamic banking operations and *Sharia* principles and, (iii) Islamic financing schemes. Fortunately, the depositors' understanding regarding the concept of *Mudarabah* time deposits and saving deposits is relatively high (77.7%). It means when depositing money, depositors understand the Islamic deposit contracts that they are dealing with such as the modes of deposit contract, payment of returns, tenor of deposits, condition for terminating the deposit contract, etc.

However, full understanding regarding Islamic banking operation and *Sharia* principles is below the understanding of deposit contracts, which is 58.8%. Although it is the highest growing financial industry in the country (around 60% – 80% annually), the share of Islamic banks is still around 2% of the total banking industry so its existence and role is not yet optimal and generally known by the public. Consequently, one reason that only 27.7% of depositors use Islamic financing schemes may be because they only understand the liability side (*Mudarabah* deposit contract) and not the asset side of Islamic banking activities (Islamic financing modes).

III. Investment Behavior of Depositors

Under the conditions of limited and minimum attachment of the Islamic financing schemes, depositors have investment behaviors which are a basis to know their liquidity behaviors.

This survey traces such behaviors by analyzing the segmentation of depositors, the attention of depositors to Islamic banking performance and economic conditions and the depositors' concern with the returns paid by the banks.

3. 1. Segmentation of Depositors

Based on the responses of all depositors, this research classifies them into three different segments namely (1) *Sharia* Driven, (2) Profit Driven and (3) Transaction Driven (see table 1). The *Sharia* driven are those who become depositors based on their belief in *Sharia* principles and values, and they will never become depositors in conventional banks. Compared with the other two segments, this segment is quite dominant and further sub classified into those who: (i) do not seek profit (non profit) and (ii) are profit motivated. The former honestly opens *Mudarabah* time and saving deposits for the sake of developing Islamic projects (82.8% and 56.8%). They do not do anything although interest rate goes up (81.6%) but will certainly close the accounts if the Islamic bank is found not to be *Sharia* compliant (71%).

Table 1: Segmentation of Depositors

SHARIA DRIVEN : NON PROFIT	F	M	R	(%)
Opening time deposit to support Islamic Project (*Ummah*)	338	1st	5	82.84
Not do anything when interest rate goes up	333	A	2	81.62
Closing account if BUS/UUS is not *Sharia* compliance	290	A	2	71.08
Opening saving deposit to develop *Ummah* projects	232	1st	4	56.86
SHARIA DRIVEN : PROFIT MOTIVATED	F	M	R	(%)
Opening time deposit for a higher return	259	1st	5	63.48
Relocating tenor of time deposit for a better return	247	P	3	60.54
Adding more fund relies on return paid the last 1–2 months	226	1st	4	55.39
Switching deposits to other BUS/UUS for a better return	194	LP	3	47.55
Adding more fund if bank offers higher return sharing ratio	168	5th	4	41.18
Asking for higher revenue sharing if interest goes up	107	N	2	26.23
Opening saving deposit due to routine payment of return	110	4th	4	26.96
PROFIT DRIVEN	F	M	R	(%)
Adding more fund is considering SBI rate	101	5th	4	24.75
Closing account if return sharing is less than expected	92	N	2	22.55
Closing account if return sharing is less than interest	44	D	2	10.78
Liquidate time deposit and switch it into conventional one	26	NP	3	6.37
Switching deposits to conventional if interest rate goes up	21	D	2	5.15
TRANSACTION DRIVEN	F	M	R	(%)
Liquidate time deposit for regular transaction	349	TMP	3	85.54
Having double bank's account	308	Y	1	75.49
Opening saving deposit with instant withdrawals	224	2th	4	54.90
Opening saving deposit which can be withdrawn on daily basis	176	2th	4	43.14

F = frequency (1st + 2nd rank/priority/consideration; agree; yes; the most preferable + preferable), M = modus (dominant rank, preferences, consideration, yes/no or agree/disagree/neutral), R = range (difference between the highest and lowest rank/categories).

A correlation test between two depositors' variables using Pearson's chi square[1] and phi value (effect size)[2] shows that (i) opening time deposit to support Islamic projects and (ii) not doing anything when the interest rate goes up, have a moderate[3] correlation (χ^2 = 40.520; asym sig = 0.000; phi value = 0.315) (see table 2). Not doing anything when the interest rate goes up and; closing the account if BUS/UUS is not *Sharia* compliant also have a moderate correlation (χ^2 = 42.728; asym sig = 0.000; phi value = 0.324). All imply degree of loyalty of this segment of depositors.

Table 2: Correlation Analysis between Two Variables

Correlation between 2 Depositor's Variables	X^2	DoF	Asym sig (2 side)	n	Phi value	Result
Opening time deposit to support Islamic projects Not do anything when interest rate goes up	40.520	10	0.000	408	0.315	Moderate
Not do anything when interest rate goes up Closing account if BUS/UUS is not *Sharia* compliance	42.728	4	0.000	408	0.324	Moderate
Opening time deposit for a higher return Asking for higher revenue sharing if interest rate goes up	37.774	10	0.000	408	0.304	Moderate
Adding more fund relies on return paid in the last 1–2 months Adding more fund if bank offers higher return sharing ratio	135.350	16	0.000	408	0.576	Strong
Relocating tenor of time deposit for a better return Asking for higher revenue sharing if interest rate goes up	15.085	6	0.020	408	0.192	Modest
Adding more fund is considering SBI rate Closing account if return sharing is less than interest	36.513	8	0.000	408	0.299	Modest
Closing account if return sharing is less than expected Liquidate time deposit and switch it into conventional one	14.350	6	0.026	408	0.188	Modest
Adding more fund is considering SBI rate Switching deposit to conventional if interest rate goes up	19.015	8	0.015	408	0.216	Modest
Switching deposit to conventional if interest rate goes up Liquidate time deposit and switch it into conventional one	86.549	6	0.000	408	0.461	Moderate
Closing account if return sharing is less than interest Liquidate time deposit and switch it into conventional one	53.795	6	0.000	408	0.363	Moderate
Having double bank's account Opening saving deposit with instant withdrawals	14.545	4	0.006	408	0.189	Modest

Meanwhile, those who are profit motivated will find the most profitable Islamic investment portfolio by (a) relocating tenor of time deposit for a better return (60.5%); (b) adding more funds relies on return paid the last 1-2 months (55.4%); (c) switching deposits to

1 Used to test whether 2 variables are independent or not. Chi square test formula is, $\chi^2 = \sum \frac{(f_0 - f_e)^2}{f_e}$ where f_0 denotes frequency and f_e is expected frequency. Degree of freedom is counted as df = (r-1)(c-1) where r and c are number of row and column in contingency table and expected frequency is formulated as, $f_e = \frac{\sum_r f_0 \sum_c f_0}{n}$ with n as number of observation (Salvatore and Reagle, 2002: 90).

2 To measure how strong is the correlation, simply formulated as $\sqrt{\frac{chisquare}{n}}$ (Muijs, 2004: 194).

3 Phi value < 0.1 is considered weak; 0.1 < phi value < 0.3 is modest; 0.3 < phi value < 0.5 is moderate; 0.5 < phi value < 0.8 is strong and; phi value > 0.8 is very strong (Muijs, 2004: 126).

other BUS/UUS for a better return (47.5%); (d) adding more funds if the bank offers higher return sharing ratio (41.2%) and; (e) asking for a higher revenue sharing if interest goes up (26.2%). It is because their motivation of opening *Mudarabah* time deposit is to gain higher return (63.5%) and their motivation of opening *Mudarabah* saving account is to receive a routine return payment (26.9%).

A correlation test proves the arguments further by saying that (i) opening time deposits for a higher return and; (ii) asking for higher revenue sharing if interest rate goes up, have a moderate correlation (χ^2 = 37.774; asym sig = 0.000; phi value = 0.304). Variables of (i) adding more fund relies on returns paid in the last 1–2 months and; (ii) adding more fund if bank offers higher return sharing ratio, have strong correlation (χ^2 = 135.350; asym sig = 0.000; phi value = 0.576). In addition, the variables of (i) relocating tenor of time deposit for a better return and; (ii) asking for higher revenue sharing if the interest rate goes up, also have a modest correlation (χ^2 = 15.085; asym sig = 0.020; phi value = 0.192).

However, the profit driven is group of people who are mostly driven by profit and position Islamic bank indifferently with conventional banks. They decide to add more funds based on level of SBI rate (24.7%) and even will close the Islamic accounts if the return is less than expected (22.5%) or less than interest rate return (10.8%). This is because they frequently compare deposit returns from Islamic and conventional bank and choose the best (highest) return between them. If the conventional deposit returns are more promising and profitable or if interest rate tends to go up (5.1%), they will switch into conventional banks (6.4%). One reason behind this is because interest is not fully condemned and believed by some people in West Java (62%), East Java (31%) and Central Java (48%) to be *Riba* (prohibited) (BI and Universities' survey on Islamic bank, 2000–2001).

A correlation test in this segment shows that (i) adding more funds is considering SBI rate and; (ii) closing the account if return sharing is less than the interest rate, have a modest correlation (χ^2 = 36.513; asym sig = 0.000; phi value = 0.299). Other modest correlations are between (i) closing the account if return sharing is less than expected and; (ii) liquidating time deposits and switching into conventional ones, with χ^2 = 14.350; asym sig = 0.026; phi value = 0.188, and between (i) adding more funds is considering SBI rate and; (ii) switching deposits to conventional accounts if the interest rate goes up with χ^2 = 19.015; asym sig = 0.015; phi value = 0.216.

Meanwhile, a moderate correlation occurs in between (i) switching deposits to the conventional banks if the interest rate goes up and; (ii) liquidating time deposits and switching into conventional ones with χ^2 = 86.549; asym sig = 0.000; phi value = 0.461, and between (i) closing the accounts if return sharing is less than the interest rate and; (ii) Liquidating time deposits and switching into conventional ones with χ^2 = 53.795; asym sig = 0.000; phi value = 0.363. These facts prove profit driven depositors who seek the highest profit between two banking systems.

The last segment, the transaction driven, is segment of people who deal with the bank for transaction purposes. They are depositors who will liquidate *Mudarabah* time deposits to fulfill regular transaction needs (85.7%) and hold two liquid (demand deposits and saving deposits) accounts from Islamic and conventional banks (75.5%) without any intention to switch between them for profit. Besides maintaining a modest amount of demand deposits in Islamic banks, they open *Mudarabah* saving deposits for instant withdrawals (54.9%) or for daily basis withdrawals (43.1%). Another market study on Islamic banking depositors by Mars Indonesia suggests that frequency of depositors' withdrawal is 2 times per month (Mars, 2008: 44). A correlation test in this segment finds modest correlation between (i) having double bank's account and; (ii) opening saving deposits with instant withdrawals with χ^2 = 14.545; asym sig = 0.006; phi value = 0.189 and proves its existence.

3. 2. Attention to Banks Performance and Economic Conditions

The attention of depositors towards Islamic banks performance is measured through the depositors' awareness of banks activities and achievement whereas concern over economic conditions is seen from behavior to hold cash and demand deposit account. Interestingly, becoming Islamic banking depositors does not mean to frequently monitor the performance of the banks. Only 56.1% of depositors do intensive monitoring, while others just passively deposit money and wait for the return sharing to be paid.[4] As such, 51.9% of respondents pay strong attention to how much profit is earned by BUS/UUS from their business and 26.7% of them concern about business costs borne by BUS/UUS.

With regard to the notice against economic condition, this survey found that 66.9% of all depositors will close their Islamic accounts if economic conditions require them to hold cash. How much position of demand deposit accounts is also another anchor. Demand deposits work under *Wadiah* contracts which do not promise any return and proportionally it is only 21% of total deposits. Essentially, this account implies depositors' perception facing current economic conditions particularly their demand for instant liquidity. However in the favorable economic conditions, there will be low a demand for instant liquidity and depositors deposit money with the intention that such funds will be used to support projects of the Moslem *Ummah* (82.8%). These two messages highlight the importance of maintaining economic conditions to retain depositors' confidence and to be able to use their funds.

3. 3. Curiosity to Bank's Deposit Return

Rearranging and modifying depositors' answers gives another important discovery regarding depositors' curiosity to bank's deposit return, no matter from which segment they belong

4 This behavior confirms the understanding of depositors, which is still in liability side of Islamic banking operation.

to. In this regard, this survey specifies two groups of depositors. The first is depositors who are very curious with deposit returns paid by banks (Islamic and/or conventional bank). The second is depositors who are not curious with returns paid by Islamic banks (see table 3).

Table 3: Curiosity of Depositors towards Bank's Deposit Return

Very Curious with Deposit Return	F	M	R	(%)
Opening time deposit for a higher return	259	1st	5	63.48
Relocating tenor of time deposit for a better return	249	P	3	61.03
Adding more fund based on return of the last 1-2 mo deposit	226	1st	4	55.39
Switching to other BUS/UUS for a better deposit return	193	LP	3	47.30
Adding more fund if bank offers higher return sharing	168	5th	4	41.18
Closing account if return paid is lower than other BUS/UUS	119	N	2	29.17
Asking for higher revenue sharing if interest is up	116	N	2	28.43
Adding more fund is considering SBI rate	101	5th	4	24.75
Closing account if return sharing is less than expected	98	N	2	24.02
Closing account if return sharing is less than interest	47	D	2	11.52
Switching deposits to conventional if interest rate is up	19	D	2	4.66
Not Curious with Deposit Return	F	M	R	(%)
Opening saving deposit in order to be eligible for bank's facilities	74	5th	4	18.14
Opening time deposit in order to be eligible for bank's facilities	92	3rd	5	22.55
Closing account if BUS/UUS does not have proper facilities, network	206	A	2	50.49

F = frequency (1st + 2nd rank/priority/consideration; agree; yes; the most preferable + preferable), M = modus (dominant rank, preferences, consideration, yes/no or agree/disagree/neutral), R = range (difference between the highest and lowest rank).

The former, in the eye of liquidity risk management, might potentially disrupt a balance asset-liability because some of them maximize returns in their own Islamic bank by any of (i) opening time deposits with a higher return (63.5%); (ii) relocating tenor of time deposit for a better return (61%); (iii) adding more funds based on return of the last 1–2 months deposit (55.4%); (iv) adding more funds if Islamic bank offers higher return sharing (41.2%); (v) asking for a higher percentage of revenue sharing if the interest rate rises (28.4%) and; (vi) adding more funds is considering SBI rate (24.7%). The others, even, maximize returns beyond their Islamic bank by (a) switching to other BUS/UUS for a better deposit return (47.3%); (b) closing the account if the returns paid is lower than the return at other BUS/UUS (29.2%); (c) closing the account if the return sharing is less than expected (24%); (d) closing the account if the return sharing is less than the interest rate (11.5%); and; (e) switching deposits to conventional banks if the interest rate rises (4.6%).

The ones who maximize returns in their own Islamic bank might disturb a bank's portfolio financing because of asset liability mismatches (fluctuating amount of deposit, moveable deposit tenor, etc) whereas the ones who go beyond their Islamic bank might raise liquidity problems because of lag of liquidity, liquidity withdrawal, etc. Actually, curiosity against deposit return is not totally prohibited in Islam but it must be accompanied by a solid understanding of the consequences of investment of money in Islamic schemes, *Sharia* principles and Islamic banking operations. The conventional way of thinking[5] might endanger the bank's liquidity management and interrupt its portfolio financing management.

Meanwhile, the latter are identified from those who tend to enjoy Islamic banks' facilities such as the payment system, network, financing scheme, etc rather than asking for deposit returns per se. For them, the return is not the ultimate reason for destination of becoming Islamic banking depositors. In conclusion, related to the liquidity risk management, this discovery suggests that maintaining attractive/competitive deposit returns and providing well-established bank facilities are critical factors to control these two types of depositors and avoid liquidity withdrawal.

IV. Liquidity Behavior of Depositors

In addition to analyzing the investment behavior of depositors as done in the previous section, liquidity behavior comes after that as one of the central elements to manage liquidity risk. Understanding liquidity behavior will help Islamic banks to design robust liquidity management from liability side and proceed into the asset side for an optimal portfolio management. This section examines such behavior through: (i) motivation for opening deposits and depositors' sensitivity; (ii) satisfaction of the bank's payment of deposit returns and; (iii) withdrawal decision and behavior.

4. 1. Motivation for Opening Deposits and Depositors' Sensitivity

The survey traces motivations of opening *Mudarabah* saving and time deposits by asking every respondent to choose and give a scale from 1st priority into 5th priority to every rating question. Weight of 5 is given to the 1st priority until weight of 1 for the 5th priority. In *Mudarabah* time deposits, the rating score presents the best three priorities of depositors to open *Mudarabah* time deposits with regard to timing which are (listed in table 4):

1. Opening Mudarabah time deposit to be taken (terminated) in 1 month (1st priority);
2. Opening Mudarabah time deposit to be taken (terminated) in 3–6 months (2nd priority);
3. Opening Mudarabah time deposit to be taken (terminated) in one year (3rd priority).

Yet the revenue sharing of 1-month time deposit is usually the least of all tenors, but very competitive with tenor in conventional banks.[6] As such, data of March 2009 shows that 70.35% of all *Mudarabah* time deposits are in 1-month tenor. Depositors prefer it because of

5 Positioning Islamic bank indifferently with conventional one; ignoring/still arguing prohibition of riba; expecting regular and positive deposit returns without any willingness to be aware of Islamic banking operations, risk, etc.

6 Data of March 2009 reveals that revenue sharing of 1-month deposit is 7.35%; 2-months deposit is 9.59%; 3-months deposit is 8.30%; 6-months deposit is 8.49% and; 12-months deposit is 8.56%.

its liquidity and competitiveness.

For non-timing aspect, motivations of depositors to open *Mudarabah* time deposit are:

1. Opening time deposit to support Islamic Project (*Ummah*) (1st priority);
2. Opening time deposit for a higher return (2nd priority) and;
3. Opening time deposit in order to be eligible for the bank's facilities (3rd priority).

Mars Indonesia has also suggested that *Sharia* motivation is by far the most common motivation (86.8%) when depositors open time deposit (Mars, 2008:30).

Table 4: Motivation for Opening Deposits

Type of Motivation to Open Mudarabah Time Deposit		
Timing of Terminating Time Deposit	**Rating Score**	**Final result**
Opening time deposit to be taken in 1 month	1.551	1st priority
Opening time deposit to be taken in 3-6 months	1.478	2nd priority
Opening time deposit to be taken in 1 Y	1.477	3rd priority
Non Timing Aspect		
Opening time deposit to support Islamic Project (*Ummah*)	2.55	1st priority
Opening time deposit for higher return	2.27	2nd priority
Opening time deposit in order to be eligible for bank's facilities	1.45	3rd priority
Type of Motivation to Open Mudarabah Saving Deposit		
Opening saving deposit to develop *Ummah* projects	3.50	1st priority
Opening saving deposit with instant withdrawals	3.48	2nd priority
Opening saving deposit which can be withdrawn on daily basis	3.09	3rd priority
Opening saving deposit due to routine payment of return	2.70	4th priority
Opening saving deposit in order to be eligible for bank's facilities	2.23	5th priority

However, *Mudarabah* saving deposits suggest 5 priorities as listed below:

1. Opening saving deposit to develop *Ummah* projects (1st priority);
2. Opening saving deposit with instant withdrawals (not daily) (2nd priority);
3. Opening saving deposit which can be withdrawn on daily basis (3rd priority);
4. Opening saving deposit due to routine payment of return (4th priority);
5. Opening saving deposit in order to be eligible for bank's facilities (5th priority).

The ranking information above addresses some important points which reconfirm the previous analysis. First is there are three ultimate motivations of depositors in opening Islamic accounts: (i) religious aims (to support Islamic investment/projects); (ii) profit motive and; (iii) transaction motive. All of them come together in people's mindset when they decide to become Islamic banking depositors. This is indeed in contrast with their motivations in becoming conventional banking depositors where they might only emphasize the profit and transaction motives without any religious motivation.

Second, maintaining those three motivations would be one of the key success factors to manage liquidity because religious (*Sharia* based) depositors with strong understanding of *Sharia* principles and those with the conventional way of thinking (investigated before) appear together in the Indonesian Islamic banking industry. Third, depositors in general regard

Islamic banking not as their main place of depositing money. Therefore, professionalism is required to operate the Islamic bank in order to be able to offer not only religious credibility (*Sharia* compliant bank) but also pay competitive returns and provide standard banking facilities.

The next analysis looks at the sensitivity of depositors by rearranging and regrouping the previous information to set up sensitivity conditions/reasons and Islamic bank's opportunity to mitigate it. The first is finding conditions/reasons that cause depositors to take their funds out from the Islamic banks. The second is the opportunity for Islamic banks to use such sensitiveness to control the liquidity withdrawals.

For the former, the top three reasons are: (a) opening saving deposits with instant withdrawals (54.9%); (b) opening saving deposits which where it can be withdrawn on daily basis (43.1%) and; (c) opening time deposits for only 1-month placement (15.2%) (see figure 2). These reasons clearly explain that the sensitivity of depositors with regard to withdrawing money relates to transaction purposes. However, in fact, this sensitivity provides opportunities for Islamic banks to control any liquidity withdrawals. The latter identifies at least three opportunities for the Islamic banks to control and manage liquidity (see figure 3).

Figure 2: Conditions/Reasons to Withdraw Funds

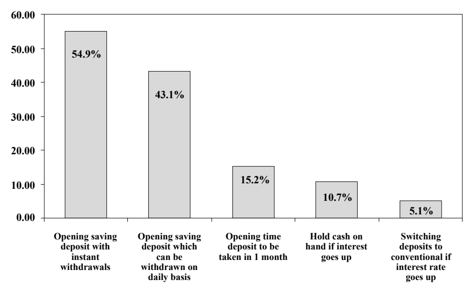
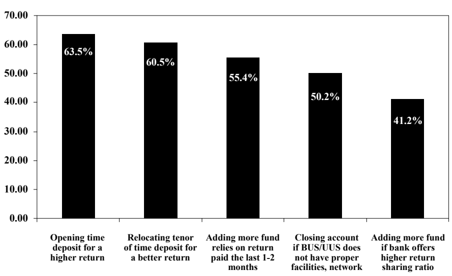


Figure 3: Banks' Opportunity for Prevention



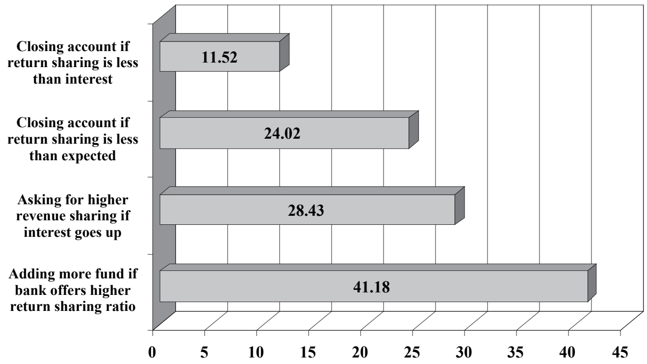
The first way Islamic banks may control liquidity withdrawals is to convince depositors to use the Islamic banks not only for transactions but also for investment (medium to long-term tenure) purposes. Hence, the depositors have to be assured to put new funds in the long-term tenor of *Mudarabah* time deposit or relocating their placement from the short-term into long-term time deposits. It is indeed possible since depositors' main reason for opening time deposit is to gain a high return (63.5%) and they wish to relocate tenor of placement as long as the return is promising (61%).

A second means to control liquidity withdrawals is improving the performance of the Islamic banks in order to be able to pay competitive returns. This is because depositors decisions to add more funds into Islamic banks are based on how much return they received in the last short period (1–2 months) (55.4%) or how much is the return sharing ratio (41.2%). The third means is providing proper banking facilities which can deter depositors' withdrawal (50.2%).

4. 2. Behavior towards Payment of Deposit Return

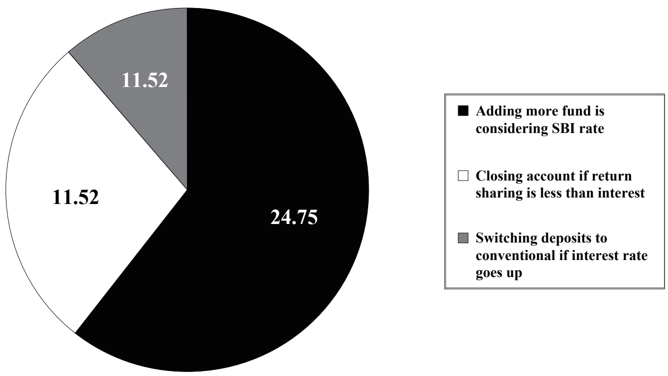
What causes depositors to take their funds out from Islamic banks may be traced from how their behavior towards payment of deposit returns and interest rates. The survey finds that depositors will increase their saving if Islamic banks offer a higher return sharing ratio (41.1%) or will accept a higher return sharing proposal when the interest rate tends to go up (28.4%). Likewise, they may close the account if the deposit returns paid by the banks is less than expected (24%) or less than the prevailing interest rate (11.5%) (see figure 4).

Figure 4: Behavior towards Deposit Return



With respect to the interest rate, one of the depositors' considerations in adding more funds (besides deposit return) is the central bank interest rate (SBI rate) as declared by 24.7% of all respondents (see figure 5). The influence of interest rates, for a small group of respondents, would even encourage them to switch their deposit from Islamic banks into conventional banks if interest rate is more profitable (11.5%) or quit from Islamic banks permanently if the return sharing is less than interest.

Figure 5. Behavior towards Interest Rate



Therefore, these two figures reconfirm the last section's findings about the importance of improving and managing robust banking performance in order to produce optimal returns.

With professionalism and proper financing management, Islamic banking would hopefully be able to pay competitive returns as well as maintain loyalty of depositors.

4. 3. Withdrawing Decision and Exit from Islamic Banks

This sub-section specifies what reasons drive depositors to terminate the *Mudarabah* time deposits, how they do it (in terms of notifying Islamic banks) and in what other extents they want to leave Islamic bank. Based on the rating score of the lists of depositors' reasons to terminate time deposit in table 5, again, liquidating time deposit for the purpose of regular transaction needs stands in the 1st choice (the most preferable and preferable) followed by relocating tenor of time deposit for a better return in the 2nd choice; switching time deposit to conventional deposit (3rd choice) and finally switching time deposit to other BUS/USS for a better return is less preferred and not preferred (4th choice).

Table 5: Depositors Reasons to Terminate Time Deposit

Reasons to Terminate Mudarabah Time Deposit	Rating Score	Final result
Liquidate time deposit for regular transaction	3.55	1st priority
Relocating tenor of time deposit for a better return	2.66	2nd priority
Liquidate time deposit and switch into conventional deposit	1.24	3rd priority
Switching deposits to other BUS/UUS for a better return	2.53	4th priority

Furthermore, 58.8% depositors tend to give prior notice to Islamic banks if they terminate time deposits on in their maturity date and a smaller group (32.3%) states that they do not notify the banks if time deposits fall in their maturity date. Lastly, the smallest group of depositors (8.8%) will not notify the banks even though they terminate time deposits not in their maturity date as described in figure 6. This reality yet expresses the willingness and openness of majority of depositors when executing the time deposit. Therefore, this information should realize Islamic banks that building a good communication with depositors regarding their liquidity withdrawal is more than possible to be established.

Figure 6: Notification of Termination

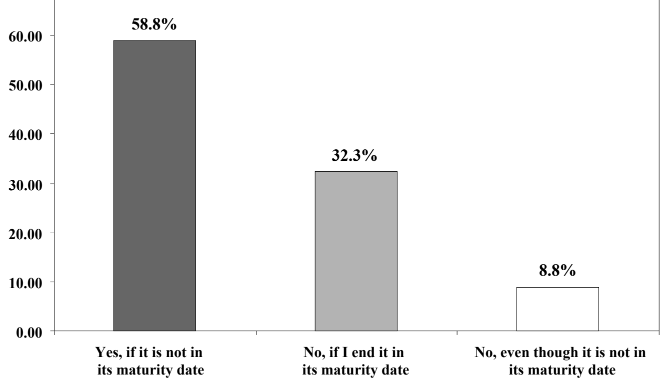


Table 6: Correlation of Two Variables

Correlation between 2 Depositor's Variables	Pearson's Chi square	DoF	Asym sig	Number of Data	Phi value	Result
If economic condition requires me to hold cash on hand Opening saving deposit to develop Ummah projects	14.255	8	0.075	408	0.187	Modest
If return sharing is less than other BUS/UUS Opening time deposit for a higher return	16.837	10	0.078	408	0.203	Modest
If return sharing is less than expected Opening time deposit for a higher return	21.556	10	0.018	408	0.230	Modest

Upon terminating the time deposits, some conditions will result in the reasons of depositors to leave Islamic banks. Amongst all, the top five are (1) if BUS/UUS is not *Sharia* compliant (71%); (2) if economic conditions require depositors to hold cash on hand (66.9%); (3) if the bank has ever delayed in fulfilling a withdrawal request (64.9%); (4) if BUS/UUS faces losses and needs emergency liquidity (64.4%); (5) if it does not have a proper network and facilities (50.2%) (see table 7).

Moreover, the variables of leaving Islamic bank if economic conditions require depositors to hold cash on hand and opening saving deposits to develop Islamic project show a modest correlation (χ^2 = 14.255; asym sig = 0.075; phi value = 0.187) and imply transaction motive. Two other combinations which are (i) leaving Islamic banks if the return sharing is less than other BUS/UUS; (ii) opening time deposits for a higher return and (i) leaving Islamic banks if the return sharing is less than expected; (ii) opening time deposits for a higher return, also show modest correlation and imply a profit motive (see table 6).

Table 7: Conditions to Leave Islamic Banks

Quit from BUS/UUS	F	M	R	(%)
if BUS/UUS is not *Sharia* compliant	290	A	2	71.08
if economic condition requires me to hold cash on hand	272	A	2	66.67
if BUS/UUS faces loss and needs emergency liquidity	268	A	2	65.69
if bank ever delays my withdrawal request	262	A	2	64.22
if it does not have proper network, facilities, etc	206	A	2	50.49
if return sharing is less than other BUS/UUS	119	N	2	29.17
if return sharing is less than expected	92	N	2	22.55
if return sharing is less than interest	44	D	2	10.78

F = frequency (1st + 2nd rank/priority/consideration; agree; yes; the most preferable + preferable). M = modus (dominant rank, references, consideration, yes/no or agree/disagree/neutral). R = range (difference between the highest and lowest rank).

The combination of these four analyses emphasizes that Islamic banks should anticipate any execution of time deposits due to transaction needs and the profit motive. One solution to mitigate such occurrences would be building better communication with depositors with high amount of deposits regarding their withdrawal schedules. It should be working as they are proven to be communicative. Other solutions are keeping *Sharia* compliant in all banking operations, improving the payment system to control withdrawing request, doing business appropriately to minimize losses and avoid requesting BI’s emergency liquidity and improving Islamic banks networks and facilities. All of those efforts will deter depositors from leaving the banks.

V. Risk Management Team in Islamic Banks

Following the survey of depositors, this part considers Islamic banking issues. First of all, the existence of risk management team in the internal organization of BUS/UUS indicates their strong effort to manage risk. In fact the Islamic Banking Act (Article 39), approved on July 17th, 2008, has formally obligated every BUS/UUS to manage risk. Hence, almost all (14 banks, 82%) of Islamic banks (including UUS) have a risk management team (division) in their internal organization with a Director/ Manager assigned to lead this unit. However, specifically in UUS, the parent company coordinates the decisions about liquidity management, as indicated by 13 UUS (76%). Nevertheless, more than 60% of UUS (8 out of 12 UUS) do not totally depend on the parent company direction to formulate such decisions.

These realities imply that the liquidity risk management policies have been followed by the majority of BUS/UUS, with one person leading (responsible for) the risk management team. However, as UUS is part of its parent company's business organization, its dependency on the parent company's general guidance cannot be ignored. Nonetheless, as the embryo of an Islamic banks it has shown a proactive action by having a risk management team to handle various issues of liquidity risk in Islamic business operations.

VI. Islamic Banking Liquidity Risk Management

Upon identifying the risk management team, the next issue is to examine liquidity risk management in Islamic banking. Islamic banks (BUS and UUS) arrange liquidity management in three areas: (i) the liability side; (ii) the asset side and; (iii) balancing both assets and liabilities. On the liability side, Islamic banks try to prevent liquidity outflow from their depositors. In order to do that the bank has to consider the liquidity behavior of depositors as analyzed before.

The asset side captures Islamic banking financing strategies, actions to protect financing from default and optimizing profit. Ideally, in managing funds Islamic banks should also consider depositors investment and liquidity behavior such as their expected return, withdrawal for transaction needs, as highlighted before. Lastly, balancing assets and liabilities involves all of the banks' policies and strategies to manage routine liquidity demanded and prevent liquidity distress.

6. 1. Managing Liquidity on Liability Side

Islamic banks in practice apply two approaches of liquidity management on the liability side: (i) managing funds during normal conditions and; (ii) managing funds in special conditions such as in increasing the trend of interest rate or unnoticed liquidity withdrawals. Based on result of the survey, drafted in figure 7, in normal conditions Islamic banks take into account some factors when setting the revenue sharing ratio with depositors such as:

1. Revenue sharing of other BUS/UUS (15 banks, 88.2%); and
2. Level of interest rate (SBI rate) (13 banks, 76.5%).

Meanwhile, when releasing funds to the entrepreneurs, 11 banks (64.7%) consider their revenue sharing ratio with depositors and profit reserves from financing in the forms of profit equalization reserve (PER) and other funds in the investment risk reserve (IRR) (13 banks, 76.5%). These two steps will potentially match depositors' expectation of return, especially for those who are return oriented and profit motivated (*Sharia* driven segment) and; profit driven segment as identified before.

Finally, six banks (35.2%) prefer application of profit and loss sharing to revenue sharing in time deposit contracts because theoretically this will allow Islamic banks to share the risk of financing loss with depositors. To maintain the sustainability of funds on the liability side, 10 banks (58.8%) charge a penalty for any unnoticed withdrawal. Although the rate is fixed and does not depend on the nominal value of the deposit, this application is believed to be a reliable means of sustaining the availability of funds on the liability side (Ismal, 2008: 8). Moreover, a correlation test finds that the bank's compensating for losses with profit reserves has a modest correlation (χ^2 = 31.260; asym sig = 0.002; phi value = 0.277) with depositor's willingness to add more funds based on returns paid in the last 1–2 months.

On the other hand, during special conditions (interest rates are rising, etc), Islamic banks raise the revenue sharing ratio to depositors (13 banks, 76.5%) and more banks even agree to renegotiate revenue sharing ratio with depositors (15 banks, 88.2%) (see figure 7). This is the other effort of Islamic banks to foresee depositors' liquidity behavior where some of rational (return oriented) depositors love to compare interest and Islamic deposit return.

Figure 7: Managing Liquidity in Liability Side (%)

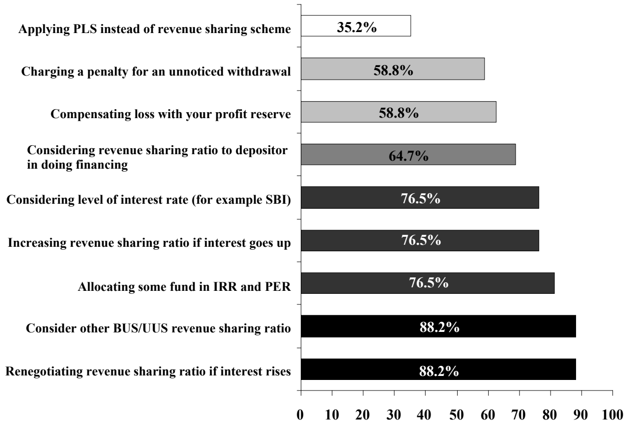


Table 8: Equity Financing Strategies

Equity Financing Strategy	Rating Score	Final result
Prefering proposal of previously well-performed projects	3.56	1st priority
Requiring collateral or *Kafalah* (third party guarantee)	3.38	2nd priority
Preferring entrepreneurs who are your depositors	3.19	3rd priority
Matching tenor and amount of fund in asset and liability	3.19	3rd priority
Preferring short term investment project financing	3.06	4th priority
Welcoming with new project proposals	2.69	5th priority
Selling bank's ownership in project if it is in default/loss	2.69	5th priority

Nevertheless, unlike adjusting interest rate in the conventional banks, Islamic banks are limited in how much they can widen the spread of revenue sharing. In particular, it is related to the costs that they have to cover. Hence, in the case of losses, Islamic banks tend to sacrifice banks' profit reserves as mentioned by 10 Islamic bankers (58.8%) representing 10 BUS/UUS.

6. 2. Managing Liquidity on the Asset Side

After implementing some efforts to maintain and manage liquidity on the liability side, Islamic banks also carry out some approaches on the asset side. Initially, they have financing strategies for equity financing as well as debt financing. The rating score of the set of questions asking from the most preferable until not preferable strategy enlightens that (i) Financing of the previously well-performed projects; (ii) Requiring collateral or *Kafalah* (third party guarantee) and both; (iii) Financing entrepreneurs who are bank's depositors and matching tenor and amount of funds in asset and liability stand in the 1st, 2nd and 3rd rank of banks' equity financing strategies as seen in table 8. In terms of numbers, 16 banks (94%) refer to the historical performance of projects to be financed, 16 banks (94%) require collateral and 14 banks (82.3%) prefer financing entrepreneurs who are also their own depositors.

In debt financing, as seen in table 9, requiring collateral (*Kafalah*), preferring entrepreneurs who are bank's depositors and preferring short-term debt financing contracts, are the best three of nine Islamic banking financing strategies. In terms of numbers, 16 banks (94%) ask for collateral, 14 banks (82.3%) prefer financing entrepreneurs who are also their own depositors and 12 banks (70.5%) sell the asset if entrepreneurs are in default.

Table 9: Debt Financing Strategies

Debt Financing Strategy	Rating Score	Final result
Requiring collateral or *Kafalah* (third party guarantee)	3.50	1st priority
Preferring entrepreneurs who are your depositors	3.31	2nd priority
Preferring short term debt financing contract	3.19	3rd priority
Welcoming more than 1 year up to 3 years trade/leasing proposal	3.00	4th priority
Selling the project's (asset's) collateral if entrepreneur is in default	2.94	5th priority
Giving extra time to business partner for a late payment	2.81	6th priority
Compensating loss with your profit reserve	2.75	7th priority
Changing leasing rate to adjust with current economic condition	2.69	8th priority
Charging penalty for a late payment of debt financing	2.56	9th priority

These debt and equity financing strategies show that Islamic banks are very cautious in utilizing funds and dealing with the business sector. To some extent, it is good to prevent the banks from financing mismanagement, defaults and securing them from the obligation to produce regular, positive and competitive returns as expected by depositors.[7] But on the other hand, such strategies restricts the banks from expanding business and searching for new and more profitable projects (albeit long term tenure) as they are now facing the growing trend that deposits must be properly and professionally managed (Bank Indonesia Statistics, 2002–2008).

Despite imposing some financing strategies, Islamic banks have some proactive strategies focusing precisely on actions to manage the flow of liquidity and avoid financing losses on the asset side (see table 10).

Table 10: Proactive Strategies to Prevent Financing Failure/Losses

General Policies	F	M	R	%
Monitors your business partner regularly	16	A	0	100
Next financing decision refers to the previous financing decision	16	A	0	100
Considers cost of financing especially in the last 6 months	13	A	1	81.25
Terminating the project if it is not profitable	13	A	1	81.25
Using shareholder capital to finance long term equity financing	11	A	1	68.75
Slowing financing, locating more fund in SBI *Sharia* if interest rises	3	LP	3	18.75

F = frequency (1st + 2nd rank/priority/consideration; agree; yes; the most preferable + preferable). M = modus (dominant rank, preference, consideration, yes/no or agree/disagree/neutral). R = range (difference between the highest and lowest rank).

7 See sections of segmentation of depositors and; curiosity to bank's deposit return before.

Based on output of table 10, all Islamic banks:

1. Monitor the business and entrepreneurs (business partners) regularly and;
2. Decide next financing decision by referring to the previous one;
3. Consider cost of financing, especially in the last 6 months in their financing strategies.

Recalling the intentions of depositors' to open Islamic accounts, their liquidity behavior and high frequency of withdrawals for transaction purposes, those proactive strategies seem reasonable to be implemented by Islamic banks. Nonetheless, if they can redirect such depositors' liquidity behaviors and convince them to engage in long-term project financing, such proactive strategies can be improved further and Islamic banks would be able to operate various long-term financing contracts.

Taking into account Islamic banking strategies to manage cash flow on the asset side, the next inquiry would find out what the banks' financing orientation is and banks' eagerness to expand financing. Table 11 depicts the result of such inquiry. Highlighting the earlier output, 15 Islamic banks (88.2%) clearly confirm that their financing orientation is short-term and they use short-term funds to finance short-term projects or assets. Besides emphasizing short-term tenure, 13 banks (76.4%) buy government *Sukuk* (SBSN) which is safe, profitable and tradable if they need short term liquidity.

Table 11: Financing Orientation and Expansion

Islamic Banking Financing Orientation	F	M	R	%
Preferring short term investment project financing	15	P	2	93.75
Financing short term projects with short term funds	15	A	1	93.75
Preferring short term debt financing contracts	14	P	2	87.50
Buying government *Sukuk* (SBSN)	13	A	1	81.25
Using shareholder capital for long term equity financing	11	A	1	68.75
Locating short term deposits in money market and SBIS	11	A	1	68.75
Preferring liquidity of the projects rather than being profit oriented	10	A	1	62.50
Islamic Banking Willingness to Expand Financing	**F**	**M**	**R**	**%**
Welcoming 1–3 years trade/leasing proposal	14	P	2	87.50
Conducting joint venture financing with other Islamic banks	13	A	1	81.25
Welcoming with new project proposals	10	P	2	62.50

F = frequency (1st + 2nd rank/priority/consideration; agree; yes; the most preferable + preferable). M = modus (dominant rank, preference, consideration, yes/no or agree/disagree/neutral). R = range (difference between the highest and lowest rank).

Conversely, the survey indicates Islamic banks willingness to expand the tenure of financing into long-term as acknowledged by 15 Islamic banks (88.2%) that welcome 1–3 years trade financing. Even, thirteen banks (76.4%) have established joint venture financing for specific projects and admitted proposals for new projects (10 banks, 58.8%) (see table 11). It is also proven by a correlation test which says that variable of conducting joint venture financing with other Islamic banks modestly correlates with the variable of opening saving deposits to develop Islamic projects from the depositor's side (χ^2 = 10.256; asym sig = 0.036;

phi value = 0.159). This is a good starting point to diminish the domination of debt financing and increase equity financing.

Figure 8 further explains the bank's policies in expanding financing. Considering the prospect of project (asset) being financed positions in the 1st place of banks' financing expansion policy. It means that they are quite open to try new projects as long as they are profitable. If the new projects proposal is unconvincing, they will come across to the next policy which prefers proposal from those involved in previously well-performed projects (either long-term or short-term tenure) as clarified by 16 of 17 banks in the survey. Finally, while proposals of historically well-performed long-term projects are very rare, financing short-term projects and short-term asset (debt) financing has become their priority.

Figure 8: Financing Expansion Policy (%)

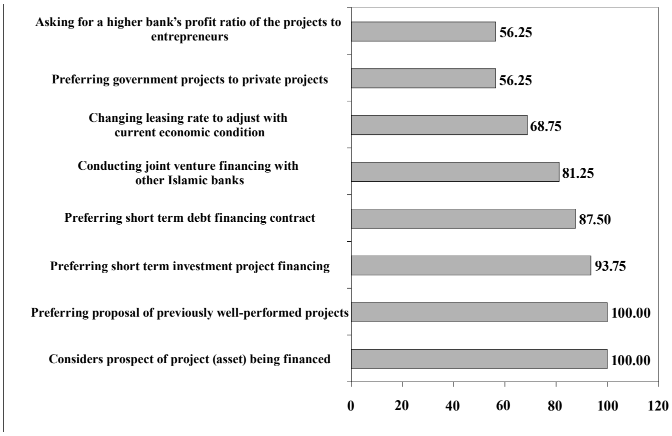


Table 12: Managing Routine Demand for Liquidity

Policies for Routine Liquidity Demanded	Rating Score	Final result
Regularly calculating & analyzing pattern of liquidity withdrawal	4.35	1st priority
Relying on cash reserve to fulfill daily liquidity withdrawal	4.06	2nd priority
Coordinating withdrawal schedule of big depositors	3.94	3rd priority
Locating extra liquidity above reserve requirement in BI	3.41	4th priority
Pursuing depositors to lengthen tenor of time deposit	3.18	5th priority
Knowing how many rational and religious depositors	2.06	6th priority

6. 3. Balancing Asset Liability

This survey reveals how Islamic banks manage the routine liquidity demanded by depositors. The rating scale listed in table 12 shows that Islamic banks employ two main actions: (i) regularly calculating and analyzing patterns of liquidity withdrawals (1st priority) and; (ii) relying on cash reserves to fulfill daily liquidity withdrawals (2nd priority). It implies that during normal conditions banks' calculation and analysis of liquidity demanded are relatively accurate and reliable so that they can decide the precise cash reserves to control routine liquidity demanded by depositors.

However, besides those two actions, there are other actions banks can take for this purpose, which are their 3rd, 4th, 5th and 6th priority as follows:

- Coordinating withdrawal schedules of big depositors (3rd priority);
- Locating extra liquidity above reserve requirement in BI (4th priority);
- Pursuing depositors to lengthen tenor of time deposit (5th priority) and;
- Knowing how many rational and religious depositors there are (6th priority).

Nevertheless these supporting actions require extra efforts especially the ones dealing with depositors' behaviors and motivations.

Upon knowing how the banks manage the routine liquidity demanded, the survey goes into the final idea of knowing how they maintain the equilibrium of the asset and liability sides. Three policies, which are acknowledged by more than 12 banks (75%), are:

1. Matching tenor and amount of funds of the assets and liabilities (14 banks, 87.5%);
2. Buying government *Sukuk* (SBSN) for alternative financing allocation (13 banks, 81.2%);
3. Pooling short/ long-term funds and distributing to certain allocations (12 banks, 75%).

The first policy is a theoretical based concept that Islamic banks have been trying to implement by the Islamic banks. The second one is essentially a banks' preemptive policy against unanticipated liquidity withdrawals or project failure by locating some funds in *sukuk*, which is very liquid, profitable and secure. The last one reveals the actual condition where the most of deposits are short-term rather than long-term whilst financing proposals consist of short and long-term tenor. Hence, pooling short and long-term deposits together and placing them proportionally into various asset/projects financing is the best practice that banks might do under the current circumstance.

Despite those main policies, some banks practice other policies such as locating some short-term deposit in Islamic money market and SBIS (11 banks, 64.7%), offering a *Mudarabah Muqayyadah* account (10 banks) and pursuing depositors to lengthen tenor of time deposit (4 banks, 23.5%). The first one is clearly for the purpose of short-term liquidity while the second and third ones are the banks' effort to shore up the previous main policy of matching tenor and amount of funds in asset and liabilities.

VII. Sources of Liquidity Problem and Liquid Instruments

Besides undertaking various policies to manage liquidity risk, Islamic banks still have to be aware of some potential sources of liquidity problems and prepare liquid instruments to mitigate them. In general, such sources come from bank's balance sheet (asset and liability side) such as from depositors and entrepreneurs' performance and non-balance sheet sources such as problems in the Islamic money market. All Islamic banks engaged in this survey rank six potential sources of liquidity distress as listed in table 13.

The most two serious liquidity problems are (a) rational depositors who are very sensitive with regard to interest rate returns and; (b) the large portion of short term time deposits (1-month). Precisely, these two potential problems arise from Islamic banks' investigation into depositors' investment and liquidity behavior. In particular, Islamic banks are aware of depositors who are very sensitive to movements of interest and become depositors just for transaction purposes.

Table 13: Sources of Liquidity Problems

Sources of Liquidity Problems	Rating Score	Final result
Rational depositors who are very sensitive with interest rate return	2.53	1st priority
Large portion of short term time deposit (1 month)	2.41	2nd priority
NPF which can lower your profit and revenue sharing to depositors	2.19	3rd priority
Increasing interest rates because of tight monetary policy	2.12	4th priority
Difficulty or limited access to Islamic money market (PUAS)	1.71	5th priority
Difficult to find prospective and profitable financing proposal	1.63	6th priority

Table 14: Liquid Instruments

Liquid Instruments	Rating Score	Final result
Borrow fund from Islamic Money Market (PUAS)	5.71	1st priority
Borrow fund from parent company (for UUS)	5.24	2nd priority
Repurchase (repo) SBI *Sharia* to Bank Indonesia	3.94	3rd priority
Withdraw private placement in other banks	3.88	4th priority
Use bank's capital to cover liquidity demanded	3.06	5th priority
Sell Islamic securities owned in secondary market	2.53	6th priority
Ask depositors to wait for extra days	2.00	7th priority
Use intra day emergency liquidity facility (FLI)	1.06	8th priority

The next potential sources are not from depositors. First is non performing financing (NPF) which can interrupt banks' return sharing to depositors and the second one is increasing interest rates because of tight monetary policy. These two facts actually clarify the prior result of banks' placement in government *Sukuk* (SBSN) and central bank certificate (SBIS), which is for liquidity and save return. Even, because such worries of NPF and interest are ranked in the 3rd and 4th potential sources of liquidity distress, Islamic banks' main orientation is to prefer short term (debt) financing to long term (investment).

The least potential liquidity problems are the difficulty to access Islamic money market (PUAS) and to find a profitable financing proposal. Islamic banks are less anxious about access to Islamic money market because so far there is no significant entrance barrier to the market. Most Islamic banks are very willing to lend and borrow among themselves in the market and there is no competition or market segmentation like in the conventional banking sector. Finally, so far Islamic banks are very unlikely to have difficulty in finding prospective projects.

How do banks remedy liquidity problems if they occur? Seventeen banks in this survey share their policies with respect to solving liquidity problems, especially what liquid instruments are used to tackle it, as listed in table 14. The first most preferred is borrowing from the Islamic money market which confirms that this market is easily accessible with no significant entrance barrier. The second most preferred policy is borrowing from the parent company. For UUS (14 banks out of 17 Islamic banks), relying on parent company is the fastest and the safest way of gaining urgent liquidity, because structurally they are under the coordination of the parent company as identified before.

The other liquid instruments used by Islamic banks are repurchasing (repo) SBI *Sharia* to Bank Indonesia or withdrawing private placement in other banks positioned in their 3rd and 4th priority. Because the allocation of funds in the form of SBIS and private placement is not dominant, settling them into cash is not a lesser priority than borrowing from the Islamic money market or the parent company. Finally the least favorite instruments are consecutively (i) using the bank's capital to cover liquidity demanded (the 5th priority); (ii) selling Islamic securities owned in secondary market (the 6th priority); (iii) asking depositors to wait for extra days (the 7th priority) and; (iv) using intra day emergency liquidity facility (FLI) (the last priority). Actually using these instruments would bring consequence of negative sentiment in the Islamic banking industry about the robustness of an Islamic bank liquidity management, principally using the 7th and the 8th priority. Hence, all Islamic banks being surveyed consider them less.

VIII. Conclusion

Depositors of Islamic banking have three equal intentions when becoming clients and interacting with banks, (i) religious (to help Islamic project financing); (ii) profit (to look for the highest return) and; (iii) transaction purposes (to take money whenever needed). These circumstances require Islamic banks to operate professionally and Islamically (*Sharia* based) in order to produce profits (return) and to maintain status of an "Islamic" financial institution. Nonetheless, such conditions might also invite liquidity problems, especially coming from some of Islamic banking depositors who behave conventionally (considering level of interest, expecting positive, regular and competitive deposit returns, etc). Islamic banks and related parties (government, etc) need to take appropriate actions to further educate people on *Sharia* banking concept and practices and redirect their portfolio management to match with the bank's liquidity and financing management.

Bibliography

Bank Indonesia. (2005). *Blue Print of Indonesian Islamic Banking Development*. Publication of Islamic Banking Directorate of Bank Indonesia, revision of 2002’s Blue Print, 2005, 18–22.

———. (2000–2005). *Studies of Potency, Preference and People Behaviors Towards Islamic Banks*. A join studies between Bank Indonesia and Jambi University; Andalas University; Diponegoro University; Brawijaya University; National Islamic University Syarif Hidayatullah; Hasanudin University and; Bogor Agricultural University.

———. (2007). *Annual Report of Indonesian Islamic Banking*. Available at: <URL: http://www.bi.go.id.com/ > Access Date: January 3rd, 2009.

———. (2002–2008). *Monthly Statistics Report of Indonesian Islamic Banking Statistics*. Available at: <URL: http://www.bi.go.id.com/ > Access Date: February 10th, 2009.

Government of Indonesia. (2008). *Islamic Banking Act*. Available at: <URL: http://www.bi.go.id.com/ > Access Date: February 10th, 2009.

Ismal, Rifki. (2008). *Assessment of Liquidity Risk Management in Islamic Banking Industry*. Academic Paper Presented in The 1st UK Conference on Islamic Banking Dissertation, London School of Economics (LSE) in conjunction with LSE Islamic Society, London, United Kingdom (July 6th, 2008).

Mars, Research Specialist. (2008). *Market Study and Behaviors of Islamic Banking Depositors*. Jakarta: PT. Mars Indonesia.

Muijs, Daniel. (2004). *Doing Quantitative Research in Education*. London: Sage Publication.

Salvatore, Dominick and Reagle, Derrick. (2002). *Theory and Problems of Statistics and Econometrics*. Schaums Outline Series, 2nd Edition. New York: McGraw–Hill.

Appendix A: Survey's Questions to Islamic Banking Depositors

1. Your email address :

2. Latest degree of education (*Please choose only one answer*)
( ) Senior high school ( ) Undergraduate (S1) degree ( ) Postgraduate (S2 and S3)

3. As depositor of Islamic bank or UUS, do you (*Please answer with yes or no*)

○ Also have an account in conventional bank?
○ Frequently monitor the performance of your Islamic bank (through media, TV, etc)?
○ Understand what is a *Mudarabah* time deposit and a *Mudarabah* saving deposit?
○ Ever use Islamic banking financing (house financing, etc)?
○ Fully understand the Islamic banking operation and *Sharia* principles?

4. If you have Islamic saving deposit (tabungan), your purposes are: (*Please answer with 1st priority; 2nd priority; 3rd priority; 4th priority; 5th priority*)

○ I can take my money in a daily basis to fulfill my daily transaction needs.
○ I can take my money whenever I want (anytime not always daily).
○ Saving deposit (tabungan) pays a routine revenue sharing return.
○ I want to enjoy my bank's facilities (debit/credit card, gift, etc).
○ I deposit my money to support the development of Islamic banking and business sector.

5. If you have Islamic time deposit (deposito), your purposes are: (*Please answer with 1st priority; 2nd priority; 3rd priority; 4th priority; 5th priority; 6th priority*)

○ I want to earn a bigger revenue sharing return than saving deposit (profit motive).
○ I want to support Islamic investment projects for the sake of people (*Ummah*) (religious and investment motive).
○ It will make me easy to get bank's financing facilities (free loan, house financing, etc) (commercial motive).

6. What is your preferred withdrawal period of time deposit (deposito)? (*Please answer with 1st priority; 2nd priority; 3rd priority*)

○ I want to take my money in its 1 month maturity date (routine transaction motive).
○ I want to take my money in between 3 – 6 months in its maturity date.
○ I want to take my money after 1 year (12 month tenor) in its maturity date.

7. If you want to add more fund into your Islamic time deposit (deposito), you will consider (*Please answer with 1st consideration; 2nd consideration; 3rd consideration; 4th consideration; 5th consideration*)

○ How much deposit return I received in the last 1 or 2 months.
○ SBI rate in the last 6 months as comparison with deposit return that I get.
○ How much profit (revenue) earned by my Islamic bank from its business operation.
○ My Islamic bank's cost of operation (related to its financing activities).
○ How much my Islamic bank profit and loss (PLS)/revenue sharing rate. I will increase my deposit if the PLS/revenue sharing for depositors is higher than before.

8. If you liquidate (take money from) your Islamic time deposit (deposito), your reasons are (*Please answer with the most preferable; preferable; less preferable; not preferable*)

○ I need it to fulfill my regular transaction.
○ I want to switch tenor of my deposit from short term into long term one or vice versa.
○ I want to relocate my money into conventional bank.
○ I am offered a better revenue sharing by other Islamic banks.

9. You will surely take all of your money and close your account in Islamic bank if (*Please answer with agree, neutral or disagree*)

○ My Islamic bank does not pay competitive return as I expected.
○ My Islamic bank pays lower return sharing than other Islamic banks.
○ My Islamic bank pays lower return sharing than interest rate in conventional banks.
○ My Islamic bank faces business loss or needs Bank Indonesia's emergency liquidity.
○ Economic condition requires me to hold cash on hand.
○ It is proven not a *Sharia* compliance Islamic bank.
○ It does not have proper network services, IT and offer attractive banking products.
○ My request to take my money has ever been delayed without any acceptable reason.

10. If you want to terminate your time deposit (deposito), do you give prior notice to your Islamic bank? (*Please choose only one answer*)

○ Yes, if it is not in its maturity date (jatuh tempo).
○ No, if I end it in its maturity date (bank should know it).
○ No, even though it is not in its maturity date (jatuh tempo).

11. If conventional banks' interest rate deposit is going up, you will (*Please answer with agree, neutral or disagree*)

○ Not do anything (unaffected as it is riba/prohibited in Islam).

○ Switch my deposit from Islamic bank into my account in conventional bank.
○ Ask my Islamic bank to give higher revenue sharing ratio for my account.
○ Take my money to hold cash on hand.

Appendix B: Survey's Questions to Islamic Banking

1. Your email address :

2. With regard to the organizational structure of your Islamic bank (Islamic windows/ UUS), does your Islamic bank/UUS (*Please answer with yes or no*)
○ Have a special Division/Team dealing with risk management?
○ Have a particular Director/Manager responsible for liquidity management?
○ Coordinate liquidity management decision with the parent company (for UUS)?
○ Depend on parent company's decision (direction) to manage liquidity risk problem?

3. Regarding time deposit (deposito), your Islamic bank (UUS) (*Please answer with agree or disagree*)
○ Charge a penalty to depositors for withdrawal where no notice is given.
○ Offer a *Mudarabah Muqayyadah* account instead of *Mudarabah Mutlaqah* account.
○ Apply profit and loss sharing instead of revenue sharing scheme.
○ Consider (look at) other Islamic bank's revenue sharing ratio to determine your own revenue sharing ratio with depositors.
○ Consider the level of interest rate (for example SBI rate) to determine your revenue sharing ratio with depositors.

4. In implementing equity based financing (*Mudarabah*, *Musharakah*, etc), your Islamic bank (*Please answer with the most preferable; preferable; less preferable; not preferable*)
○ Adjusts time frame and total amount of available deposit with time frame and total amount of project to be financed.
○ Prefers proposal of (historically) well-performed projects ever financed previously.
○ Is welcome with new project proposals.
○ Requires entrepreneurs to put collateral or provide *Kafalah* (third party guarantee).
○ Prefers to finance entrepreneurs who also have an account in your Islamic bank.
○ Prefers short term investment project financing to long term one.
○ Sells bank's ownership of the project if the entrepreneur/project is in default/loss.

5. In implementing trade and leasing based financing contract (*Murabahah*, *Salam*, *Istishna*, *Ijarah*, etc), your Islamic bank (*Please answer with the most preferable; preferable; less preferable; not preferable*)

○ Prefers to finance short term contract (maximum 1 year).
○ Is welcome to finance more than 1 year up to 3 years trade/leasing proposal.
○ Charges penalty for a late payment.
○ Gives extra time to business partner for a late payment.
○ Changes leasing rate (*Ijarah* contract) to adjust with current economic condition.
○ Prefers financing entrepreneur who also has an account in your Islamic bank.
○ Requires entrepreneur to put collateral or provide *Kafalah* (third party guarantee).
○ Sells the project's (asset's) collateral if entrepreneur is in default.
○ Compensates loss with your profit reserve.

6. When giving financing, your Islamic bank (*Please answer with agree or disagree*)

○ Finances short term projects with short term available fund (deposit).
○ Pools short and long term available fund and distributes with certain allocations.
○ Locates some short term deposit in money market and BI's *Sharia* certificate (SBIS).
○ Buys government *Sukuk* (SBSN) for alternative financing allocation.
○ In some cases conducts joint venture financing with other Islamic banks.
○ Considers the revenue sharing ratio promised to be paid to depositor.
○ Considers prospect of project (asset) being financed.
○ Monitors your business partner regularly.
○ Considers cost of financing especially in the last 6 months.
○ Refers the next financing decision from the performance of the previous financing portfolio decision.
○ Prefers government projects to private projects.
○ Allocates some fund in form of investment risk reserve (IRR) and Profit Equalization Reserve (PER).
○ Prefers liquidity of the projects (asset) being financed rather than profit oriented.
○ Uses shareholder capital to finance long term equity based financing.
○ Terminates the project if it is not profitable.

7. To manage demand for liquidity from depositors, your Islamic bank (*Please answer with 1st choice, 2nd choice, 3rd choice, 4th choice, 5th choice, 6th choice*)

○ Relies on cash reserve to fulfill daily liquidity withdrawal.
○ Puts extra liquidity above your reserve requirement (GWM) in Bank Indonesia.
○ Communicates with depositors who have big amount of deposit regarding their withdrawal

time/schedule.
- ○ Regularly calculates and analyzes pattern of liquidity withdrawal for anticipation.
- ○ Knows how many rational and religious depositors in your bank.
- ○ Pursues depositors to lengthen tenor of time deposit from short term into long term.

8. The potential liquidity problem that your Islamic banks predicts (*Please answer with the most possible, possible, impossible*)
- ○ Rational depositors who are very sensitive with interest rate return.
- ○ Non performing financing which can lower your profit and revenue sharing to depositors.
- ○ Increasing trend of interest rate because of tight monetary policy.
- ○ Big portion of short term time deposit (1 month).
- ○ Difficulty or limited access to Islamic money market (PUAS).
- ○ Difficult to find prospective and profitable projects (financing proposal).

9. If depositors' withdrawal exceeds your liquidity reserve (cash reserve and reserve requirement/GWM), your Islamic bank will (*Please answer with 1st choice, 2nd choice, 3rd choice, 4th choice, 5th choice, 6th choice, 7th choice, 8th choice*)
- ○ Borrow fund from Islamic Money Market (PUAS).
- ○ Borrow fund from parent company (holding bank) (for UUS).
- ○ Sell Islamic securities owned in secondary market.
- ○ Repurchase (repo) SBI *Sharia* to Bank Indonesia.
- ○ Withdraw private placement in other banks (companies).
- ○ Use intra day emergency liquidity facility (FLI) from Bank Indonesia.
- ○ Use bank's capital to cover liquidity demanded.
- ○ Ask depositors to wait for extra days.

10. What does your Islamic bank do in the increasing trend of interest rate? (*Please answer with the most preferable, preferable, less preferable, not preferable*).
- ○ Increasing revenue sharing ratio for all depositors and sacrificidng bank's sharing.
- ○ Renegotiating revenue sharing ratio with certain depositors who have high nominal deposit.
- ○ Slowing the financing activities and locating more fund in SBI *Sharia*.
- ○ Asking for a bigger bank's profit ratio in the on going investment project with entrepreneurs.
- ○ Do not do anything.