Examining the Relationship between Liquidity and Profitability of Islamic Commercial Banks: An Empirical Evidence from Bangladesh

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Abstract

This study examines the relationship between liquidity and profitability of islamic (shariah based) commercial banks operating in Bangladesh. The authors have collected the data from 07 islamic banks' annual report over the year 2013 to 2017. Return on asset average (ROAA) and return on equity average (ROEA) were considered as profitability indicators (dependent variables) and cash position ratio average (CPRA), liquid security ratio average (LSRA) and capacity ratio average (CRA) were considered as liquidity ratios (independent variables). The data were analyzed with the help of statistical package of social science (SPSS 23 version). As statistical tools, descriptive statistics, Pearson correlation, and multiple linear regression analysis were used to find out the result. The authors have found the inverse relationship between profitability indicators and liquidity ratios (CPRA, CRA) but linear relationship is found between profitability ratio and liquid security ratio (As liquidity ratio). Limitations and future direction for research are also discussed here.

Key Words: Liquidity, Profitability, Islamic commercial banks.

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Introduction

Financial disaster that took place from the length 2007 to 2009 triggered a deep issue among the bank regulators. They came up with Basel 3 accord that aims at maintaining extra reserves in terms of liquid property for banks to face future financial crisis (BCBS, 2009). Basel Committee made new policies for numerous types of risks and liquidity risk is one of them (Simone, 2011). In financial economics, a liquidity risk refers to a severe shortage of money.

According to Business Dictionary, "Probability of loss arising from a situation where (1) there will not be enough cash and/or cash equivalents to meet the needs of depositors and borrowers, (2) sale of illiquid assets will yield less than their fair value, or (3) illiquid assets will not be sold at the desired time due to lack of buyers". The liquidity of a financial institution is its capability to fund all contractual responsibilities as they fall due. These may additionally consist of lending and funding commitments and deposit withdrawals and liability maturates, within the regular course of business (Lartey, Antwi, & Boadi, 2013; and Amengor, 2010).

On the other hand, Bank profitability is the ability of a bank to generate revenue in excess of cost, in relation to the bank's capital base. A sound and profitable banking sector is better able to withstand negative shocks and contribute to the stability of the financial system (Athanasoglou, 2005). In other words, this is a company's capability of generating profits from its operations. It serves as a measurement of efficiency, and a guide to further improvement (Tabari, Ahmadi, & Emami, 2013).

Liquidity and profitability are key variables, which provide information concerning the performance and survival of the business. In order to obtain a long-term survival and healthy growth of any business, both of them should go hand in hand (Ahmad, 2016).

On the other hand, liquidity and profitability are two contradictory concepts. One cannot be effective without the other. But excess of one may slows down the other (Khan, 2013). Liquidity is necessary for uploading financial performance, maintaining and improving the market share of an entity (Bordeleau & Graham, 2010). By increasing profitability, there the probability of reducing a firms' liquidity and an extensive interest on liquidity would tend

to have an effect on the profitability (Panigrahi, 2014). A firm will not be able to fulfill its immediate obligations when it is making low profits due to the high liquidity that it gains. Thus the profit diminishes with increase in liquidity and vice versa (Maina, 2012).

But liquidity management of Islamic banks are very restricted in the interbank market due to prohibition of interest bearing instruments. For this reason, Islamic banks depend havily upon murabaha (murk up basis), sukuk, ijarah and parallel salam for managing liquidity (Ayub, 2007; and Ariffin, 2012). This study aims to find out the liquidity indicators in the selected Islamic bank in Bangladesh from 2015 to 2017 so as to examine the relationship between liquidity and profitability of Islamic banks.

Literature Review

Many studies (details are provided appendic-2) have been conducted on the relationship between liquidity and profitability in the banking industry. But some studies found no significant relationship between liquidity and profitability (Aloy, 2012; Junaidu, & Aminu, 2014; and Afia, & Mahmud, 2014). On the other hand, the following studies have found positive as well as negative relationship between liquidity and profitability of islamic commercial banks.

Chowdhury and Zaman (2018), studied Effect of Liquidity Risk on Performance of Islamic banks in Bangladesh. They analyzed the effect of liquidity risk on the islamic banks performance for the period of 2012 to 2016 by using the liquidity ratios (loan to deposit ratio, liquid risky asset to total asset, capital to total asset ratio) and profitability ratios (return on asset, return on equity). They found negative relationship between bank performance and liquidity indicators.

Alzorqan (2014) studied the relationship of liquidity chance and financial institution's overall performance for 2 banks of Jordan. Return on assets (ROA) and return on equity (ROE) have been used as indicator of Bank overall performance. Current ratio and loan to deposit had been used as liquidity measures over the year 2008 to 2010. The relationship between loan to deposit with ROA and ROI are found positive.

Saeed and Rahman (2015) analyzed the effects of liquidity risk on performance of 21 commercial banks in Malaysia for the period of 2005 to 2013. Return on assets (ROA) and return on equity (ROE) are applied as indicator to identify bank performance. Loan to deposit ratio, liquid risky asset to total asset and capital to asset ratio are used as liquidity indicators. They found liquid risky asset to total asset has negative relation with bank performance. Capital to asset ratio has mixed results on bank performance. The study concluded that the effects of liquidity indicators on bank performance are mixed and could not draw a clear result.

Mamatazakis and Bermapi (2014) analyzed the relationship between liquidity risk and Bank performance in G7 countries and Switzerland. The analysis took sample of 97 banks and found that liquidity risk negatively affected bank performance but positive relationship was found in other studies (Musiega, Olwney, Mukanzi, & Mutna, 2017; Bourke, 1989; and Alphar & Anber, 2011).

Umar, Muhamm ad, Asad and Mazhar (2015) analyzed the influence of liquidity risk on 2 Pakistani Conventional Banks for period of 2009 to 2013.The study found that current ratio was negatively correlated to banks performance. It was also found in the study of Areffin (2012).

From the above literature review, it can be said that studies examining the relationship between liquidity and profitability in case of Islamic banks have been very limited compared to the conventional banks. But this study plays an important role to enrich the literature on the risk management of the Islamic banks operating in Bangladesh. Moreover, some studies have proved that there are contradictory relationship between the liquidity and profitability of islamic (sharia based) commercial banks operating in Bangladesh (Maina, 2012; Khasharmeh, 2018; and Iqbal, 2012). That is why; the authors are interested to do this type of research.

Conceptual Framework

Liquidity is the ability to raise funds easily by selling assets. It is a measure of how easily an asset can be turned into cash. An increasing cash asset enhances liquidity and reduces liquidity risk. This risk stems from the description of banking operations (Chaplin, Emblow, & Michael, 2000)**.** Overall profitability of bank can be affected by it adversely. For this reason, the authors consider

cash position ratio average (CPRA) as a liquidity indicator. But large holdings of cash assets clearly decrease profits because of opportunity cost of forgone investment income. So banks can purchase short-term marketable and government securities that increase liquidity, but at the expense on higher potential return (Hasan, 2003). The authors consider it liquid security ratio average (LSRA). On the other hand, the authors encounter capacity ratio average (CRA) which is really a negative liquidity indicator because loan (inverstment as sharia view) and leases are often among the most illiquid assets a bank can hold (Ross, 2002). Therefore, to improve its profitability, it is imperative for a bank to increase its liquidity. The above discussion gives rise to the following objectives of our study.

Objectives of the Study

The main objective of the study is to examine the relationship between the liquidity and profitability of islamic (sharia based) commercial banks with empirical evidence from Bangladesh. To achieve the main objective, the following specific objectives are identified:

1. To examine the relationship between cash position ratio and profitability of Islamic banks.
2. To measure the relationship between liquid security ratio and profitability of Islamic banks.
3. To analyze the relationship between capacity ratio and profitability of Islamic banks.

Research Materials and Method

Sample Selection: At present, there are 08 (eight) islamc (sharia based) commercial banks are operating in Bangladesh. Except one (Union Bank), all are listed in CSE and DSE. So, the authors have excluded Union bank for sample selection. For conducting the study and well established data, the total numbers of seven (07) listed islamic commercial banks operating in Bangladesh were selected. The data were collected from the annul website of 07 islamic banks from the year 2013 to 2017.

Econometric Model: The econometric model used to obtain the objectives is: $Y1 = a + \beta1X1 + \beta2X2 + \beta3X3 + €$

Here Y=Bank performance measured by (ROAA and ROEA), a = Constant, β1-β3= Regression Co efficient of Independent Variables, € = Error term. Beta and standard deviation are used as the important measures of the risk factor as proposed by Modigliani and Pogue (Modigliani & Pogue, 1974), where Beta is the relative measure of the risk and standard deviation is the measure of the total risk.

Data Analysis and Discussion

Descriptive Statistics

Table-02: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROAA	7	.40	2.71	1.2614	.79413
ROEA	7	9.22	15.00	12.1614	2.41685
CPRA	7	.13	4.86	1.1086	1.68666
LSRA	7	.02	.09	.0471	.02984
CRA	7	.20	1.30	.6200	.38777
Valid N (listwise)	7				

Source: Authors' own calculation

In this descriptive statistics (table 02), minimum, maximum, mean, standard deviation etc. are shown. The descriptive statistics gives the information of both dependent variables (profitability) and independent variables (liquidity) ratios. In this table, total observation no. is 07. Mean values indicate the average (5 year average) result of each and every variables (details in appendic-2).

Standard deviation also shows the spread available in data. Except CPRA for all factors, standard deviation is low, that indicate less risk in the model.

Correlation Analysis

Table-03: Correlation between ROAA & Liquidity

	ROAA	CPRA	LSRA	CRA
ROAA	1			
CPRA	-0.460	1		
LSRA	0.122	-0.188	1	
CRA	-0.334	0.640	-O.387	1

Source: Authors' own calculation

Table-04: Correlation between ROEA & Liquidity

	ROEA	CPRA	LSRA	CRA
ROEA	1			
CPRA	-0.460	1		
LSRA	0.005	-0.188	1	
CRA	-0.191	0.640	-0.387	1

Source: Authors' own calculation

The above table 03 and table 04 show the correlation between return on assets average (ROAA) and return on equity average (ROEA) & liquidity respectively. Table 03 (correlation between ROAA & Liquidity) shows that cash position ratio average (CPRA), liquid security ratio average (LSRA) and capacity ratio average (CRAA) were found correlation with ROAA (r = - 0.460,

r = 0,122, r = - 0.334) respectively. It indicates that CPRA and CRA were negatively correlated and LSRA was positively correlated with profitability (ROAA). On the other hand, the table 04: (correlation between ROEA and Liquidity) shows that CPRA, LSRA & CRA were also found correlation with ROEA (r = - 0.460, r = 0.005, r = - 0.191) respectively. It indicates that CPRA and CRA were negatively correlated and LSRA was positively correlated. So, it can be said that, except LSRA, remaining liquidity ratios (CPRA & CRA) were negatively correlated with bank profitability (ROAA & ROEA).

In order to measure the significance of the independent variables (liquidity ratio) on the dependent variables (profitability ratio), and to find out individual contribution of three ratio of liquidity on the two ratios of profitability, the author have extended the analysis to multiple regression model.

Regression Analysis

Table-05: Regression summary based on ROA (model-1)

Predictor/ liquidity ratio	Unstandardized Co-efficient		Value of R	Value of R^2	F - Test	Sign
	Beta	S. Error				
CPRA	-0.197	0.315	0.463	0.215	0.273	0.575
LSRA	0.544	14.822				0.973
CRA	-0.120	1.448				0.974

Source: Authors' own calculation

Table-06: Regression Summary based on ROE (model-2)

Predictor/ liquidity ratio	Unstandardized Co-efficient		Value of R	Value of R^2	F-Test	Sign
	Beta	S. Error				
CPRA	-O.976	0.895				0.355
LSRA	-2.665	42.160	0.56	0.314	0.458	0.954
CRA	1.457	4.148				0750

Source: Authors' own calculation

The above two tables (table 04 & table 05) provide useful information about regression analysis. The column labeled "Unstandardized Coefficients" reveals the unstandardized regression coefficients. The F-test in terms of ROAA and ROEA tell whether the regression coefficient is not different enough from zero to be statistically significant at the level (0.000). There is no high degree of correlation (value of R is 0.463, 0.56 respectively) between independent variables in terms of ROAA and ROEA. So there is no multicollinearity problem in the regression model (Kothari, 2011) because Kennedy (2008) identified that multicollinearity is a problem when the correlation is above 0.705. 'R' square states the proportion (percentage) of the (sample) variables in the dependent variables that can be attributed to the independent variables. Here, 'R' square is 0.215 in term of ROAA and 0.314 in term of ROEA respectively. So, 21.5% variance in term of ROAA and 31.4% variance in term of ROEA in the profitability ratios of islamic banks (dependent variables) are explained by the liquidity measures (independent variables) respectively. Hence, it can be said that larger portions of variance in the three (03) ratios of liquidity measures were unexplained. The reason for unexplained variance suggests that there were other more implied variables that account for variance in liquidity measures in terms of ROAA and ROEA. In general, R square always increases as independent variables are added to a multiple regression model.

By considering the value of unstandardized coefficients beta, the value of CPRA and CRA is negative but LSRA is positive. The beta coefficient of CPRA is -0.197. It means that every time CPRA increases by 1 unit, the profitability of islamic banks will decrease on an average by 0.197 unit. On the other hand, the beta coefficient of CRA is -0.120. It means that every time CRA increases by 1 unit, the profitability of islamic banks will decrease on an average by 0.120 units but the beta coefficient of LSRA is 0.544. It means that every time LSRA increases by 1 unit, the profitability of Islamic banks will also increase on an average by 0.544 units. Hence, it can be said that there is negative relationship between liquidity ratios (CPRA and CRA) and profitability but positive relationship between liquidity ratio (LSRA) and profitability of Islamic banks in Bangladesh.

At last, it can be said that the authors intend to examine the relationship between the liquidity risk and profitability of islamic banks operating in Bangladesh. The first objective of the study was to examine the relationship between cash position ratio and profitability of islamic banks. The obtained result from the above analysis (first & third objective) indicated that there is inverse relationship between cash position ratio and profitability of islamic banks. The findings are consistent with other studies (Umar, Muhammad, Asad & Mazhar, 2015, and Areffin, 2012).On the other hand, the positive relationship was found in the second objective. The findings are consistent with other studies (Musiega, Olweny, Mukanzi, & Mutua, 2017; Bourke, 1989; and Alper & Anbar, 2011).

Conclusion

The study examines the relationship between liquidity and profitability of 07 (sample size) Islamic banks which operate in Bangladesh. This study has explored cash position ratio, liquid security ratio, capacity ratio as liquidity indicators and return on asset and return on equity as profitability indicators. The finding of the study showed that cash position ratio and capacity ratio are negatively related with the profitability. On the other hand, liquid security ratio is positively related with the profitability. The study will contribute to the field of risk management in the banking (sharia based) sector of Bangladesh. It is also expected that future liquidity risk of the banking (sharia based) sector could be overcome by having adequate disclosure in the annual reports, particularly liquidity risk information.

Limitation and Further Research

The model has failed to get clear result about the study. In this regard, sharia based banks requires more variables for liquidity indicators which will create avenue for further research. On the other hand, variables are not significant statistically. Furthermore, more variables could be considered for improving the reliability of the model. So, Analysis of Moment Structures software (dependent variable is more than one) will get better result than statistical package of social science software (spss).

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Appendices:

Appendic-1 (Calculation of Ratio)

ROE	IBBL	EXIM	FSIBL	SIBL	AAIBL	ICBIBL	SJIBL	AVERAGE
2013	11.36	10.18	15.37	11.01	14.15	14.73	17.01	13.40
2014	8.85	11.38	9.99	15.68	12.80	14.35	12.67	12.24
2015	7.00	8.68	8.08	16.00	12.82	13.80	6.60	10.42
2016	9.28	11.78	6.91	16.16	15.70	15.72	10.78	12.33
2017	9.63	12.19	7.40	16.16	14.07	15.11	12.40	12.42
ROA	IBBL	EXIM	FSIBL	SIBL	AAIBL	ICBIBL	SJIBL	AVERAGE
2013	0.96	1.04	0.42	1.67	1.31	4.76	1.44	1.6
2014	0.67	1.15	0.38	2.36	1.10	2.04	1.00	1.24
2015	0.44	0.84	0.31	2.08	1.08	1.11	0.59	0.92
2016	0.59	1.09	0.51	2.06	1.23	2.21	0.98	1.23
2017	0.55	1.06	0.41	1.40	0.99	3.44	1.02	1.26
CPR	IBBL	EXIM	FSIBL	SIBL	AAIBL	ICBIBL	SJIBL	AVERAGE
2013	0.94	0.97	0.93	0.09	0.12	0.91	0.87	0.69
2014	0.93	0.13	0.97	0.09	0.11	0.93	0.88	0.57
2015	0.92	0.15	1.01	0.10	0.14	0.11	0.85	0.46
2016	0.94	0.12	1.01	0.08	0.15	0.98	0.13	0.48
2017	0.93	0.11	0.94	0.08	0.16	1.03	0.76	0.57
LSR	IBBL	EXIM	FSIBL	SIBL	AAIBL	ICBIBL	SJIBL	AVERAGE
2013	0.11	0.04	0.03	0.04	0.04	0.01	0.04	0.04

2014	0.15	0.03	0.04	0.33	0.03	0.01	0.03	0.08
2015	0.13	0.03	0.04	0.03	0.02	0.01	0.03	0.04
2016	0.06	0.03	0.04	0.04	0.02	0.01	0.03	0.03
2017	0.03	0.03	0.04	0.04	0.02	0.01	0.03	0.02
CR	IBBL	EXIM	FSIBL	SIBL	AAIBL	ICBIBL	SJIBL	AVERAGE
2013	0.92	0.84	0.02	0.80	0.72	0.35	0.03	0.52
2014	0.01	0.85	1.94	0.80	0.79	0.35	0.04	0.68
2015	0.02	0.84	2.20	0.83	0.74	0.39	0.02	0.72
2016	0.02	0.85	2.36	0.83	0.73	0.40	0.97	0.88
2017	0.03	0.85	0.02	0.80	0.70	0.42	0.14	0.42

Appendic-2 (summary of literature review)

Previous study	Liquidity risk indicator	Profitability indicator	Result
Alzoubi (2017)	CASH; SEC; SIZE; SIZE2; ROA; EQTY; BAD	Lower liquidity cost.	Positive relationship with liquidity.
Alzorqan (2014)	Current ratio and loan	ROA, ROI	Positive relation with profitability.
Arif & Anees (2012)	Deposit, cash, Liquidity gap and NPL	Net profit before tax.	Negative relationship with profitability.
Bashir (1999)	Bank size	ROA, ROE, ROD.	Statistically significant relationship with profitability.

Chowdhury & Zaman (2018)	LTD, Liquid risky asset to total asset, Capital to total asset ratio.	ROA, ROE.	Negative relationship with profitability.
Kasharmeh (2018)	CTDA, CDTD, INVSTA, INVSTD	ROA, ROE, ROD.	Both negative and positive relationship with profitability.
Lartey,Antwi and Boadi (2013)	TIR	ROA	Positive relationship with profitability.
Maina (2012)	Total loans to assets.	ROA	Both positive and negative relationship with profitability.
Rahman and Saeed (2015)	Loan to deposit ratio, liquid risky asset to total asset and capital to asset ratio.	ROA, ROE	Mixed relationship.