DETERMINANTS OF ISLAMIC BANKS LIQUIDITY AND LESSONS FOR VIETNAM BANKS

Do Hoai Linh
Tran Manh Dung
Luong Thi Thu Hang
Do Ngoc Mai

ABSTRACT

The paper aims at investigating factors related to the liquidity of Islamic banks. The sample used data from 30 Islamic banks around the world during 1997 - 2016. Through quantitative methods, the panel regression results with the FE effect, divided into two phases 1997-2008 and 2008-2016 show that the capital ratio is positively correlated with liquidity as it is the primary source of liquidity for Islamic banks in short-term. The ratio of non-performing loans and total assets is closely related to the liquidity of Islamic banks during the Asian crisis (1997), as large banks are generally stable and have a good credit rating. The smaller, newly established banks will limit the risks; however, it shows the opposite in the crisis of 2008, partly because this is a global financial crisis, Islamic banks was affected by the holding assets. On the macro indicators (GDP and inflation), a surprising result is that these indices can donate a negative relationship, but, do not occur in the same period. These findings help to provide lessons for management policies of conventional banking system.

Keywords: Islamic banks, Liquidity, Vietnam banks,

INTRODUCTION

Since September 2008, the credit crisis in the US increasingly complexed and became the global financial crisis (GFC). While financial institutions around the world were struggling with the GFC, banks and investment funds that obey Islamic law virtually avoided the problem of liquidity. Large banks like HSBC of England or Citibank of the US set up branches of Islamic banks and these branches performed effectively. Some banks that succeeded with Islamic finance also wanted to expand this business model far beyond the natural market in Muslim countries. Some researchers examined and compared the operation of Islamic banks (IBs) and traditional banks (TBs). Dridi and Hasan (2010) study of 120 banks after crisis, including IBs and TBs, investigated the impacts from the crisis by considering the change in earnings, credit and assets and liquidity of banks. Research shows that IBs has higher profits than TBs before the crisis. In the 2007 to 2008 crisis, both the profits of IBs and CBs decreased. However, IB's profit fell less than 10% while TB's profit fell by more than 30%. According to the IMF report, the elements that allow IBs to perform better than CBs may be related to lower leverage and close compliance with Sharia principles. Almanaseer (2014) studied with 24 Islamic banks from the 2005-2012 in Kuwait, Saudi Arabia, Qatar, Bahrain, and UAE. The study found that there is no impact of the financial crisis on Islamic banks' profitability, it also was improving total assets and liquidity. According to Bala and Nafis (2007), IBs in the FC had a lower level of risk and higher safety in terms of liquidity than TBs. The study pointed out that IBs were not experiencing liquidity shortages and it appears that IBs were saving more than their investment because their source of funds is originated from deposits, not by borrowing. Islamic finance was also affected, but it was least affected by FC because of characteristics and principles of Islam. This also coincides with the conclusions of Kassim & Majid (2010) while analyzing the influence of the financial shock on IBs. According to the author, when considering the financial situation and deposits of IBs and CBs from 1997 to 2007, the result was that both banks faced liquidity risks. However, IBs could tackle and curb the financial shock of not using interest rates (riba) and PLS. Samad & Hassan (2006) argue that this was the key to helping these banks avoid a bank run. In the global crisis, the prospect of IBs was enormous and the Western world regarded it as "the sleeping giant" (Salamon, 2004). Advanced economies such as Germany, Japan, and France, after the crisis, have recognized IBs could secure credibility, stability and reduce the influence of FC (Wilson, 2009). IBs show good performance in Western countries. Islamic banking experience in the UK has been extremely active in recent years (Halabi, Alfieya, & Bala, 2004). Thus, this research aims at initially assessing the influence of potential factors on the liquidity of Islamic banks and how it can affect the liquidity, thereby providing beneficial information to regulators and investors in stabilizing the banking sector and financial system

LITERATURE REVIEW

Overview the recent Islamic financial situation

Banking, sukuk (bonds), equity and funds, and takaful (insurance) are the four areas of Islamic finance. In particular, the banking sector is the main sector, accounting for more than 80% of the total assets of Islamic finance. These assets mainly come from Gulf Cooperation Council (GCC) with USD 599 billion. In 2016, due to political and religious conflict and unfavorable economic conditions (the fall in oil prices), there has been a decline in the Islamic financial system (IFSB: 2017, DIB: 2017a). Emerging markets such as Europe, Russia, and Africa will see growth boosted by the removal of market opening sanctions (S&P, 2017, DIB, 2017a, Thomson Reuters & Dinar Standard, 2016). According to the S&P Global Ratings 2018, the deposit growth rate in 2016 is down 3% compared to 2015. Originally due to, more than 30% of the deposit rate affected by falling oil prices. However, the liquidity situation of Islamic banks in the GCC is still high as banks keep their cash at a relatively high level (nearly 20% of their total assets) by 2016. Malaysia is known to be one of the largest Islamic financial centers in the world, with many Islamic financial institutions, accounting for nearly 10% of total Islamic banking assets and nearly 30% of total national banking assets. Islamic finance has also appeared in European and American countries more than 20 years ago. Luxembourg is

the first country in Europe to be a member of International Islamic Liquidity Management (IILM) and also the first country to release sukuk (2014).

Islamic bank

Islamic bank characteristics

Islamic bank is the financial institution with the primary task is to raise capital and provide loans, but unlike traditional banks, Islamic banks operate under the control of the Shariah rule (Islamic rule). Shariah-based Islamic banks have different fundamentals with commercial banks:

Firstly, transactions are made through contracts (aqad). In Islamic transactions, the contract is between the seller (the bank) and the buyer (the customer), the subject of the contract is usually tangible goods. While, in the financial transactions of TBs, it is between the lender (the bank) and the borrower (the customer), the subject of the contract is money and loan interest rates.

Secondly, transactions excluding the lending factors (riba), which means that IBs do not allow the use of IR. This is a very characteristic feature of the IFS. The profitability of IBs in the mobilization and lending operations will be set in advance in each contract with the client and it will remain unchanged until terminated. Consequently, customers dealing with traditional banks are often worried when interest rates change abnormally, causing difficulties in their repayment process, partly to influence liquidity.

Finally, transactions do not contain chance (gharar) and gambling (maisir) (Zineldin, 1990), based on the spirit of equality, banks and customers share the risk and profit. This is also a notable difference when comparing Islamic banks and traditional banks.

Islamic bank principles

IBs have the same purpose as TBs, except that it operates in accordance with Shariah rules and the most significant difference is that it does not allow the use of IR. The Islamic banking paradigm does not recognize the concept of IR or the reliance on currency trading.

One of main principles at the heart of Islamic economics is the PLS (Al-Omar et.al, 1996; Zineldin, 1990). The bank and its depositors share any gains or losses arising from their investments. In addition, the form of speculation such as hedge funds or derivatives is prohibited. In a mortgage transaction, instead of giving the buyer a loan to buy goods, the bank will make the purchase of the item from the seller and resell it to the buyer at a higher price.

Musharaka al-Mutanaqisa is an innovative method used by some banks for housing loans, allows for a floating interest rate. Banks and borrowers are a co-operate entity (Zineldin, 1990). Both parties contribute capital at a pre-agreed rate to buy a home. This entity then lends to the borrower and charges the rent. The bank and the borrower will continue to share the gains from the rental. At the same time, the borrower will also redeem the bank's shares in this co-operate by making periodic payments to the bank as agreed until all the assets are transferred to the borrower and the co-operation ends. In case the borrower does not repay the debt, the bank and the borrower will proceed to auction the existing property. This method accepts a floating IR based on market interest rates (base lending rates), especially in the dual banking system as in Malaysia.

Literature review on Islamic bank liquidity

Banks are often considered as financial intermediaries which impact on the economy, plays a leading role to economic development. The countries, having an efficient operation of banking systems, get more easily to cope with negative shocks, while contributing to the financial system stability (Athanasoglou et al, 2006). Thus, knowledge of the factors influenced the liquidity of banking sector is extremely necessary and important. Dewatripont et al (2010) shows that rapid credit growth, over-indebtedness in the financial system and financial instruments becoming more complex also cause difficulties in controlling and assessing the level of risk. In order to be able to maintain operations, banks often rely on short-term money market, however, because of their desire to improve profitability, the assets that the investment bank holds are often lacking in liquidity and high risk. And the contagion has been rapid in the economy, causing heavy losses, typically the crisis 2007-2009.

In addition, this is a good lesson for the financial sector, especially banks. Many financial experts conclude that we must improve the current financial system and Islamic banks will be one of the alternatives. It has been proven that Islamic banks have not encountered any significant impact since the 2008 financial crisis. According to Associate Professor Mousa Almanaseer, Banking and Finance in Bahrain, in his study of 24 Islamic banks from Bahrain, Qatar and Saudi Arabia during 2005-2012, Islamic banks do not suffer too much from the crisis, the profitability is not reduction too much compared with traditional banks. Another case is Indonesia with 80% of the total population of nearly 250 million. Given the relatively small size of foreign exchange and international investment, operation of Islamic banks are relatively stable.

Since the crisis, managers have been monitoring and taking timely measures on liquidity issues. Studies on this issue have also been extended. According to Aspachs et al (2005), apart from external factors such as financial markets, facilities, number of sellers and buyers, it is also influenced by factors inside, especially the change in property and its value as well as the reaction from the market participants. The results show that factors from banking activity such as equity, bank size, lending rates, bad debt and macroeconomic factors such as inflation rate, GDP growth rate, interest rates Interbank average, the impact of the financial crisis all affect the liquid assets of commercial banks in the Czech Republic.

Ahmed et al (2011) studied the factors affecting liquidity at Pakistani commercial banks. The author uses the OLS method for the study in period 2006-2009 with the scope of 12 commercial banks. The results show that the size of the bank is positive for cash and cash equivalents of total assets. Malik and Rafique (2013) who studied 26 commercial banks in Pakistan for the five-year from 2007 to 2011 showed that factors such as bad debt ratio, bank size and monetary policy interest rate get a positive sign

on liquidity while inflation had a negative relationship. In addition, the ratio of cash and cash equivalents to total bank assets is also negatively affected by the financial crisis.

Tseganesh (2012) investigates factors affecting the ratio of liquid assets over total assets in Ethiopian. The results show that the ratio of equity over total assets, banking size, nonperforming loans (NPLs) ratio, interest rate and inflation are statistically significant factors liquidity of total assets of commercial banks in Ethiopia. Meanwhile, credit growth, real GDP growth rate and short-term monetary interest rate were not statistically significant in the model. Comparing the 10 domestic and foreign Islamic banks from 2001 to 2010, Shafique et al (2012) found that the size of the bank, the debt over equity ratio negatively affected the liquidity risk in domestic banks and have a negligible impact on foreign banks.

Ahmed et al. (2011) compared Islamic banks with traditional banks in Pakistan for the period 2006-2009 and found that ROE and Islamic banking liquidity were same relationship at the confident level is 10%. However, the size of banks and working capital have a negligible effect. Also with a sample of Pakistan in the same period of 6 Islamic banks, Ahmed et al. (2011) showed that ROE is directly related to liquidity. In addition, the study also shows the negative relationship of bad debt ratio and liquidity risk. Conversely, the ratio of capital and liquidity has a positive relationship. The Ramzan and Zafar (2014) empirical studies investigate the relationship between the characteristics of internal banks and the liquidity of Pakistani Islamic banks during the period 2007-2011. The result is a positive and significant correlation between the size of the bank and the liquidity risk. Thus, the strong asset base of Islamic banks helps to strengthen liquidity controls. Conversely, ROE, ROA, and networking capital (NWC) have a negligible relationship with liquidity risk.

Kurnia and Muharam (2012) also conducted research on Islamic banks but in Indonesia with the same period. As a result, net interest and ROE are in line with the liquidity of Islamic banks. In addition, the liquidity gap has negligible impact and negative impact of NPL and CAR ratio on liquidity risk. Sohaimi (2013) conducted a study of Islamic banks in Malaysia from 1997 to 2012 to examine the relationship between liquidity and financial results. Research shows that liquidity issues are closely related to bank capital and bad debt. These factors have negative implications for deposits, cash and liquidity gap. Research shows that, compared between Islamic banks and conventional banks, the liquidity position is usually better in Islamic banks. It stresses that the liquidity problem will be more severe as the bank holds more bad debt, leading to lower capital adequacy ratios in conventional banks than the Islamic bank to cover risks.

In Vietnam, research paper by Dr. Than Thi Thu Thuy and Nguyen Thi Thanh Dung on the factors affecting the cash level of joint stock commercial banks listed on the stock market of Vietnam. The study uses a sample of 9 banks over the 11-year period from 2004 to 2014 through a random effect regression model. The results show that the size of banks, the ratio of equity over total assets, and the ratio of loans over total deposits has a negative effect on the bank's cash position. At the same time, the minimum capital adequacy ratio, debt growth rate, average return on equity and average inter-bank interest rates have a positive impact on the cash ratio. Bad debt ratio, growth rate of gross domestic product and inflation rate were not statistically significant in the model.

DATA AND METHODOLOGY

Data collection

The data is collected from annual consolidated financial reports of 30 Islamic banks from 1997 to 2016. The data is taken from the websites of securities companies as well as banks. Because many banks, nowadays, invest in other sectors, individual financial reports cannot be fully reflected. Therefore, the selection of consolidated financial statements helps to meet the requirements about the actual business situation. The study will be divided into two periods, 1997-2008 and 2008-2016, to compare the liquidity situation of Islamic banks in times of crisis when commercial banks in the world suffered heavy losses, a serious decline in liquidity. Thus, the study may point to the difference between the two banking models, giving more objective assessments, at the same time, showing the rapid and effective development, as well as the advantages, should be learned of the Islamic banking model from the crisis. Selected banks in countries with relatively developed Islamic financial systems concentrated in Asia (Bangladesh, UAE, Malaysia, and Indonesia) and the Middle East (Türkiye, Bahrain, Kuwait, Iran, Qatar). The list of banks will be shown in Appendix.

Estimation methods

The research uses quantitative methods to look at the impact of factors such as total assets, capital, and NPL ratio, ROE, GDP and INF on the liquidity of Islamic banks. For panel data, researchers typically use the ordinary least squares regression model (OLS), the random-effects regression model (RE), and the fixed-effects regression model (FE). Among three methods above, OLS regression is the simplest. With OLS estimation, assumptions about multicollinearity, autocorrelation, and heteroscedasticity are not considered. Depending on the research objective, data characteristics, characteristics of the model, the studies will select different regression models. Due to the above limitations of OLS estimation, this study uses FE and RE model. Hausman's test is used to select the optimal model. In addition, after selecting the appropriate model, to ensure the reliability of the results, the BreuschGodfrey tests (to detect chain correlation) and the Heteroskedasticity test (to detect variance) will be performed. If defects occur, the study will overcome general least square (GLS) and weighted least squares (WLS)

Research models

Four ratios are commonly used to measure liquidity:

Liquidity = Liquid Assets / Total Assets

Liquidity = Liquid assets / Total short-term capital mobilization

Liquidity = Total Loans / Total Assets

Liquidity = Total loans / Total short-term capital mobilization

However, this study uses only the first ratio: Liquidity assets/Total assets to measure the liquidity of Islamic banks. Liquidity assets include cash and cash equivalents. Cash is defined as available cash reserves and all deposits are deposited at central banks and other banks. Based on previous studies, this study also uses cash, available-for-sale investment securities, and those with maturities of less than one year are liquid assets. Because only this ratio accurately reflects the liquidity situation of banks, it shows that in the total assets held by the bank, what the percentage of highest liquidity assets is. In addition, because Islamic banks often rely on their internal capital, they do not make profit based on interest rates, so depositors are less likely to be attracted by this model. Then, the rate of cash will also decrease. Therefore, the level of cash held at the bank would reflect the relative level of deposits, as well as the mentioned above, Islamic banks are likely to encounter short-term deposit problems. Moreover, the assets of Islamic banks are generally good liquidity. Thus, the level of liquidity will be more accurate and reliable.

Based on research by Malik and Rafique (2013) as the basis for establishing the regression equation and there are some changes as follows:

$LIQ_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 CAP_{it} + \beta_3 ROE_{it} + \beta_4 NPL_{it} + \beta_5 INF_{it} + \beta_6 GDP_{it} + e_i$

- Dependent variable:

LIQit: Liquidity of the bank (i) at time (t)

- Independent variables:

+ SIZEit: The size of bank (i) at time (t)

+ CAPit: The bank's equity ratio (i) at (t)

+ ROEit: The bank's profit margin in bank (i) at (t)

+ NPLit: Non-performing loans of the bank (i) at time (t)

+ INFt: Inflation rate at time (t)

+ GDPt: Gross Domestic Product Growth at time (t)

Table 1: Variables used in the research model

	Variables	Symbol	Measure	Source	Expected sign	Hypothesis
	Dependent variable					
1	Liquidity	LIQ	Cash and cash equivalents / Total assets	Calculated from the consolidated financial statements		
	Independent variables					
2	Bank Size	SIZE	Logarithm (Total Assets)	The logarithm is to convert the great value variable to the similar value with other variables in the model, decreasing the volatility of the data series and better for the regression model.	-	Negative relationship between the size of the bank and liquidity
3	Capital ratio	CAP	Total Equity / Total Assets	Calculated from the consolidated financial statements	+	Positive relationship between capital ratio and liquidity
4	Profit ratio	ROE	Profit / Equity		+	Positive relationship between return of equity and liquidity
5	Nonperforming loans ratio	NPL	Nonperforming loans / Total loans		-	Negative relationship between NPL and

						liquidity
6	GDP growth	GDP	$(GDP_t - GDP_{t-1}) / GDP_{t-1}$	Statistics from World Bank	-	Negative relationship between GDP and liquidity
7	Inflation ratio	INF	Consumer Price Index	Statistics from World Bank	-	Negative relationship between INF and liquidity

EMPIRITICAL RESULTS

Data description

Statistical properties will be mentioned in the descriptive analysis. It includes mean - average value of the variables, standard deviation - degree of dispersion compared to average, min, and max. Table 2 shows a summary of the basic descriptive statistics of the variables related to model in both 2 periods of IBs

Accordingly, the average liquidity of two periods is 9.65% and 11.54%, respectively. The highest value in the period 1997-2008 is 18.09% and the lowest is 0.43%. In the next phase, the highest and lowest values of the liquidity ratios of Islamic banks are 23.42% and 1.05%, respectively. For comparison between the two periods, the ratio is not much difference (the standard deviation between the two periods is 10.31% and 4.93%). A relatively high mean with a low standard deviation indicates that liquidity ratios of Islamic banks are good and that there is no significant difference between banks in the system. In general, the distance between two periods of Islamic banks is not too different, with almost equal parallels in all variables. Liquidity, total assets, capital ratios, inflation and GDP of the period 2008-2016 are higher than those of 1997-2008, while the 1997-2008 particularly records high rate in ROE and NPL.

Table 2: Data Description

1997 – 2008							
	LIQ	SIZE	CAP	ROE	NPL	INF	GDP
Mean	0.0965061	12.73528	0.1319693	14.44455	3.597619	3.8496	-.1705853
Std.Dev.	0.1031669	3.059751	0.1302578	9.104652	1.386384	3.701081	0.7723421
Min	0.0043484	4.962914	0.0443811	2.163108	0.96	-1.288	-2.718846
Max	0.1809251	16.62199	0.8087975	34.86998	7.4	20.286	1.202707
Obs	105	105	105	105	105	120	114
2008 – 2016							
	LIQ	SIZE	CAP	ROE	NPL	INF	GDP
Mean	0.1154125	16.24267	0.1508483	12.55133	1.845611	3.966	0.0153483
Std.Dev.	0.0493218	2.063387	0.0229419	1.241194	0.6935136	5.962564	1.504596
Min	0.0105001	12.91149	0.071	10.2	0.15	-2.5	-6
Max	0.2342074	22.98243	0.206	15.97	3.86	23.7	4.25
Obs	180	180	180	180	180	180	180

Before conducting panel regression estimation, a correlation matrix needs to be run to ensure data is not encountered multicollinearity issue. The correlation analysis between the dependent variables and other independent variables for IBs for 2 periods. Positive correlation indicates movement of the variables in the same direction, while negative suggest movement in opposite direction. Cohen (2013) suggested the guidelines on interpretation of correlation thus: small r (0.10 to 0.29), medium r (0.30 to 0.49) and large r (0.50 to 1.0).

Accordingly, in 1997-2008, total assets and bad debt among Islamic banks have high correlation level with liquidity (0.3124 and 0.3640), and the correlation between NPL ratio and total assets are also high (0.2623), indicating that as the total asset increase leads to an increase in non-performing loans (depending on the development goals of each bank), however, with studies on commercial banks, the increase in NPLs will have a negative impact on liquidity (Lucchetta (2007), Iqbal (2012), Vong and Chan (2009). But, as shown in Table 2, this is a positive correlation, perhaps partially explaining that Islamic banks do not invest too risky as well as the profit-loss sharing based on Islamic financial principle (Chapra (2008), Khan and Bhatti (2008)

In the period 2008-2016, the correlation coefficient between the variables used in the study model is relatively low (range from -0.3497 to 0.1656). In this period, bad debt ratio has a negative correlation with ROE, obviously, as bad debt increases, banks have to increase the reserve level, reducing the investment opportunities, so the profit will decrease. This is no exception to the Islamic financial model (Rashid and Nishat, 2009). In addition, the GDP and INF variables have a large negative correlation. This shows that when inflation increases, it will reduce the GDP of an economy.

In addition, the VIF (variance inflation factor) is the indicator used to test the multicollinearity of the regression equation. If VIF> 10 will have multicollinearity. The regression result for VIF is in the range of 1.08 to 1.27. At the same time, based on the correlation matrix, we also see correlation coefficients less than 0.4. Thus, there is no multicollinearity occurring in the regression model.

Table 3: Correlation Matrix

1997 – 2008								
	LIQ	SIZE	CAP	ROE	NPL	INF	GDP	VIF
LIQ	1.0000							
SIZE	0.3124	1.0000						1.14
CAP	0.0770	0.0380	1.0000					1.26
ROE	-0.0235	-0.0785	-0.1924	1.0000				1.14
NPL	0.3640	0.2623	-0.0885	0.0766	1.0000			1.21
INF	-0.0408	0.1553	0.3470	0.1606	-0.0535	1.0000		1.27
GDP	0.1005	0.0015	0.1559	-0.0263	-0.2898	-0.0437	1.0000	1.13
2008 – 2016								
	LIQ	SIZE	CAP	ROE	NPL	INF	GDP	VIF
LIQ	1.0000							
SIZE	-0.1675	1.0000						1.08
CAP	-0.1225	-0.1376	1.0000					1.10
ROE	0.1617	0.0748	-0.1944	1.0000				1.19
NPL	-0.2275	0.1659	-0.1348	-0.2951	1.0000			1.20
INF	-0.0406	-0.1656	0.0178	-0.0877	-0.0466	1.0000		1.18
GDP	0.0209	0.0364	0.0390	-0.0673	0.1328	-0.3497	1.0000	1.17

Empirical results

Prior to conducting the regression analysis, choosing the reasonable model is essential and important. The test results for the model selection are shown in Table 4. Test F to choose between the Pooled OLS and FE models, and Hausman test to choose between FE and RE. The results show that Prob> chi2 = 0.0000, which could lead to the rejection of hypothesis H0: RE model. This means that the FE model is the more appropriate model in the study. In addition, the R-squared result of the FE model is always higher than RE model. This demonstrates the strength of the FE model in this study. In addition, the results of the Breusch-Godfrey test and the results of the Heteroskedasticity test show that the FE model does not exhibit serial correlation. Thus, the study will use the results from the FE model estimation to perform the analysis and discussion in both periods.

Table 4: Statistical results

	1997 – 2008			**2008 – 2016**		
	Pooled OLS	Fixed Effect	Random Effect	Pooled OLS	Fixed Effect	Random Effect
Constant	-0.127604***	-0.4394579*	-0.169596**	0 .191365***	0.4175543***	0.3287086***
	(0.0464134)	(0.2432597)	(0.0765269)	(0 .061332)	(0.0979557)	(0.0734443)
SIZE	0.0077068**	0.0264646**	0.0083303	-0.0041065**	-0.0107912**	-0.0063607*
	(0.0031821)	(0.0179805)	(0.0052552)	(0 .0017807)	(0.0051446)	(0.0035641)
CAP	0.0836452*	0.5567135***	0.276316***	-0.3413884**	0.3518259***	-0.351415***
	(0.0786061)	(0.1340709)	(0.0964676)	(0.1613845)	(0.1162598)	(0.1143723)

ROE	0.0000846	0.0038535*	0.001971	0 .0032534	-1.0035141	-0.0025265
	(0.0010676)	(0.001977)	(0.0014764)	(0 .0031116)	(0 .0025115)	(0.0024391)
NPL	0.0269858***	0.0159134**	0.021324***	-0.014582***	-0.032606***	-0.030253***
	(0.0072344)	(0.0071376)	(0.006918)	(0.0055789)	(0.0047282)	(0.0045577)
INF	-0.002595	-0.0037004	-0.002305*	-0.000428***	0.0001261**	0.0001454
	(0.0026858)	(0.0036377)	(0.0027114)	(0.0006453)	(0.0005787)	(0.0005563)
GDP	0.0263273**	0.0261677**	0.029065**	0.0015714	-0.0003405	0.0000496
	(0.0130268)	(0.0116198)	(0.0117835)	(0.0025385)	(0.0016019)	(0.0015745)
R-squared	0.2343	0.3093	0.2699	0.2112	0.3142	0.3105
F-test		p-value=0.0000			p-value=0.0000	
Hausman test		p-value=0.0000			p-value=0.0000	
Heteroskedasticity test		p-value=0.0000			p-value=0.0000	
Serial Correlation test		p-value= 2,202			p-value= 1,9367	

*****, **, * - Significant at 1%; 5% and 10% respectively**

Standard errors are in parentheses

In the regression analysis, the R square value for 2 periods is 0.3093 and 0.3142, respectively which shows that 30.93% and 31.42% of the variability in the liquidity is explained by the independent variables. In the period of 1997-2008, the 5 variables are closely correlated with LIQ, SIZE, CAP, ROE, NPL, and GDP, only INF is not statistically significant in this model. With a significant level at 1%, a 1% increase (decrease) in CAP will result in a 0.5567% increase (decrease) in LIQ, ceteris paribus. Similarly, other things held constant, with a 5% significance level, when SIZE, NPL and GDP increase (decrease) by 1%, LIQ increase (decrease) respectively 0.0264%, 0.0159% and 0.02616%. And with a 10% significant level, ceteris paribus, if the ROE increases (decreases) by 1%, the LIQ increases (decreases) by 0.0038%. However, in the period 2008-2016, significant changes in FE model results are observed. Specifically, SIZE is inversely proportional to LIQ, all other things being equal, at the 5% significance level, if SIZE increases (decreases) by 1%, LIQ decreases (increase) by 0.0107% - in contrast to the previous period. Another difference from NPL, other things held constant, with a meaning level of 1%, LIQ will increase (decrease) by 0.032% if the NPL decreases (increase) by 1%. All other things being equal, the capital ratio has a close relationship with LIQ with a 1% significance level, if CAP increased (decreased) 1%, LIQ increased (decreased) 0.3518%. A new in this model is the positive relationship between INF and LIQ, with significant level is 5%, 1% INF increase (decrease) will cause LIQ increase (decrease) 0.00012%, ceteris paribus. However, two variables (ROE and GDP) in the previous period have a positive effect on LIQ, at this period, it was not statistically significant.

DISCUSSIONS AND POLICY RECOMMENDATIONS

Liquidity determinants

Internal factors

For internal variables, Table 4 shows the significant positive relationship between SIZE and the liquidity situation of Islamic banks between 1997 and 2008 and the negative relationship in 2008- 2016. This shows that from 1997 to 2008, Islamic banks always secured their assets by providing an additional risk premium during this period. In fact, large-scale Islamic banks are often reputable banks. Such banks will ensure the possession of highly liquid assets.

In the next stage, the size of the bank is inversely proportional to the liquidity of Islamic banks, the results of which are consistent with the study about traditional banks of Aspachs et al (2005) and Lucchetta (2007). For larger Islamic banks, liquidity will be lower, liquidity risk will be higher. This is in line with the research by Iqbal (2012), when traditional banks reduced their liquidity position by increasing the reserves ratio (based on Basel rules) when they invest more, it is easier to lead to increased liquidity risk. From the perspective of Islamic finance, the increase in wealth and assets means the increase in the reserves ratio, in addition, this is also the period of crisis, and Islamic banks are also affected by the crisis. Therefore, even though the total assets are large, it will also include illiquid assets, and this ratio will also increase in times of crisis. Thus, the relationship between the size of the bank and the liquidity of Islamic banks during this period is inversely proportional - this is consistent with expectation H1.

Similarly, the capital ratio (CAP) also shows a significant positive relationship with the liquidity of Islamic banks in both periods - which coincides with the initial hypothesis (H2). The sign of CAP is consistent with the reports of Jedidia & Hamzah (2015); Mohamad et al (2013) and Iqbal (2012). The increase in capital ratio for Islamic banks involves increasing liquidity. The higher

the safety capital margin, the higher the protection level of depositors (New Zealand Reserve Bank, 2007). This is match with the principles and differences of Islamic banking as mentioned above, Islamic banks rely heavily on internal capital.

In terms of profitability, the profitability of banks in the 1997 to 2008 period is proportional to liquidity, significant at 10%. In the period 2008-2016, this relationship is negative, however, it is not statistically significant. Accordingly, banks have higher returns but have avoided engaging in indirect risk activities that increase the risk of long-term liquidity. This is consistent with expectations and is consistent with studies by Ahmed et al. (2011) and Iqbal (2012), Bonfim and Kim (2012), Bryant (1980), Calomiris and Kahn (1991). Obviously, when the bank is profitable, it will have a premise to offset the costs or cover the debt. However, it is necessary to look at the increase in ROE, some banks hardly increased their equity, while the after-tax profit is likely to decrease but less than equity. In addition, the profit-loss sharing under Islamic principles also partly explains the cause. Banks do not have to bear the full risk of a crisis, this "benefit sharing" allows banks to ease the pressure on costs as well as profits due to the low rate of capital mobilization will not be as high as traditional banks. This suggests that, given the volatility of the market, the economy is severely weakened, the Islamic banking system is also be affected, however, by its ability to remain stable and balanced, as well as remedies are very different, brings good results, especially in the recent 2 crises.

Non-performing loans ratio is in line with liquidity in 1997-2008 - in accordance with Vodová (2011), but inversely in 2008-2016 - research by Iqbal (2012), Ahmed et al (2011) - in line with the hypothesis H4. Regression results show that if the bank's bad debt increases, the liquidity of the bank may increase and may decrease. In this case, standing in the view of liquid assets to explain. If bad debt increases, banks will tend to raise more liquid assets because in the worst case, there is a risk of losing capital, the bank can still use those liquid assets to meet the payment in the short term. On the other hand, since the growth rate of NPLs is usually higher than the rate of deposit mobilization, Islamic banks must have sufficient liquidity to prevent liquidity risk. Islamic banks are typical for the financial system, with bad debts in both periods at low levels (3.59% and 1.84%). It shows that the bad debt rates of Islamic banks are showing a downward trend which means less inactive loans from Islamic banks and hence fewer losses. This conflicting effect of the bank's specific variables on liquidity may be due to the different environment and time at which the bank operates. However, in both crises, the Islamic banks are stable and highly developed.

External factors

For macroeconomic variables, GDP and inflation are in conflict with signs and expectations. This may be due to the unique characteristics of the Islamic Bank principle. In the period 1997-2008, GDP is significant but contrary to expectations. From 2008 to 2016, the INF is meaningful but unlike expectations. In the first phase, GDP has a positive effect on liquidity. Increasing domestic products will increase liquidity for Islamic banks - similar to that of Mohamad et al (2013) and (Cucinelli, 2013), as opposed to Yaacob et al. (2016). This means that Islamic banks maintain liquidity ratio along with economic growth. This can only happen in the stable economic situation, banks hold less liquidity and increase financial and investment resources to increase profits. However, in the context of the two major financial crises, Islamic banks still ensured significant liquidity. Another variable is inflation, which results in positive implications for INF and LIQ. Similar to the study by Yaacob et al. (2016), in which it reveals a significant positive association when rising inflation rates will increase the liquidity of Islamic banks.

Lessons for Vietnam banks

In fact, apart from Islamic countries, Islam money market and interbank have not really developed, partly due to policies from the government and the central bank. Banks follow Islamic rules are limited, reflecting the difficulty of applying tools to control monetary and government fund, affecting the liquidity of banks - one of the problems related to market-based monetary policy. In addition, the implementation of monetary policy in dual systems will be particularly complex. Islamic banks typically operate in dual financial systems and are consequently affected by conventional monetary conditions and instruments through the disparity between conventional and Islamic (El Hamiani 2015).

Islam was introduced into Southeast Asia quite early, around the 11th and 12th centuries. Vietnam is a country with many religions. According to data from the Government Committee for Religious Affairs in 2015, there are 24 million followers of 13 religions, accounting for 27% of the population, and more than 60,000 Muslim. It is also a country with 54 ethnic groups living in different areas with different natural conditions, climate, lifestyle, customs, beliefs, and religions. Islam was introduced into Vietnam at different times and mostly Cham people were Muslims. However, the slogan "Swords, Horses, Quran" of Islamic thought is not really prominent because of the introduction and development by "peace" way, from the Indian source of Islam is harmonious with Indian culture, Islam in Southeast Asia is often blended with local beliefs and customs, so it is less influenced by Islamic ideology as some other regions. Therefore, the application of Islamic banking rules to countries such as Viet Nam - a socialist country is an impossibility, it can create conflict as well as reducing the efficiency of the banking system. However, the banking system in Viet Nam, in general, can learn a few points in the Islamic Bank's liquidity management model to improve liquidity and reduce systemic risk.

Commercial banks

For the bank, beyond promoting internal control with the aim of reducing potential uncertainties, developing appropriate operational strategies, reducing the risk of each operation, actively applying the recommendations of Basel Committee on Banking Supervision (BCBS), 3 main points in Islamic banking can help to improve Vietnamese banks.

First, it is about mortgage transactions. As mentioned above, the fact that both banks and customers contribute capital to buy an asset, however, the key here is about ownership. Islamic banks agree to let the customer use the property (for example: a house), but, retain the ownership until the loan is repaid, receive the monthly rent until the customer refunds the outstanding amount (based on the capital contribution of each party). The most commonly used Islamic product is Murabahah, homebuyers only need to pay 20% in advance for the Islamic bank on the day of purchase and have the right to settle the debt in any time - essential for

the vast majority of Vietnamese people - to avoid being unable to repay their loans, or to have problems related to the ownership, which directly affects bank profitability and liquidity.

Secondly, it is about the risk of deposits, from the savings of customers, banks can extend credit. However, the application of PLS rules, customers are also involved in the business risk of the bank. If the bank makes a profit, it will be split according to the pre-arranged ratio between the customer and the bank. In Viet Nam, this kind of appearance seems to be difficult to apply completely, but Vietnamese banks can provide two forms of deposit The first option is that customers choose traditional deposit products at low or no interest rates and are insured at a fixed rate. The second option is to choose to send money under Islamic banking model with higher interest without deposit insurance. At that time, the commercial bank will become a financial institution combining commercial banks and mutual funds, which will allow them to widen their chances of increasing the activity of a mutual fund to a large population, helping to reduce the pressure on the deposit insurance fund. At the same time, the liquidity risk of commercial banks will be reduced because of the central bank's support as a lender of last resort, thus reducing the risk of financial crisis.

Thirdly, it is capital, the risk mitigation of Islamic banks is partly due to internal capital. Islamic banks are considered as "a savings bank", do not engage in non-transparent activities and derivatives market, not easy to make loans. Many Vietnamese banks are trying to meet reserve requirements by raising large capital (by raising interest rates). However, this interest rate is also limited because of the base rate set by the central bank. Thus, higher capital levels will help banks meet the short-term and long-term changes in financial markets and macroeconomic policies. In particular, in short-term, it can offset the temporary liquidity shortage.

Central bank and Government

Macroprudential policies always play an important role in preventing the accumulation of systemic risk. The use of macro policy tools in identifying and monitoring systemic risk and liquidity management is particularly difficult for Islamic finance due to restrictions on transactions and assets that comply with Shariah, lack of secondary market for assets. Features from IB's PLS also affect the measurement and comparability of capital buffers. The lack of standardization of Islamic products also hinders the application of these policies. In Vietnam, banks are increasingly expanding, and the application of macro tools seems easier than that of Islamic banks. However, to reduce the likelihood of amplification, especially in balance sheets and cyclical sectors such as real estate and construction, financial transactions need to be required to be based on real economic activity, apply appropriate capital buffer and leverage ratio to minimize liquidity risk.

The issue of taxation should also be scrutinized, stemming from differences in the concept of debt and equity between Islamic finance and conventional finance, the differential opportunities in domestic and international taxation. Thus, multinational enterprises exploit differences in the tax system in various forms, hindering supervision and ensuring system security. However, some countries have reduced the tax burden on Islamic financial activities. This is an important issue that policymakers in Viet Nam need to address. When applying a new activity or tool or product, policymakers should limit the imposition of the tax, which may shift from transaction taxes to taxes based on profits.

Finally, international standards can facilitate reform, especially accounting and auditing standards for Islamic finance, to ensure consistency of the Shariah. Thus, the government, the central bank, and policymakers in Vietnam need to improve the banking supervision system, control international capital flows, and foreign debt, focusing on loan monitoring mechanism and lending in foreign currencies of commercial banks to avoid exchange rate risk, causing lack of liquidity. Improve the transparency of information across all organizations through the application of international accounting standards. Considering the formulation of suitable tariffs for commercial banks on the basis of comparison with other types of business. Tariffs are determined not only for the budget goal but also with the effect of not crippling business, helping to ensure liquidity, thereby stabilizing the banking system.

CONCLUSION

Summary

The research shows that the factors that affect the liquidity of Islamic banks include: total assets, equity ratios, rates of return, NPL ratios, GDP and inflation. The study found that, over the period 1997-2006, total assets, capital ratios, profit margins, NPL ratios and GDP had a positive impact on the liquidity of Islamic banks. In particular, if banks can stabilize their capital, liquidity can be ensured, since it will also help to increase profitability. As for the NPLs, as the rate rises, the Islamic bank will also raise capital to meet liquidity by increasing liquidity assets, so these indicators show that Islamic banks is stable and rapid development in a crisis. However, in the period 2008-2016, the capital ratio and inflation have the same relationship with liquidity of the bank. The cause of inflation is that when inflation rises, the value of assets, even the cash held by the bank, will be devalued, so the amount of capital for short-term liquidity will immediately be increased, helping to ensure liquidity. The total asset value, the rate of return, the bad debt ratio showed a negative relationship with liquidity. The common cause is the global crisis, which has deep and wide implications for all sectors of the economy. Then, even if Islamic banks keep their high liquid assets in the year, then people in the economy are becoming more conservative. In addition, the source of the crisis is from the illiquid assets, resulting in increased NPLs, short-term funds that are insufficient to meet liquidity, and thus indicate a negative relationship, at the same time, also reduced the profits of Islamic banks

Recommendations for future researches

Although there have been many attempts to complete the research, due to the lack of time, practical experience and capacity, this study has many limitations: Firstly, the data is quite small and the random picking of Islamic banks around the world will cause deviations. Secondly, there are only six independent variables, not to mention other factors that may affect liquidity such as interest rates and mobilization rates, therefore, creating the limitation to analysis and implementation. Thirdly, because Islamic

banks use their own currency in the balance sheet and data needs to be converted into US dollar, the current and the previous exchange rates is different, which in part affects the accuracy of the results. Fourthly, the analysis of many banks in many countries will make it difficult to formulate policies and comments for the banking system of each country. Fifthly, that is about the dependent variable, there are many ways that can be used to measure liquidity, however, the research only gives the ratio of liquid assets to total assets, which is difficult to compare to offer the most objective view and make a reasonable comment. From these constraints, further research should focus on each region, each Islamic banking group for analysis and comparison, increase sample in both banks and years, and independent variables, use a variety of liquidity calculations to obtain the best possible comparisons as well as multidimensional analysis of Islamic banks liquidity.

REFERENCES

1. Article.

Ahmed, N., Akhtar, M. F., & Usman, M. (2011), "Risk management practices and Islamic banks: An empirical investigation from Pakistan", *Interdisciplinary Journal of Research in Business, 1*(6), 50-57.

Almanaseer, M. (2014). The Impact of the Financial Crisis on the Islamic Banks Profitability - Evidence from GCC. *International Journal of Financial Research*, 5(3).

Al-Omar, F. and Abdel-Haq, M. (1996). *Islamic banking.* Atlantic Highlands, NJ: Zed Books.

Aspachs, O., Nier, E. and Tiesset, M. (2005). Liquidity, Banking Regulation and the Macroeconomy. *SSRN Electronic Journal*.

Athanasoglou, P., Delis, M., & Staikouras, C. (2006). Determinants of bank profitability in the South Eastern European region.

Bala, S., & Nafis, A. (2007), "Evolution of Islamic Finance: Prospect and Problems", *Serdang, Malaysia: Universiti Putra Malaysia.(pp1-20)*.

Bonfim, D. and Kim, M. (2012). Liquidity Risk in Banking: Is There Herding?. *SSRN Electronic Journal*.

Bryant, J. (1980). A model of reserves, bank runs, and deposit insurance. *Journal of Banking & Finance*, 4(4), pp.335-344.

Chapra, M. (2008). The Nature Of Riba In Islam. *Millah*, 8(1).

Cucinelli, Doriana (2013), "The determinants of bank liquidity risk within the context of euro area." *Interdisciplinary Journal of Research in Business* 2.10: 51-64.

Dridi, J. and Hasan, M. (2010). The Effects of the Global Crisison Islamic and Conventional Banks: A Comparative Study. *IMF Working Papers*, 10(201), p.1.

Ifsb.org. (2018). *IFSB*. [online] Available at: https://www.ifsb.org/ [Accessed 11 Mar. 2018].

Iqbal, Anjum (2012), "Liquidity Risk Management: A comparative study between Conventional and Islamic banks of Pakistan." *Global Journal of Management and Business Research* 12.5.

Halabi, A., Alfieya, H., & Bala, S. (2004), "Growth of Islamic Banking in Austrailia", *Serdang, Malaysia: Universiti Putra Malaysia*, 1-10.

Jedidia, K. and Hamza, H. (2018). Determinants of Liquidity Risk in Islamic Banks: A Panel Study. [online] Iiste.org. Available at: http://www.iiste.org/Journals/index.php/EJBM/article/view/22939 [Accessed 11 Mar. 2018].

Kassim, S. and Shabri Abd. Majid, M. (2010). Impact of financial shocks on Islamic banks. *International Journal of Islamic and Middle Eastern Finance and Management*, 3(4), pp.291-305

Lucchetta, M. (2007). What Do Data Say About Monetary Policy, Bank Liquidity and Bank Risk Taking?. *Economic Notes*, 36(2), pp.189-203.

Malik, M. and Rafique, A. (2013). Commercial Banks Liquidity in Pakistan: Firm Specific and Macroeconomic Factors. [online] Econpapers.repec.org. Available at: https://econpapers.repec.org/RePEc:rej:journl:v:16:y:2013:i:47:p:139-154 [Accessed 3 Apr. 2018].

Mohamad, Ahmad Azam Sulaiman, Mohammad Taqiuddin Mohamad, and Muhamad Lukman Samsudin. "How Islamic banks of Malaysia managing liquidity? an emphasis on confronting economic cycles." *International Journal of Business and Social Science* 4.7 (2013).

Ramzan, M., & Zafar, M. I. (2014), "Liquidity risk management in Islamic banks: a study of Islamic banks of Pakistan", *Interdisciplinary journal of contemporary research in business*,*5*(12), 199-215.

Rashid, M. and Nishat, A. (2009). Disparity of Performance Indicators of Islamic Banks: Study on Bangladesh. *International Journal of Business and Management*, 4(8).

Samad, Abdus, and M. Kabir Hassan (2006), "The performance of Malaysian Islamic bank during 1984–1997: An exploratory study." *International journal of Islamic financial services* 1.3.

Shafique, A., Faheem, M. and Abdullah, I. (2012). Impact of Global Financial Crises on the Islamic Banking System: Analysis of Islamic Financial System During Financial Crunch 2008. *Oman Chapter of Arabian Journal of Business and Management Review*, 1(9), pp.124-134.

Sohaimi, A. (2013). Liquidity Risk and Performance of Banking System in Malaysia. *SSRN Electronic Journal*.

Vong, P. I., & Chan, H. S. (2009), "Determinants of bank profitability in Macao. *Macau Monetary Research Bulletin", 12*(6), 93-113.

Yaacob, A. K., Abdul Rahman, A., & Abdul Karim, Z. (2016), *"The determinants of liquidity risk: A panel study of Islamic banks in Malaysia*", Journal of Contemporary Issues and Thought, 6(1), 73-82.

2. Doctoral Dissertation

Kurnia, H. P., & Muharam, H. (2012), "*The Influence of Fundamental Factors to Liquidity Risk on Banking Industry (Case Study between Conventional and Islamic Banks in Indonesia)",* (Doctoral dissertation, Fakultas Ekonomika dan Bisnis).

Tseganesh, T. (2012), "Determinants of Banks Liquidity and their Impact on Financial Performance: empirical study on commercial banks in Ethiopia", *Unpublished PhD dissertation). Addis Ababa University, Addis Ababa*.

3. Book

Calomiris, C. and Kahn, C. (2018). *The Role of Demandable Debt in Structuring Optimal Banking Arrangements*. [online] Academiccommons.columbia.edu. Available at: https://academiccommons.columbia.edu/catalog/ac:136996 [Accessed 11 Mar. 2018].

Basel III: *International framework for liquidity risk measurement, standards and monitoring*. (2010). [ebook] Available at: https://www.bis.org/publ/bcbs188.pdf [Accessed 5 Dec. 2017].

Cohen, J. (2013). *Statistical Power Analysis for the Behavioral Sciences*. Burlington: Elsevier Science.

IMF. (2015). *Islamic Finance : Opportunities, Challenges, and Policy Options*. [online] Available at: https://www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2016/12/31/Islamic-Finance-Opportunities-Challenges-and-Policy-Options-42816 [Accessed 11 Mar. 2018].

IMF. (2018). *IMF Survey: Islamic Banks: More Resilient to Crisis?*. [online] Available at: http://www.imf.org/en/News/Articles/2015/09/28/04/53/sores100410a [Accessed 11 Mar. 2018].

ISLAMIC BANK AN ALTERNATIVE SYSTEM. (2004). [ebook] Available at: http://www.diva-portal.org/smash/get/diva2:229587/fulltext01 [Accessed 11 Mar. 2018].

Islamic Banking Lessons for the Financial Sector. (2011). [ebook] Available at: http://www.veit-etzold.de/wp-content/uploads/2014/04/EtzoldWackerbeck.pdf [Accessed 3 Apr. 2018].

Islamic Finance 2018 Slow Growth Is The New Normal. (2018). [ebook] S&P Global Ratings, p.spglobal.com/ratings. Available at: https://www.spratings.com/documents/20184/4521646/Islamic+Finance+2018+Digital-1.pdf/cf025a76-0a23-46d6-9528-cecde80e84c8 [Accessed 3 Apr. 2018].

Islamic Finance in the Current Financial Crisis. (2009). [ebook] Berkeley Journal of Middle Eastern & Islamic Law. Available at: https://scholarship.law.berkeley.edu/cgi/viewcontent.cgi?referer=https%3A%2F%2Fwww.google.com.vn%2F&httpsredir=1&article=1010&context=jmeil [Accessed 3 Apr. 2018].

ISLAMIC FINANCIAL SERVICES INDUSTRY STABILITY REPORT 2013. (2013). [ebook] IFSB. Available at: https://www.ifsb.org/docs/IFSB%20-%20IFSI%20Stability%20Report%202013%20(Final).pdf [Accessed 3 Apr. 2018].

Salamon, L. M. (Ed.). (2004), "*The state of nonprofit America*", Brookings Institution Press.

World Islamic Banking Competitiveness Report 2016. (2016). [ebook] Available at: http://www.ey.com/Publication/vwLUAssets/ey-world-islamic-banking-competitiveness-report-2016/%24FILE/ey-world-islamic-banking-competitiveness-report-2016.pdf [Accessed 10 Apr. 2018].

Zineldin, M. (1990), "*The economics of money and banking: A theoretical and empirical study of Islamic interest-free banking*", Coronet Books Incorporate.

Do Hoai Linh
Vice Head of Banking Department, School of Banking and Finance, National Economics University, Vietnam
Adress: 207 Giai Phong Road, Hai Ba Trung District, Hanoi City, 100000, Vietnam
Email: linhdh@neu.edu.vn ; linhdo.neu@gmail.com

Dr. Luong Thi Thu Hang
Lecturer and Researcher, School of Banking and Finance, National Economics University, Vietnam
Adress: 207 Giai Phong Road, Hai Ba Trung District, Hanoi City, 100000, Vietnam
Email: hangltt@neu.edu.vn

Tran Manh Dung
Lecturer and Researcher, National Economics University, Vietnam
Adress: 207 Giai Phong Road, Hai Ba Trung District, Hanoi City, 100000, Vietnam
Email: manhdung@ktpt.edu.vn; dungtm@neu.edu.vn

Do Ngoc Mai
International School of Management and Economics, National Economics University, Vietnam
Adress: 207 Giai Phong Road, Hai Ba Trung District, Hanoi City, 100000, Vietnam
Email: maithan1996@gmail.com