THE INFLUENCE OF FIRM SIZE, CAPITAL ADEQUACY, AND PROFITABILITY ON LIQUIDITY RISK MANAGEMENT OF INDONESIA ISLAMIC BANKING

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Abstract

One of the problems facing sharia banking is liquidity risk management. Liquidity risk management in Islamic banking faces greater challenges because they need to be in accordance with Sharia. This research aims to determine the influence of firm size, capital adequacy, and profitability with return on asset and return on equity as proxies, on Indonesian Islamic banking liquidity risk management which is listed in Bank Indonesia in the period 2010-2014. This research uses panel data from eleven Islamic banks. The dependent variable in this research is liquidity risk and the independent variables are firm size, capital adequacy, and profitability with return on asset and return on equity as proxies. The method of analysis in this research uses descriptive statistics, regression model selection, classic assumption test, and hypothesis test. The results show that firm size, capital adequacy, and profitability with return on asset and return on equity as proxies simultaneously affect liquidity risk management, where partially return on equity does not affect liquidity risk management.

Keywords: *Capital Adequacy, Firm Size, Islamic Banking, Liquidity Risk Management, Profitability*

INTRODUCTION

Indonesia is a country that applies dual-banking system; Islamic banking and conventional banking. Both of them together support the finance capability of the sectors of national economy which the implementation is set in a range of legislation. The difference between the two is that conventional banking operates based on interest fee, while Islamic banking system is based on profit and loss sharing. By the end of 2015, there are 12 Islamic Banks, followed by 22 Islamic Banking Units and 161 Islamic Rural Banks with 433 offices across the country. As its function, Islamic banking also faces variety of risks. One of them is liquidity risk. Regarding the provision of liquidity, banks receive funds from depositors and distribute it to the real sector, and at the same time provide liquidity for any withdrawal of deposits. It's consistent with intermediation theory which mention that two of the most important reasons for the existence of financial institutions, especially banks, is the provision of liquidity and financial services. However, banks' role in transforming short-term savings into long-term loans makes them inherently vulnerable to liquidity risk (Bank for International Settlements (BIS) 2008 b: 1). In Indonesia, risk profile assessment has been regulated in Bank Indonesia Regulation (PBI) No. 13/1/PBI/2011 on the Assessment of Commercial Banks. This regulation is known as RGEC (Risk Profile, Good

Corporate Governance, Earnings and Capital) method. As for Islamic banking, Islamic Financial Services Board (IFSB) has published two references to manage liquidity risk in the contemporary business environment. These are: (i) the Guiding Principles of Risk Management for Institutions Offering Islamic Financial Services Only and (ii) the Technical Note on Issues in Strengthening Liquidity Management of Institutions Offering Islamic Financial Services: the Development of Islamic Money Markets.

According to Ariffin (2012), bank customer rationality in the conventional sense in which the motive for profit applies in every economic transaction can result in a withdrawal of liquidity from Islamic banks when returns in conventional partners are higher. Islamic banking might also experience serious liquidity mismatch when the market interest rate changes due to the changing economic environment. For example, in a high interest rate environment, Islamic banking experiences serious liquidity mismatch when assets (financing) tend to be more attractive than conventional bank loans, while Islamic banking deposits are relatively less attractive compared to conventional bank deposits. Several problems that cause liquidity risk faced by this industry are investment motive depositors, underdeveloped financial markets, limited banking instruments, fragility in macroeconomic problems, and others. (Ismal, 2008: 9-12).

Currently liquidity risk in Indonesia Islamic banking is still low. That is because the amount of third party funds exceeds the financing. However, that does not mean that Indonesia Islamic banking is safe from liquidity risk. This can be seen from the high number of current accounts that can be withdrawn at any time by depositors, bans on the sale, and purchase of receivables (Bai 'al-Dayn) in Islamic jurisprudence, as well as slow progress in the provision of fast funds sharia instruments.
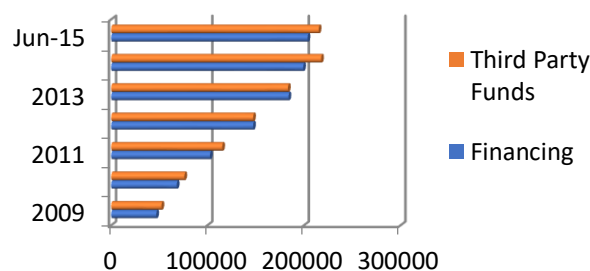

Figure 1.1 the Comparisons between Third Party Funds and Financing

Just like conventional banking which has interbank call money, Islamic banking also has Islamic money market namely PUAS *(Pasar Uang Antar Bank Berdasarkan Prinsip Syariah)* and central bank Islamic monetary instrument (SBIS). However, unlike money market activities in the conventional money market, PUAS activities are not very active because internal liquidity management is quite robust and SBIS is not the main target of Islamic banking financing. This shows the ineffectiveness of Islamic monetary instrument to influence liquidity but on the other hand the minimum placement in SBIS indicates the intensive bank financing to the real

sector (Ismal, 2011: 11-9). Therefore, based on the background that has been described above, this research highlights which factor that has the most significant effect on liquidity risk management of Indonesian Islamic banking in order to create more sound and stable financial performance.

LITERATURE REVIEW

Indonesian Islamic Banking

Job (2011) describes Islamic Financial Institutions (IFIs) functioning as intermediaries between surplus and deficit units. However, the "interest" instrument is replaced by a series of other instruments. While conventional banks generally pay and burden interest in operational activities, Islamic financial institutions must avoid interest and use more than one main instruments as the basis for intercession activities. The most striking difference is that the risk of Islamic banking remains in ownership, so IFI shares profits or losses arising from investments and profits from trading activities and their leases as a result of the risks and obligations taken and adds real value to business activities. They mobilize savings on the distribution of profits or losses and to a certain extent based on *Wakalah* who get service fees or agency costs that have been set.

The same as most of the Muslim countries, Indonesia has a progressive Islamic banking industry which relies on the performance of the real sector. The existence of Islamic banks in fact continues to strengthen, both in terms of institutional and operational basis. This can be seen since the enactment of banking Law number 7 of 1992, as amended by Law number 10 of 1998 which allows the implementation of Islamic banking along with conventional ones. The existence of Islamic banks is even further strengthened by the central bank Law number 23 of 1999 as amended by Law number 3 of 2004 stating that the country operates sharia and conventional monetary operations (Ismal, 2011).

Indonesian Islamic banking has several engines of growth that have triggered such industrial developments, especially the large Muslim population, support from governments, banking regulators, parliaments and Islamic scholars. However, despite robust industrial performance, there are several challenges facing the industry to move forward. The first challenge is a small market share that limits the operations of Islamic banks, Islamic financial market activities, and industrial contributions to the economy. Second is the lack of human resources that may not fully meet the demand for highly skilled and highly educated employees. And third is the lack of product development to facilitate various Islamic financial transactions (Ismal, 2011).

Grand Theory

a) The Theory of Financial Intermediation

The main function of banks is financial intermediaries, which is the process of purchasing excess funds from the business sector, government and households to be distributed to the economic unit deficit. The financial intermediation function arises as a result of high monitoring costs, liquidity costs, and price risks due to asymmetric information between the owner of the fund (household/net saver) and users

of corporate funds (net company/borrower) and so we need an intermediary capable of accommodating the second need parties (Siringoringo, 2012).

b) The Theory of the Firm

Underlying theoretical basis for arguing that a firm size is related to profitability can be found in the traditional neoclassical view of the firm and the concept known as economies of scale. Economies of scale may occur for various reasons such as financial reasons (large companies can get a better interest rate as well as a better discount rate due to large purchases), organizational reasons (specialization and division of labor), and technical reasons (fixed costs high in a large number of units), etc. In line with this concept, a positive relationship between firm size and profitability is expected (Pervan and Visic: 2012). As profitability is opposed to liquidity, firm size is expected to have a negative relationship with liquidity.

c) Capital Buffer Theory

Capital buffer is the mandatory capital that financial institutions are required to hold in addition to other minimum capital requirements. Capital buffer is the excess capital owned by banks above the minimum determined legally and has a very important role to maintain the stability of the banking sector, especially in countries where banks are the main source of funding. Bank capital buffer is very important to maintain its solvency, and to maintain the possibility of unlimited lending in the economy (Eliskovski, 2013). Capital buffers identified in Basel III reforms include countercyclical capital buffers, which are determined by Basel Committee member jurisdictions and vary according to a

percentage of risk weighted assets, and capital conservation buffers, which are built up outside periods of financial stress (Investopedia, http://www.investopedia.com/ terms/c/capital-buffer.asp, February 28th 2016).

d) Trade-Off Between Liquidity and Profitability Theory

The liquidity and profitability goals are contradictory to each other in most decisions which the finance manager takes. If a bank wants to maintain its liquidity position, it must increase the cash reserves. This causes some funds to be idle so that the level of profitability decreases. On the contrary, if a bank wants to achieve great profitability, then the bank must sacrifice liquidity. In addition to this, referring to the risk return theory there is a direct relationship between risk and return. Thus, firms with high liquidity may have low risk and then low profitability. Conversely, firms that have low liquidity may face high results to higher return. Consequently, a firm is required to maintain a balance between liquidity and profitability in its daily operations (Niresh, 2012).

Liquidity Risk Management

Ismal (2011) stated that liquidity risk management in banks is defined as the risk of not being able to fulfill its obligations to depositors or fund an increase in assets at maturity without incurring unacceptable costs or losses. This risk occurs when the depositors collectively decide to withdraw more funds than the bank immediately has on hand (Hubbard, as cited in Ismal, 2011), or when the borrowers fail to meet their financial obligation to the banks. In the other words, liquidity risk occurs in two cases. Firstly, it arises

symmetrically to the borrowers in their relationship with the banks, for example when the banks decide to terminate the loans but the borrowers cannot afford it. Secondly, it arrises in the context of the banks' relationships with their depositors, for example, when the depositors decide to redeem their deposits but the banks cannot afford it (Greenbaum and Thakor, as cited in Ismal, 2011). In practice, the banks regularly find imbalances (gaps) between the asset and the liability side that need to be equalized because, by nature, banks accept liquid liabilities but invest in illiquid assets (Zhu, as cited in Ismal, 2011). If a bank fails to balance such a gap, liquidity risk might occur, followed by some undesireable consequences such as insolvency risk, government bailout risk, and reputation risk.

The failure or inefficiency of liquidity of liquidity management is caused by the strength of liquidity pressure, the preparation of a bank's liquid instruments, the banks' condition at the time of liquidity pressure, and the inability of the banks to find internal or external liquid sources. Table 1 lists some internal and external factors in banks that may potentially lead to the liquidity problems.

Table 1 Internal and External Factors Leading to Liquidity Risk Problems

Internal Banking Factors	External Banking Factors
High off-balance sheet exposures.	Very sensitive financial markets and depositors.
The banks rely heavily on the short-term corporate deposits.	External and internal economic shocks.
A gap in the maturity dates of assets and liabilities.	Low/slow economic performances.
The banks' rapid asset expansions exceed the available funds on the liability side.	Decreasing depositors' trust on the banking sector.
Concentration of deposits in the short-term tenor.	Non-economic factors (political unrest, etc.).
Less allocation in the liquid government instruments.	Sudden and massive liquidity withdrawals from depositors.
Fewer placements of funds in long-term deposits.	Unplanned termination of government deposits.

Source: The Indonesian Islamic Banking: Theory and Practices (2011:38)

Liquidity Risk in Islamic Banking

According to the IFSB, liquidity risk is the potential loss of Islamic banks due to their inability to meet liabilities or finance an increase in assets at maturity or burdened with losses and the cost beyond capability. Liquidity risk can arise because of problems on both the liability and asset sides. Some examples of the problems from

the former are: (i) limited deposit products restricting the financing activities of Islamic banks, (ii) concentration of funds in short-term deposit tenors, (iii) dependency on certain big depositors, and (iv) domination of the return oriented (rational) depositors who seek to maximize their short-term profit, switch the deposits/banks for higher profit, and are unaware of the prohibition of interest. These are liquidity problems on the liability side that may create an asset-liability mismatch. In Ismal (2011:59), Ismal (2010:228-229) stated that meanwhile on the asset side, liquidity problems might come about when there are disturbances in both certainty and uncertainty financing. Certainty financing, which consists of trade-based contracts generating regular incomes for Islamic banks, can be infected by default risk, commodity risk, or asset value volatility risk. For example, (i) Murabahah financing is extremely sensitive because of its short-term deferred payment, (ii) Ijarah has various problems in its leased asset, whilst (iii) risk in Salam and Istisna arise in instances of non-deliverable object risk and/or the falling of the price objects.

Also in Ismal (2011:59), Ismal (2010:232) stated on the other hand, uncertainty financing which consists of investment-based contracts generating unpredictable incomes for Islamic banks, depends on business life cycles such as industrial performance, good deeds of the entrepreneurs, and non-economic environtments. Fortunately, Islamic banking is excused from the interest rate risk as it operates based on Sharia values and principles. Nontheless, interest rate risk may still indirectly affect Islamic banks

because Islamic banks operate in the same playground as the conventional banks.

Relationship Between Variables

In Arifin (2013), it is described the influence of firm size on liquidity is as follows. Assets are used for operational activities of the company. Semakin besar aset diharapkan semakin besar hasil operasi perusahaan. Research conducted by Akhtar (2011) on liquidity risk management between Islamic banks and conventional banks in Pakistan has resulted in findings that firm size has a positive relationship but not significant to liquidity in conventional banks and Islamic banks. Ahmed (2011) and Iqbal (2012) in their research obtained results that the bank's size were significantly and positively related to liquidity.

Capital Adequacy Ratio is the ratio that indicates the amount of owned capital adequacy of a bank. The more efficient use of capital for operational activities resulted in bank capable to increase credit provision so that it will reduce the level of bank risk (Arifin, 2013). The higher the CAR, the better condition of a bank will be. Akhtar (2011) research found that CAR had a significant positive relationship at the conventional banks and had not significant in Islamic banks. A similar research conducted by Iqbal (2012) with the findings CAR positive and significant impact on liquidity in conventional banks and Islamic banks (Arifin, 2013).

ROA shows the effectiveness of the company in generating profits by optimizing its assets which will affect its liquidity. The greater the ROA of a bank, the greater that bank's profit level will be achieved and the better the bank's

position in its use of its assets (Arifin, 2013). The results of the research that has been done by Akhtar (2011) is that ROA is positive to liquidity but not significant in conventional banks and significant in Islamic banks. Similar studies have also been performed by Iqbal (2012), and the results of the research showed that ROA has positive and significant impact on liquidity in conventional banks and Islamic banks (Arifin, 2013).

Business rentability shows a comparison between the net profits after tax available to shareholders by the amount of company's capital (Arifin, 2013). Akhtar (2011) found that ROE has insignificant and negative effect on liquidity in conventional banks, but significant in Islamic banks. While Iqbal (2012) found that ROE had positive and significant effect on liquidity (Arifin, 2013)

RESEARCH METHOD

This research used quantitative secondary panel data. The data obtained from the publication of Islamic banking annual financial statements for 2010-2014, which is registered in Bank Indonesia through the central bank official website based on these criteria:

1. Islamic Banking registered at Bank Indonesia.
2. Banks used as the sample is still in operation during the period of research.
3. Banks studied have already become Islamic banks in period of the research.
4. Banks surveyed publish annual financial statements (December 31) full 2010-2014

The dependent variable on this research is liquidity risk. The independent variables in this research are firm size, capital adequacy ratio (CAR), return on assets (ROA), and return on equity (ROE). Below are the formulas used for each variable.

a) **Liquidity Risk**

According to SEBI no. 13/23 / PBI / 2011, liquidity risk is the risk due to the bank inability to meet its maturing obligations of the fund sources of cash flow and/or high-quality liquid assets that can be pledged, without disrupting the activities and financial condition of the bank.

$$Liquidity\ Risk = \frac{Capital}{Total\ Asset}$$

b) **Firm Size**

According to Wimelda and Marlinah (2013), firm size is the size of a company where the larger company will be easier to get loans from the outside in form of debt and equity because usually accompanied with a pretty good reputation in public.

c) **Capital Adequacy Ratio**

According to SEBI No. 6/23 / DPNP dated May 31, 2004, capital adequacy ratio is a comparison between capital and risk weighted assets.

$$CAR = \frac{Tier\ 1\ Capital + Tier\ 2\ Capital}{Risk\ Weighted\ Assets}$$

d) Return on Assets

According to Bank Indonesia Circular Letter No. 3/30/DPNP dated December 14, 2001, calculating ROA is formulated as follows:

$$ROA = \frac{Earning\ Before\ Tax}{Total\ Asset} \times 100\%$$

e) Return on Equity

According to Bank Indonesia Circular Letter No. 3/30 / DPNP dated December 14, 2001, calculating ROE is formulated as follows:

$$ROE = \frac{Earning\ After\ Tax}{Capital} \times 100\%$$

Estimation of the regression model with panel data used in this study using the fixed effect approach. This model allows heterogeneity between subjects by giving each entity a separate interception value (Gujarati, 2012). The term "fixed effect" is used because even though intercepts vary for each subject, but the interception of each entity does not change with time (time invariant). So the model becomes as follows:

$$LQR_{it} = \propto_{1i} + \beta_2 BKS_{it} + \beta_3 CAR_{it} + \beta_4 ROA_{it} + \beta_5 ROE_{it} + u_{it} \dots\dots\dots\dots (1)$$

The equation model is described as a fixed effect model (FEM) processed using eViews 6. The use of a dummy is done to determine the pattern of liquidity risk in eleven Islamic banks in Indonesia, over a five-year research period, which is thought to be different. This is because of the differences in the characteristics of each bank so that the equations used in this study are as follows:

$$LQR_{it} = \propto_{1i} + \propto_2 D_{2i} + \propto_3 D_{3i} + \dots + \propto_{11} D_{11i} + \beta_2 BKS_{it} + \beta_3 CAR_{it} + \beta_4 ROA_{it} + \beta_5 ROE_{it} + u_{it} \dots\dots\dots (2)$$

Where:

D1	= BCA Syariah's dummy
D2	= BNI Syariah's dummy
D3	= BRI Syariah's dummy
D4	= Jabar Banten Syariah's dummy
D5	= Maybank Syariah Indonesia's dummy
D6	= Mega Syariah's dummy
D7	= Muamalat Syariah's dummy
D8	= Panin Syariah's dummy
D9	= Syariah Bukopin's dummy
D10	= Syariah Mandiri's dummy
D11	= Victoria Syariah's dummy
$\propto_1$	= intercept
$\propto_2 - \propto_{11}$	= Islamic bank dummy coefficient
$\beta_2 - \beta_5$	= variable coefficient

RESULT AND DISCUSSION

Panel data regression analysis in this study results the representation of appendix 3. Panel data regression analysis is used to see the influence of firm size, ROA, ROE, and CAR on

liquidity risk. From processing eviews 6, the following representation of general equations is obtained.

$$LQR = 4.889 - 0.308BKS + 0.002CAR + 11.998ROA - 0.7333ROE$$

Where:

LQR = Liquidity Risk

BKS = Firm Size

CAR = Capital Adequacy

ROA = Return on Asset

ROE = Return on Equity

The equation model above can be interpreted as the equation from regression analysis which shows that the value of a constant coefficient is stated by assuming the absence of firm size, CAR, ROA, and ROE variables, then the liquidity risk will increase by 4.889. The coefficient of firm size is stated by assuming the absence of other independent variables and increasing the size of the company by 1%, then liquidity risk will decrease by -0.308. The CAR coefficient is stated by assuming the absence of other independent variables and CAR increases by 1%, then liquidity risk will increase by 0.002. The ROA coefficient is stated by assuming the absence of other independent variables and ROA increases by 1%, then liquidity risk will increase by 11,998. The ROE coefficient is stated by assuming the absence of other independent variables and increasing ROE by 1%, then liquidity risk will decrease by -0.7333.

According to Ghozali (2013), the F test basically shows whether all the independent variables included in the regression model simultaneously affect the dependent variable. In this study, the F test is conducted to see whether the variables of firm size, CAR, ROA, and ROE simultaneously affect liquidity risk. From the results of the F test based on appendix 2, the F statistic value is 12.468 and the table F value is 4.53. It can be concluded that F> Fa so that H0 is rejected and H1 is accepted, this means that firm size, CAR, ROA, and ROE simultaneously affect liquidity risk significantly. Based on the results in appendix 2, firm size, CAR, ROA, and ROE have a significant effect on liquidity risk. The value obtained in adjusted R2 is 0.748. This means that 74.8% of the liquidity risk variables can be explained by independent variables including firm size, CAR, ROA and ROE. While 25.2% is explained by other variables not included in the research model.

The Influence of Firm Size on Liquidity Risk

From the results, the data can be seen that the firm size significantly and negatively related to liquidity risk. These results are supported by a research by Abdul (2012), which shows that the relationship between firm size and liquidity were significant and negative in domestic banks and insignificant in foreign banks. However, contrary to the results of this research, Ramzan and Zafar (2014) stated that asset base or firm size had a positive and significant relationship with liquidity risk. This research is supported by Naveed, Muhammad, and Usman (2011), whose results showed that the size of Islamic banks had a positive and statistically significant influence on liquidity risk.

Firm size describes the size of a company where the company will find it easier to get an external loan in the form of debt or equity because usually larger companies come with a good

reputation in the eyes of society (Wimelda and Marlinah, 2013). In addition, Joni and Lina (2010) stated that the size of a large company is considered as an indicator that describes the level of risk for investors to invest in the company, because if it has good financial capabilities, it is believed that the company will be able to fulfill all obligations and provide an adequate rate of return for investors.

As in theory of firm, a positive relationship between firm size and profitability is expected (Pervan, and Visic: 2012). As the profitability is in contrary with liquidity, firm size is expected to have a negative relationship with liquidity. So, based on the findings in this study, Islamic banking is considered to be in accordance with theory of firm where it is able to manage its liquidity risk.

The Influence of CAR on Liquidity Risk

From the results it is known that the capital adequacy ratio has no significant effect on liquidity risk. This is similar to Ramzan (2014) who stated that CAR does not have an impact on liquidity risk in Islamic banking. However, the results of this study are different from Iqbal (2012), Akhtar (2011 who stated that CAR has a positive and significant effect on liquidity.

The Influence of ROA on Liquidity Risk

From the results it can be seen that return on assets (ROA) has a positive effect on liquidity risk. This is according to Ariffin (2013) who stated that the greater the ROA of a bank, the greater the profit level reached the bank, the better the position of the bank in terms of asset utilization will be. The results of the research that

has been done by Ahmed, Akhtar, Muhammad and Usman (2011) also concluded that ROA has a positive but insignificant effect on conventional banks and a significant effect on Islamic banks liquidity. Similar studies have also been performed by Iqbal (2012), who stated that ROA has positive and significant impact on liquidity in conventional banks and Islamic banks (Ariffin, 2013). Although this is against the trade-off between liquidity and profitability theory, it can be assumed that Islamic banking in Indonesia has idle funds, so that in its operation it does not require a lot of external loans.

According to Ismail (2011:68-69), managing the asset sides based on sharia can be done by three modes of financing contracts, which are: (a) equity-based financing; (b) debt-based financing; and (c) benevolent loans and services. The first examples of the first mode are *Mudarabah* (trustee partnership), *Musharakah* (joint venture), *Muzara'ah* (harvest yield profit-sharing)), and *Musaqah* (plantation management fee, based on certain portion of yield) (Antonio, 1999: 143-155). The examples of the second one are *Murabhah* (cost-plus sale), *Ijarah* (leasing), *Salam* (deferred delivery sale), *Istisna* (manufacture-sale), and *Qardh* (benevolent loan). The examples of the last one are *Wakalah* (opening of letter of credit), *Kafalah* (letter of guarantee), and *Hiwalah* (Obaidullah, 2005: 113-115).

In the Islamic banks' asset management, it is encouraged to: (a) be in accordance with the characteristics of the project and the funds available on deposits; (B) be in accordance with cash flows generated from projects with a payment schedule for profit and loss sharing on

the liability side; (C) select business partners through selective due diligence and financing criteria; (D) conduct joint financing with other Islamic banks to share and minimize risks; and (e) establish cooperation with entrepreneurs and parties related to financing activities.

The Influence of ROE on Liquidity Risk

From these results it can be seen that return on equity (ROE) has a negative and not significant effect on liquidity risk of -0.733. This result is consistent with Abdullah and Khan (2012) who stated that return on equity has a negative effect both in domestic banks and in foreign banks. The result of this study is also consistent with Ahmed et al (2011) who found that ROE has a negative and not significant effect in conventional banks, but significant in Islamic banks. From the results it can be seen that ROE fulfill the trade-off between liquidity and profitability theory, where ROE negatively affect liquidity risk. It indicates the provision of capital on Indonesian Islamic banking by the investor which is able to minimize the level of liquidity risk, though on one side overcame profitability.

CONCLUSION AND SUGGESTION

This study uses four independent variables consisting of firm size, capital adequacy ratio, return on assets and return on equity. Four variables are tested whether they have an influence on liquidity risk. The results show that the null hypothesis is rejected in this study; where research on firm size, capital adequacy ratio, return on assets and return on equity simultaneously influence liquidity risk. Of the five independent variables there is one variable

that does not have a significant relationship with the dependent variable, namely the capital adequacy ratio.

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APPENDIX

1. Descriptive Statistics

Date: 03/13/16

Time: 18:20

Sample: 2010 2014

	LQR	BKS	CAR	ROA	ROE
Mean	0.247753	15.42788	2.525837	0.014565	0.084681
Median	0.104869	15.36203	0.167296	0.010376	0.059470
Maximum	3.440819	18.01934	124.4306	0.137455	0.583949
Minimum	0.009472	11.37808	0.013034	-0.018756	-0.060390
Std. Dev.	0.500335	1.537837	16.74459	0.021966	0.102277
Skewness	5.246130	-0.337557	7.208987	3.794563	2.592600
Kurtosis	32.42300	3.148023	52.98625	20.57330	12.32603
Jarque-Bera	2236.209	1.094704	6202.402	839.7023	260.9318
Probability	0.000000	0.578480	0.000000	0.000000	0.000000
Sum	13.62641	848.5336	138.9211	0.801081	4.657466
Sum Sq. Dev.	13.51808	127.7069	15140.58	0.026055	0.564876
Observations	55	55	55	55	55

2 Regression Analysis

<div align="center">

Dependent Variable: LQR?
Method: Pooled Least Squares
Date: 03/13/16   Time: 12:02
Sample: 2010 2014
Included observations: 5
Cross-sections included: 11
Total pool (balanced) observations: 55

</div>

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.889442	1.033562	4.730672	0.0000
BKS?	-0.308420	0.065982	-4.674291	0.0000
CAR?	0.001556	0.002307	0.674539	0.5038
ROA?	11.99790	2.192380	5.472546	0.0000
ROE?	-0.733317	0.428936	-1.709620	0.0951
Fixed Effects				
(Cross)				
_BCA--C	-0.002262			
_BNI--C	0.156895			
_BRI--C	0.231114			
_JBS--C	-0.119287			
_MSI--C	-0.277001			
_MGS--C	-0.010832			
_MUS--C	0.547827			
_PNS--C	-0.217720			
_SBK--C	-0.131635			
_SYM--C	0.570644			
_VCS--C	-0.747743			

<div align="center">

Effects Specification

Cross-section fixed (dummy variables)

</div>

R-squared	0.813565	Mean dependent var	0.247753
Adjusted R-squared	0.748313	S.D. dependent var	0.500335
S.E. of regression	0.251010	Akaike info criterion	0.300352
Sum squared resid	2.520239	Schwarz criterion	0.847807
Log likelihood	6.740314	Hannan-Quinn criter.	0.512057
F-statistic	12.46802	Durbin-Watson stat	1.677889
Prob(F-statistic)	0.000000		

3. Representation

Estimation Command:
====================
LS(CX=F,COV=CXWHITE) LQR? BKS? CAR? ROA? ROE?
Estimation Equations:
====================
LQR_BCA = C(6) + C(1) + C(2)*BKS_BCA + C(3)*CAR_BCA + C(4)*ROA_BCA + C(5)*ROE_BCA
LQR_BNI = C(7) + C(1) + C(2)*BKS_BNI + C(3)*CAR_BNI + C(4)*ROA_BNI + C(5)*ROE_BNI
LQR_BRI = C(8) + C(1) + C(2)*BKS_BRI + C(3)*CAR_BRI + C(4)*ROA_BRI + C(5)*ROE_BRI
LQR_JBS = C(9) + C(1) + C(2)*BKS_JBS + C(3)*CAR_JBS + C(4)*ROA_JBS + C(5)*ROE_JBS
LQR_MSI = C(10) + C(1) + C(2)*BKS_MSI + C(3)*CAR_MSI + C(4)*ROA_MSI + C(5)*ROE_MSI
LQR_MGS = C(11) + C(1) + C(2)*BKS_MGS + C(3)*CAR_MGS + C(4)*ROA_MGS + C(5)*ROE_MGS
LQR_MUS = C(12) + C(1) + C(2)*BKS_MUS + C(3)*CAR_MUS + C(4)*ROA_MUS + C(5)*ROE_MUS
LQR_PNS = C(13) + C(1) + C(2)*BKS_PNS + C(3)*CAR_PNS + C(4)*ROA_PNS + C(5)*ROE_PNS
LQR_SBK = C(14) + C(1) + C(2)*BKS_SBK + C(3)*CAR_SBK + C(4)*ROA_SBK + C(5)*ROE_SBK
LQR_SYM = C(15) + C(1) + C(2)*BKS_SYM + C(3)*CAR_SYM + C(4)*ROA_SYM + C(5)*ROE_SYM

LQR_VCS = C(16) + C(1) + C(2)*BKS_VCS + C(3)*CAR_VCS + C(4)*ROA_VCS + C(5)*ROE_VCS
LQR_BCA = -0.00226222348845 + 4.88944195814 - 0.308420248924*BKS_BCA + 0.00155602991868*CAR_BCA + 11.9979018286*ROA_BCA - 0.733317210359*ROE_BCA
LQR_BNI = 0.156894899141 + 4.88944195814 - 0.308420248924*BKS_BNI + 0.00155602991868*CAR_BNI + 11.9979018286*ROA_BNI - 0.733317210359*ROE_BNI
LQR_BRI = 0.231113846198 + 4.88944195814 - 0.308420248924*BKS_BRI + 0.00155602991868*CAR_BRI + 11.9979018286*ROA_BRI - 0.733317210359*ROE_BRI
LQR_JBS = -0.119286946114 + 4.88944195814 - 0.308420248924*BKS_JBS + 0.00155602991868*CAR_JBS + 11.9979018286*ROA_JBS - 0.733317210359*ROE_JBS
LQR_MSI = -0.277000779387 + 4.88944195814 - 0.308420248924*BKS_MSI + 0.00155602991868*CAR_MSI + 11.9979018286*ROA_MSI - 0.733317210359*ROE_MSI
LQR_MGS = -0.0108322883019 + 4.88944195814 - 0.308420248924*BKS_MGS + 0.00155602991868*CAR_MGS + 11.9979018286*ROA_MGS - 0.733317210359*ROE_MGS
LQR_MUS = 0.547826991433 + 4.88944195814 - 0.308420248924*BKS_MUS + 0.00155602991868*CAR_MUS + 11.9979018286*ROA_MUS - 0.733317210359*ROE_MUS
LQR_PNS = -0.217719763135 + 4.88944195814 - 0.308420248924*BKS_PNS + 0.00155602991868*CAR_PNS + 11.9979018286*ROA_PNS - 0.733317210359*ROE_PNS
LQR_SBK = -0.131635168916 + 4.88944195814 - 0.308420248924*BKS_SBK + 0.00155602991868*CAR_SBK + 11.9979018286*ROA_SBK - 0.733317210359*ROE_SBK
LQR_SYM = 0.570644035865 + 4.88944195814 - 0.308420248924*BKS_SYM + 0.00155602991868*CAR_SYM + 11.9979018286*ROA_SYM - 0.733317210359*ROE_SYM
LQR_VCS = -0.747742603295 + 4.88944195814 - 0.308420248924*BKS_VCS + 0.00155602991868*CAR_VCS + 11.9979018286*ROA_VCS - 0.733317210359*ROE_VCS