Liquidity Risk and Macroeconomic Analysis of Islamic Banking in Indonesia

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Abstract: The purpose of this study is to identify macroeconomic factors affecting the risk of liquidity of Islamic banks in Indonesia. The method of this research is explanatory research. This study uses secondary data derived from Islamic bank financial statements and statistical center in Indonesia. The result of the research shows that there is no significant influence on GDP, Inflation and Unemployment on liquidity risk. This means that macroeconomic conditions in Indonesia do not affect liquidity risk in Islamic banks in Indonesia. The results of this study is different from the results of previous research, this is due to differences in sample data. Previous research was conducted on conventional banks, while in this study conducted on Islamic banks. This proves that liquidity risk in Islamic banks in Indonesia is more resistant to macroeconomic factors than conventional banks.

1 INTRODUCTION

Liquidity is a major concern for any financial institution. Liquidity is a financial term, which can be defined as the ability of an organization to instantly convert assets into cash. This reflects the business's ability to fulfill its payment obligations, so it is necessary for any financial institution to have adequate liquid assets (Gautam, 2016). The banking industry has an important role to convert illiquid assets into liquid assets through demand deposits (Diamond and Dybving, 1983). However, an unexpected increase in liquidity demand forced banks to sell their illiquid assets at a lower price so that it could lead to a loss and an increased risk of liquidity (Allen and Gale, 2004; Allen and Santomero, 2001).

Liquidity risk is the bank's inability to fulfill its financial commitments due to loss of assets or incurring unwanted expenditures. To avoid such situations and maintain financial stability, it is better for banks to maintain adequate liquidity (Arif and Nauman, 2012). In the case of commercial banks, the first type of liquidity risk arises when the depositor of a commercial bank tries to with draw the money. They become bankrupt if the assets are not sufficient to meet the withdrawal of liabilities. Similarly, a second type of liquidity risk arises when the money

supply can not meet unexpected loan demand due to lack of funds (Baral, 2005). On the other hand, maintaining a high liquidity position to minimize such risks also has a negative impact on bank profitability. The return of a highly liquid asset will be zero. Therefore, the bank must make a tradeoff between liquidity position and profitability in order to stay healthy. Liquidity risk also threatens the solvency position of financial institutions.

According to previous research, the fundamental factor that significantly affects the liquidity position in banks is the macroeconomic factor. Macroeconomic factors include GDP growth, inflation rate and unemployment rate. A number of recent empirical studies aim to examine the determinants of bank liquidity studied by various researchers in various countries. Previous studies have shown that bank liquidity is influenced by macroeconomic factors. Previous researchers found that there is a significant effect on gross domestic product on bank liquidity risk (Moussa,2015; Bunda and Desquilbet, 2008; Choon et al, 2013; Valla et al 2006; Dinger, 2009; Vodova, 2011; Aspachs, 2005). While other researchers found out that there was a significant effect of the inflation rate on liquidity risk, (Moussa, 2015; Bhati et al, 2015; Tsaganesh, 2012). Lastly, previous researchers found significant

influence on unemployment rate on liquidity risk (Horvath, 2014; Munteanu, 2012)

This study aims to improve this gap by analyzing empirically the growth of gross domestic product, the inflation rate and the unemployment rate affecting liquidity risk in Islamic banking in Indonesia, thus contributing significantly to the existing literature, and bringing the value of high novelty and originality. This finding will enable Islamic bank managers to formulate appropriate strategies to maintain adequate liquidity and minimize risk. Therefore, the purpose of this study is to analyze the macroeconomic factors affect the risk of liquidity of Islamic banks in Indonesia.

2 METHODS

The method of this research is hypothesis testing method or explanatory research. This study uses secondary data derived from the financial statements of Islamic banks and Indonesia statistical center (BPS) since 2009 - 2016 in Indonesia. The object of this research is X1: Gross Domestic Product Growth (GDP), X2: Inflation Rate (INF), X3: Unemployment Rate (UNEMP), and Y: Liquidity Risk (LR). Empirical model of this research as follows:

$$LR = + {}_1GDP+ {}_2INF+ {}_3UNEMP+ \quad (1)$$

The test is a panel data regression testing. Which is where the first step to do is testing the model.

- *The first model is chow test that is ho: Common effect (pooled ols) and ha: Fixed effect.*
- *The second model is hasuman test that is ho: Random effect and ha: Fixed effect.*

If the p-value>0,05 then accept ho and if the p-value< 0,05 then reject ho.

3 RESULTS

3.1 Multicollinearity Test

Table 1 summarizes the correlation values for all the variables used. This test is performed to identify some variables that have high correlation with correlation value above 0.8. If there is a correlation value above 0.8, then inter-variable occurs multicollinearity.

Table 1: Pairwise Correlation Matrix of Variables.

	LR	GDP	INF	UNEMP
LR	1			
GDP	-0,02632	1		
INF	0,02210	0,08897	1	
UNEMP	0,03728	-0,41934	-0,11613	1

The test result in table 1, all variables have a correlation value below 0.8. This means that all the variables are free of multicollinearity. If all variables are freed from multicollinearity, then the research is continued.

3.2 Estimation Results

The estimation result table 2 is the estimation of the effect of macroeconomic on liquidity risk. The analysis was performed using balanced panel data from 2009 to 2016 from 7 Islamic banks in Indonesia. Cross-section is used to adjust standard error for potential heteroscedasticity (White, 1980). Table 2 is a summary of the model selection test consisting of chow test to find out which model will be selected whether common effect or fixed effect and hausman test to know which model will be selected whether random effect or fixed effect. And the result of the estimation is presented in table 2:

Table 2: Estimation Result.

Independent Variable	Dependent Variable : Liquidity Risk					
	Common Effect		Fixed Effect		Random Effect	
	Coef	Prob	Coef	Prob	Coef	Prob
C	0,53	0,06	0,58	0,00	0,53	0,00
GDP	-0,19	0,92	-0,02	0,82	-0,19	0,68
INF	0,38	0,84	-0,00	0,99	0,38	0,40
UNE	0,67	0,82	0,06	0,68	0,67	0,33
R^2	0,0022		0,9977		0,0405	
Durbin Watson	0,0942		2,2000		1,7487	
Dummy Variabl	No		Yes		No	
GLS-Weight	No-weights		Cross-section weights		No-weights	

Based on the estimation result in table 2 can be concluded that fixed effect model with cross-section weights. This is due to the goodness of fit in the model of 0.9977 or 99.77% (R-square) which means that all variables can affect the liquidity risk of 99,77% and the rest is influenced by other variables not included in this research. Besides, because of the high goodness of fit value, the selection of fixed effect model is also due to chow test and hausman test result p-value $< 0,05$ like table 3 and 4.

Tabel 3: Chow Test.

Redundant Fixed Effect test			
Equation : Untitled			
Test cross-section fixed effects			
Effect Test	Statistic	d.f	Prob
Cross-section F	3370,839503	(6,46)	0.0000

Table 3 shows the probability result is 0.0000. This explains that ho is rejected so that the result obtained is a fixed effect model better than the common effect model. Therefore, according to the results of Chow testing, the model used is a fixed effect model.

Tabel 4: Hausman Test.

Correlated Random Effects - Hausman Test			
Equation : Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f	Prob
Cross-section random	16.47220	7.00	0.0000

The results in table 4 indicate conformity with the previous test, ie ho rejected then the result obtained is a fixed effect model is better than the random effect model. This shows that, fixed effect model is the most appropriate model in regression testing in this study. As evidenced by the harmonized results of the Chow test, Hausman test, and the comparison test between common effect, fixed effect and random effect.

4 DISCUSSION

The result of data panel regression with cross-section weight fixed effect model is that the variable of growth GDP, Inflation rate, and unemployment rate have no significant influence to liquidity risk in Indonesian Islamic Banking.

This is in contrast to previous studies such as Moussa (2015), Bunda and Desquilbet (2008), and

Choon et al (2013) found a significant positive effect of GDP growth on liquidity risk. While Valla et al (2006), Dinger (2009), Vodova (2011), Aspachs (2005). found significant negative effect of GDP growth on liquidity risk.

This difference is also found in the inflation rate variables. Such as Tseganesh (2012) who found the results of a significant positive effect of the level of inflation on liquidity risk, and other studies found a significant negative effect of inflation rate on liquidity risk on the results of research (Moussa, 2015; Bhati, 2015).

The result of unemployment rate analysis also there is no significant effect to liquidity risk in Islamic bank in Indonesia. Previous researchers Munteanu (2012) found different results that is a significant positive effect unemployment rate on liquidity risk. While Horvath (2014) found a significant negative effect on the unemployment rate on liquidity risk.

Significant difference in this research and previous research because the data obtained in this study is Islamic bank data while previous research is a conventional bank. This study obtained very different results in both types of banking. Although both are banking industries, but being run in different ways will get different results. And the results obtained show that the liquidity of Islamic banks in Indonesia is not affected by the macroeconomic conditions that occur.

This is closely related to the conventional bank system which is run by the system of interest rate while Islamic banks with profit sharing system. Because if there is a shock to the economy of a country, it will affect the operational activities in a bank, such as profitability, capital and credit. In Conventional banks, because the interest rate system is anything that happens requires the bank to fulfill all its obligations. While in Islamic banks is not, because the profit-sharing system applied to share the profit and loss. So, if the bank is in a loss condition, the bank can postpone all its obligations and focus on getting out of the existing problems. This is the uniqueness as well as the strength of Islamic banks can survive in a crisis state though.

This research has high novelty and originality because research on macroeconomic analysis to liquidity risk in Islamic bank, firstly researched in Indonesia and world. Limitations in this study are data and results can only describe the situation in Indonesia alone and does not apply in general in the world. Subsequent research can be examined more widely in order to describe the situation in the world.

5 IMPACT

This research can have an impact on society at large, that Islamic banks in Indonesia are more resistant to shocks than external than conventional banks. This is because the profit-sharing system implemented helps Islamic banks withstand the crisis as evidenced in the 2008 crisis. In addition, investors who want to invest funds on time deposits do not have to worry about losing funds as feared when investing funds in conventional banks. This research can have a positive impact on Islamic banking in order to improve performance and market share.

6 CONCLUSION

The results of this study have a conformity to the facts that occur. The global crisis that hit in 2008 that caused hundreds of bankrupt banks around the world did not affect the performance of Islamic banks in Indonesia. There are no Islamic banks asking for liquidity funds to save themselves. The results of this study show that there is no macroeconomic effect on the risk of liquidity of Islamic banks in Indonesia, both GDP growth, inflation rate and unemployment rate. Unlike conventional banks that have a significant macroeconomic effect on liquidity risk. This shows that Islamic banks are really good banks in all situations, both normal or crisis situations.

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