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Technology as Liquidity Risk of Banks in Indonesia

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ABSTRACT
This study aims to analyze the factors affecting information technology as liquidity risk of Islamic banks in Indonesia. Information technology as a trade off has liquidity risk in banking business activities. The components are suspected to influence Technology as liquidity risk(CR) are Capital(CAR), Profitability(ROA), Market Risk(NPL) and Size of Firm. The exploration technique utilized is informative review and quantitative strategies. Time arrangement information from the period 2008-2016. The information source utilized is auxiliary information from the measurement investigates Islamic Banking insights is taken from the Indonesian Financial Services Authority. Information is then examined utilizing various relapse investigation. The outcome shows that Market Risk and Size of Firm has a huge positive effect on Technology as liquidity chance, while Bank Capital and Profitability has a positive however unimportant effect on Technology as liquidity chance.

Keywords: Information Technology, Liquidity Risk, Islamic Banking, Bank Capital, Profitability, Market risk, Size of Firm

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INTRODUCTION

The advancement of a nation can be seen from the monetary turn of events, one of them from the money related part. The monetary area can show how far a nation is advancing and can impact partner choices [1]. Banking as an industry has become one of the principle factors behind a nation's monetary turn of events. The financial segment is viewed as a significant wellspring of subsidizing for some organizations and as such can't be isolated from chance. Hazard is the potential for inconstancy in future income [2] what is significant in setting up and controlling portfolio chance is the capacity to gauge however much of these dangers as could reasonably be expected in the organization. Furthermore, global market developments and competitiveness face the demands of cash flow risk and banking portfolio risk in the use of information technology (IT).

Technology in Islamic banking has been well managed. Islamic banking must be able to accept changes in operational activities and bank data management. Furthermore, there is still a deviant management in the use of Automated Teller Machines (ATMs) in Indonesia that use magnetic stripe cards. This means that efforts to reduce the risk of bank technology still need to be optimal. This information indicates that deviations in the use of banking technology still need optimal supervision.This activity can be carried out more efficiently and effectively and provide information more quickly [3]. But along with the benefits of developing banking products that are increasingly effective based on technology such as electronic banking services and digital banking services. This view is expected in the future IT can make it easier for customers to conduct non-cash banking transactions through electronic networks. This consequence is a global change and banking competitiveness that cannot be avoided with the very advanced IT development. Finally it is time for bankers to improve the security of information technology (IT) systems [4-5]. If ignored, the occurrence of information technology risk becomes the reputation risk of the banking system which can be fatal to the customer's trust in the bank. It was realized that IT has been able to improve the form of services in banking. In addition to being able to provide convenience, speed and accuracy, IT-based services apparently can increase the potential risks faced by banks. Specifically operational, legal and reputation risks. Data from the Financial Services Authority (OJK) states that until the end of 2013, Indonesia was among the countries most attacked by cyber crime reaching 38%, followed by China 35%. One of the most common crimes is phishing, which is a crime in obtaining personal information such as user, ID, PIN and account number. In the OJK notes, (Deputy Director of the Directorate of Banking Licensing and Information), Tris Yulianta revealed the application of information technology in banking in Indonesia has its own effects including the potential risks. Then the Financial Services Authority (OJK) recorded a semester banking fraud report related to the impact of information technology developments in the banking system as of June 2015 as many as 3,173 cases with a loss of Rp104.58 billion [6]. The potential risks faced by banks increase in particular operational, legal and reputation risks. In fact, the development of services such as the internet, e-commerce and e-banking opens a great opportunity for cyber crime in Indonesia. The development of technology-based banking products including electronic banking makes it easy for customers to conduct non-cash banking transactions at any time through the electronic network [7].

In an organization there is a hazard that must happen, the hazard is a results that must be borne by the organization in maintaining its business. Dangers can be limited if the organization's administration is progressed nicely. One of the numerous dangers in the financial business is the hazard related with liquidity [8]. Liquidity hazard is the failure of the organization to meet its momentary commitments and impact the exercises of the organization making it not work appropriately [9]. In banking liquidity is the capacity of budgetary establishments to satisfy their commitments [10]. Hazard the executives is a progression of procedures utilized as a methodology by the organization in completing operational exercises. Compelling danger the board is indispensable in continuing business development and bank benefit, remembering for Islamic banks [11].

In principle, Islamic money varies altogether from customary fund. Islamic banks thoughtfully are banks whose exercises forget about the act of usury; in this manner the component of Islamic banks is sans premium. Specifically, Islamic-based account makes it difficult to pay intrigue (usury) on the grounds that solitary products and

ventures are permitted to be given costs and the financing of illegal exercises is precluded [12]. Restricting the acknowledgment and installment of premium is at the center of Islamic banking, bolstered by different standards of Islamic regulation, for example, hazard sharing backing, enterprise advancement, money related exchanges that don't prompt the misuse of any gathering, property protection and straightforwardness [13]. Islamic banks ought to fortify hazard the board practices, for example, improving auxiliary markets by requiring cost and liquidity straightforwardness [14]. The presentation of Islamic banks can offer high liquidity.

To assess the degree of misfortune and nature of the portfolio, a straightforward factual instrument was created by methods for a hazard record for chance estimation. Two proportions of hazard are spoken to by relative size, represented by beta and the complete hazard size, indicated by the standard deviation. The hazard estimation strategy has significant ends for investors and business connections and is featured on interests in both time and assets through the hazard appraisal process [15]. Liquidity hazard can be estimated utilizing size of the bank, return on value, return on resource, organizing capital and capital sufficiency proportion. The consequence of an investigation led in Islamic banks in Pakistan shows a factually huge positive connection between size of firm and liquidity chance [16]. Islamic banks in Bangladesh demonstrated that ROE and size of firm can anticipate liquidity chance [17]. There is a huge positive connection between's liquidity chance administration and Capital(CAR), Profitability(ROA), Market Risk(NPL) and size of the bank or bank size in both Islamic and regular financial framework [18]. The structure of Islamic banking in Indonesia practically speaking slants towards an oligopoly which can prompt market mastery. In its development, Islamic banks have increased the need for measurement, management and risk control. The activity is expected to protect all the interests of banks and bank customers.

Implementation of information technology risk management effectively requires active involvement and supervision of directors and commissioners [19]. Information technology as a trade off has liquidity risk in banking business activities. The strategic plan steps for the formulation and implementation of policies, standards and procedures related to IT and the process of identifying, measuring, monitoring and controlling risks. The comprehensive framework of risk management can be used in both conventional and Islamic banks [20]. Research and experience over the past two decades have resulted in an in-depth understanding of issues related to risk management and well-built principles of risk faced by management. In the process of risk management can be done in two steps. The first step is to identify the source of risk. The second step, is to design a method for looking at risk using a mathematical model. It is important for Islamic banking to have a comprehensive risk management and reporting process to identify, measure, monitor, regulate, report and control different risk categories [21]. The managers of Islamic bank companies increasingly recognize the importance of risk management. For this reason the Islamic Institution Services Board issued a comprehensive standard document for risk management in December 2005. This document looks at and discusses the different risks and lists 15 principles of risk management guidelines for institutions offering Islamic financial services.

Risk of Islamic banking must pay attention to ways to mitigate risk in order to be able to maintain competitiveness, profitability, and customer loyalty. n the application of risk management, the guidelines implemented so far have been made only for conventional banks. Where as the world and national banking business is not only conventional banks, but banks have also been enlivened by Islamic principles. The estimated number of Islamic banks continues to increase from year to year. So how is the application of risk management in Islamic banks. BI, itself has just started applying the rules of capital adequacy ratio (CAR) to banks since 1992. Meanwhile, banks with Islamic principles were born for the first time in Indonesia in the same year. So when viewed from the age of the Islamic banking system. This is a formidable challenge. Islamic banks will be very difficult to follow the concept that has been run by conventional banking in terms of risk management, considering that conventional banking takes a long time to build a system and develop risk management techniques [22]. On the other hand, Islamic bank operations have characteristics with very basic differences compared to conventional banks, while risk management must also be implemented by Islamic banks so that they are not destroyed by risk. On the other hand, Islamic bank operations have characteristics with very basic differences compared to conventional banks, while risk management must also be implemented by Islamic banks so that they are not destroyed by risk. n this case the Islamic Financial Services Board (IFSB), has formulated the principles of risk management for banks and financial institutions using Islamic principles. Last March 15, 2005, the first exposure draft was published. The executive summary draft clearly states that the risk management framework of Islamic financial institutions refers to the Basel Accord II (which is also applied by conventional banking) and adjusted to the characteristics of financial institutions with Islamic principles.

In general, the risks faced by Islamic banking can be classified into two major parts. That is the same risk faced by conventional banks and risks that have their own uniqueness because they must follow Islamic principles. Credit risk, market risk, benchmark risk, operational risk, liquidity risk and legal risk must be faced by Islamic banks. Islamic financial institutions, must put in place appropriate strategies, risk management and reporting processes related to the characteristics of capital investment risks, including mudarabah and musharaka investments. Islamic financial institutions, must guarantee the calculation and allocation of profits. Financial risk is usually defined as the probability that the actual return might differ from the expected return. Islamic banks in running their business are exposed to a variety of risks. In general, the risks faced fall into three categories: financial risk, business risk and operational risk. Financial risks involve risks arising from bank business activities, while business risks and operational risks are

related to the bank's internal affairs [23]. In this case, liquidity risk is classified into the category of financial risk together with credit risk and market risk. However, because they have to obey Islamic rules, the risks faced by Islamic banks will be different. Islamic banks must also face other unique risks. This unique risk arises because the contents of the balance sheet of Islamic banks are different from conventional banks [24-25]. In this case the pattern of profit sharing (profit and loss sharing) conducted by Islamic banks adds the possibility of other risks. Such as withdrawal risk, fiduciary risk, and displaced commercial risk are examples of unique risks that must be faced by Islamic banks. These characteristics together with variations in financing models and compliance with Islamic principles. The improvement of Islamic banks in Indonesia can be seen from the expansion of all out resources from 2012 until 2016. The expanding improvement of Islamic banks in Indonesia will build the chance of hazard. The Islamic financial industry in Indonesia shows a genuinely quick improvement found in the fallout of the issuance of Islamic financial law the business shows a declining pattern, this implies Islamic financial law can push for sharia specialty units to become business sharia banks. The Market Risk proportion negatively affects liquidity chance, ROA, NPL and CAR show no critical relationship with liquidity hazard [16]. Vehicle and ROA negatively affect liquidity hazard while ROE and size of firm positively affect liquidity chance in Islamic banks in Bangladesh [18]. In view of the above marvel, the motivation behind this examination is to know and investigate liquidity hazard in Islamic banks in Indonesia by creating estimation model [26]. This study aims to analyze the factors affecting technology as liquidity risk of Islamic Banks in Indonesia.

METHODS

This research was conducted at 13 Islamic commercial banks and This examination utilized logical study and quantitative techniques. There are four free factors: Capital, Profitability, Market Risk, size of firm and one ward variable: Technology as liquidity hazard. The information utilized was time arrangement information from 2008 to 2016. The information source utilized is auxiliary information from the measurement gives an account of Islamic banking from the Indonesia Financial Services Authority. The absolute populace of 13 Sharia Commercial Banks recorded on the Indonesia Stock Exchange. We utilize complete inspecting technique to decide test for this examination in light of the fact that the populace is under 30, so the populace and test are the equivalent. The method of investigation in this examination utilizing different relapse.

Factors that are suspected to affect liquidity risk(CR) allude to look into [16-18], that is Bank Capital(CAR), Profitability(ROA), Market Risk(NPL) and Size of Firm(LTA). The speculation of this exploration is: Bank Capital are decidedly identified with liquidity hazard, Profitability are emphatically identified with liquidity chance, Market chance are decidedly identified with liquidity hazard and Size of Firm are decidedly identified with liquidity chance.

Table 1: Descriptive Statistics

Variable	Mean
Liquidity risk	51.27
Capital(CAR)	.14
(Profitability (ROA)	.015
Market risk (NPL)	.21
Size firm	152.22
Liquidity risk	51.27
Capital(CAR)	.14

RESULTS AND DISCUSSION

The results of this study have identified, measured, and managed risks information technology in Islamic banks which are divided into two types. The standard techniques used by conventional banks, as long as they do not conflict with Islamic principles, can be applied to Islamic banks. The globalization, information technology plays an important role in the daily corporate operation. However, there are some risks in the implementation. To minimize these risks, a corporate should have an information technology risk management. Some of them, GAP analysis, maturity matching, internal rating system, and risk adjusted return on capital (RAROC). On the other side of Islamic banks can develop new techniques that must be consistent with Islamic principles. This is all done in the hope of being able to anticipate other unique risks. A survey conducted by the Islamic Development Bank (2001) of 17 Islamic financial institutions from 10 countries implies that the unique risks faced by Islamic banks more seriously threaten the business continuity of Islamic banks compared to the risks faced by conventional banks. The survey also implies that Islamic bank customers have the potential to withdraw their savings if Islamic banks provide lower yields than conventional bank interest. The survey further states, the profit sharing financing model, such as diminishing musharaka, mudaraba, and buying and selling models, such as greetings and istishna, are more risky than murabahah and ijarah. In its future development, Islamic banking faces significant challenges related to the application of risk management, such as the selection of financial instruments in accordance with Islamic principles, including money market instruments that can be used to hedge against risks [27-29]. Because BI and IFSB refer to the Basel Accord II rules, a thorough understanding of conventional bank risk management will greatly assist the application of risk management in Islamic banks.

Table 1. shows the unmistakable insights of the reliant and autonomous factors of this examination, the measurable outcomes show that the normal liquidity hazard in Islamic banks in Indonesia is 51.28%. Bank Capital shows that capital in Islamic banks is littler than fixed resources as indicated by the normal danger of 0.1433 or 14.33%. The variable profit for resource shows that benefit in Islamic bank is not exactly the normal complete resources with the normal measure of 0.158 or 15.83%. The arrival on value variable shows the profit after duty marginally partitioned by the normal own value of 0.2078 or 20.78% and the variable of firm size shows a normal of 152.22.

The relapse results where there are four free factors: Capital

(CAR), Profitability(ROA), Market Risk(NPL) and Size of Firm(LTA) and one ward variable: liquidity risk(CR) show the Table 2. The investigation shows that solitary 33.1% (R Square = 0.331) of CAR, ROA, NPL and firm size influence the liquidity danger of Islamic banks in Indonesia. The aftereffects of the examination of observational information in The relapse condition as follows: Liquidity Risk = -1927.88 + 1019.37 CAR + 140.20 ROA + 1215.94 NPL + 10.36 SIZE FIRM. This model shows at table 2, when the estimation of liquidity danger of - 1927,88 when CAR, ROA, NPL and Size Firm are 0. The relationship of CAR, ROA, NPL and Size Firm to Liquidity Risk is certain yet under 0.05. The effect of CAR and ROA is irrelevant due to sig. values that are higher than 0.05. We can see that Islamic bank in Indonesia have moderately littler capital and benefit contrasted with fixed resources as per normal all out resources. the outcomes for F test which is 3,842 and its criticalness is under 0.05. It tends to be said that CAR, ROA, NPL and Size of Firm have a huge, positive effect on liquidity chance [17], [26], [30]. Finally, the use of technology has the ability to maintain liquidity risk. Liquidity is intended as the ability of banks to meet their cash and collateral obligations without experiencing unacceptable losses. Liquidity risk with IT determines the inability of banks to meet their obligations that threaten their financial position or whereabouts. Then the use of technology as a liquidity risk includes the processes and strategies used by banks to assess their ability to meet cash flow and collateral needs, without a negative impact on operations and financial position [31]. Then, as a control measure against risk mitigation by developing strategies and taking actions to ensure funds are available when needed.

In the future, all Islamic banks in Indonesia can no longer play around with managing risks information technology system security. Banks are required to be able to implement information technology risk management effectively so that they can control the risks that occur [32]. The function of risks information technology in Islamic banking in the digital age is an important asset in bank operations that can enhance its global role, added value and competitiveness. OJK (Financial Services Authority) is trying to effectively protect the banking industry, has required all banks in Indonesia both conventional and sharia to conduct information technology governance. The success of banks in implementing risks information technology governance is highly dependent on the commitment of all work units in the bank, both risks information technology operators and users. risks information technology governance management can only be done through risks information technology strategy plans with bank business strategies, optimization of resource management, risks information technology utilization, performance measurement and the application of efficient and effective information technology risk management. The high risk of information technology, in the future all banks are required to apply data security control principles for customers. Then, the bank must carry out electronic banking transactions effectively and efficiently.

This investigation has a comparative outcome with past research on Islamic banks in Pakistan demonstrating a factually noteworthy connection between firm size and liquidity hazard. Research on Sharia Bank shows a positive connection between size of firm [26]. Islamic banks in Bangladesh shows that NPL and size of firm can anticipate liquidity hazard level [17]. In Islamic banks in Pakistan, ROA and CAR have positive yet unimportant effect on liquidity hazard in this manner it tends to be accepted that the solid base resources of Islamic banks add to additionally reinforcing of liquidity control [16]. Vehicle and ROA affect liquidity chance while ROE and size of firm have a positive relationship with liquidity hazard in Islamic banks in Bangladesh [18]. Therefore, the results of the study have shown it is important to pay attention to the use of information technology that is able to control liquidity risk effectively. The effective condition of the information technology used is able to minimize the negative impact of the market and the impact of changes in costs and liquidity [33]. Liquidity and capital needs of the company as a form of evaluation of market liquidity and demand based on the portfolio, Therefore Islamic banks need to take advantage of advances in information and communication technology in order to be able to improve the efficiency of operational activities and the quality of bank services to their customers, and increase global markets and competitiveness [34].

Table 2: Results of Multiple Linear Regressions

Dependent Variable	Independent Variable	Coefficient	t Test			F test		
			t Value	Sig.	Results	F Value	Sig.	Results
Liquidity Risk(CR)	Constant	-1927.87	-3.695	0.001		3.842	0.012[b]	Sig
	Car	1019.37	0.712	0.482	Not sig			
	Roa	140.20	0.044	0.965	Not sig			
	Npl	1215.94	3.234	0.003	Sig			
	Size of firm	10.368	3.422	0.002	Sig			

R = 0.57, R^2 = 0.33, Significant = 0.05

CONCLUSION

Impact for Islamic Banks of Indonesia with information technology in managing liquidity risk(CR) didn't associated Capital(CAR), Profitability(ROA), but a associated with Market Risk(NPL) and Size of Firm(LTA). Therefore, it very well may be accepted that a solid resource base fortifies liquidity control. The consequence of the investigation has suggestions on the improvement of Islamic financial approach particularly concerning hazard the executives and can be a thought for corporate administrators in deciding, and can focus on the organization's resources for limit the dangers. Information technology is able to manage the liquidity risk of Islamic Banks by integrating the latest

market information, portfolio, capital returns, customer service and liquidity markets. Order an asset portfolio by integrating the value of the potential impact of future market changes and liquidity risk. The restriction of this examination contrasted with past research is to just investigation the Islamic banks and to not contrast it and Commercial Banks in Indonesia. So the consequences of this investigation can't think about Technology as liquidity hazard in Islamic banks to Technology as liquidity chance in Commercial Banks in Indonesia.

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