A STUDY OF THE RELATIONSHIP BETWEEN PROFITABILITY AND LIQUIDITY IN ISLAMIC BANKING INDUSTRY IN THE CONTEXT OF BANGLADESH

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Abstract

This study is an attempt to show the relationship between profitability and liquidity in Islamic banking industry in the perspective of Bangladesh. Profitability measuring variables- gross profit margin, earning per share, return on equity and return on assets are used in this study. On the other hand, current ratio, liquid assets ratio, snap liquidity ratio and short term borrowing ratio are used as liquidity variables. In this study all secondary data and SPSS 17.0 have been used to perform the correlation and regression analysis. Findings of the study shows the perfect negative correlation with at least one dependent variable and two independent variables with 5% significance level. The study reveals that the influencing determinants of profitability are snap liquidity ratio and Liquid assets ratio in Islamic banking business. It suggests the Islamic banking industry to make a trade off between liquidity and profitability as there exist an inverse relationship.

Keywords: *Profitability, Liquidity, Trade off, Correlation and Regression Analysis.*

1. Introduction

Liquidity is the ability of a firm to meet the short term obligations. It indicates the availability of cash or near cash the firm has for its day to day requirements. Operations of the company may be affected due to inability of the firm to meet up its short term liabilities. It is required for the firm to maintain a specific level of liquidity though there is no standard level for it. It depends on the nature of the business, seasonal variations, inflations, volume of production, location of the business and many others. As profitability is affected by liquidity, it is general tendency of the investors to know the level of liquidity of the firm. Investors expect low level of liquidity as well as higher level in long term investment which will generate earnings of the firm (profitability). However, investors are also aware that inadequate liquidity will deprive the company from getting incentives from the suppliers, creditors, and bankers. Liquidity protects the firm from failure in short term whereas the profitability ensures the survival of the firm in the long run. Both are essential for any firm to survive.

Liquidity for a bank is primarily influenced by the amount of current assets and current liabilities. Low liquidity means, it would not be able to run the bank properly. While it is impossible for a bank to make profit whatever the reason is, it will have impact on the liquidity of the bank. While a firm has optimum level of liquidity, it may not incur loss over a longer period. Banks are slightly different from regular companies. Depending on its size and charter, many banks can borrow from each other or even from the central bank for overnight cash needs. Therefore, liquidity crisis for short-term isn't threat of failure. Since banks are regulated by the central bank, it looks into the liquidity position of all scheduled commercial banks and take over while it become insolvent.

1.1 Objectives of the study

The broad objective of the study is to find

out the relationship between liquidity and profitability. However, the specific objectives are-

i. to identify the nature of relationship between liquidity and profitability;
ii. to investigate the influencing factors that determine the profitability of the firm; and
iii. to discover the importance of liquidity and profitability trade off in Islamic banking industry

1.2 Methodology of the study

In this study Social Islami Bank Limited has been considered as a representative of Islamic banking industry in Bangladesh. As the study is based on financial data, the source of data is financial statements such as income statements, balance sheets and cash flow statements of the company for the period from 2011 to 2015. The data of five years are taken as a recent available data of the bank.
The collected data have been tabulated, analyzed and interpreted with the help of different financial ratios and statistical tools like correlation and regression analysis. SPSS 17.0 software has been used for analysis of the different variables in this study. Hypothesis have been tested statistically to arrive at conclusion.

1.3 Scope and Limitation of the study

The area of the study is Islamic banking industry in Bangladesh. Profitability and liquidity ratios in traditional banking and Islamic banking are not same. There are some special ratios practiced in Islamic banking due to their different mode of banking system. Islamic banking as an alternative banking system to conventional one is functioning its banking business all over the world with success. They are also maintaining liquidity and profitability as do the conventional banks.

Limitation of the study is unavailability of all necessary previous year data. Annual report of Islamic banks in Bangladesh was not in same format in previous years. For that reason, it was difficult to find out required data. In some cases, three year's data were available and the rest of the two year's data were calculated based on available raw data in annual report. Some data were contradictory due to poor management of the firm which created complexity in streamlining the study.

1.4 Hypothesis

H1: There is correlation between liquidity and profitability ratios.

2. Literature Review

Several studies have been done to examine the relationship between liquidity and profitability all over the globe. Liquidity and profitability has negative relationship as shown by the study of Khidmat and Rehman (2014), Saleem and Rehman (2011). Some authors also find the relationship is positive as Zygmunt (2013) stated in his study. On the other hand, some also find the relationship is positive and negative at the same time but not significant (Ben-Cakleb et al. 2013).

Khan and Ali (2016) investigated the relationship between liquidity and profitability of commercial banks in Pakistan. The authors studied and analyzed the five years annual reports of the Habib Bank Limited and found the existence of significant positive relationship between the liquidity and profitability of the banks though they did not generalize the findings on the other sector.

Ibe (2013) made an effort to find whether there was any impact of liquidity management on the profitability of banking industry in Nigeria. Ibe selected three Nigerian banks randomly and analysis was made. It has been found in analysis that the problem which has to be paid

attention is liquidity management of the banking industry of the country. The author recommended that in order to maximize profitability the commercial banks should maintain optimal level of liquidity.

Lartey et al. (2013) underwent a relational examination between liquidity and profitability of banks which are listed in Ghana stock exchange. The authors made trends analysis based on the financial ratios and tried to explore the relationship between liquidity and profitability of the commercial banks of the country. However, the author found very weak positive relationship whereas the trends of the ratios were in declining.
Chukwunweike (2014) studied to find the correlation between liquidity and profitability. The author made simple correlation analysis using secondary data. Financial statements of different companies have been used for analysis and hypothesis testing at 10% significance level. A significant correlation has been found and Chukwunweike recommended that corporations should make trade off between liquidity and profitability.
Priya and Nimalathasan (2013) engaged an endeavor to seek if there is any effect in the changes level of liquidity on the level of profitability of the companies belongs to manufacturing industry of the country Sri Lanka. The authors conducted the analysis among the data of some selected companies and the findings of the analysis showed the liquidity-profitability relationship at significant level.

Marozva (2015) conducted a study on South Arican banks to find out the relationship between liquidity and financial performance of banks. An empirical study has been made using some statistical tools where the author found a negative relationship between the variables which was significant.
Vanila and Nenu conducted an analysis on companies which are enlisted to Bukharest stock exchange to find if there is any impact of liquidity and profitability on stability and development of the company. Using multivariate regression model the author made the analysis and found there exists a correlation between liquidity and financial performance of the corporation which was negative.

Nimer et al. (2015) studied the relationship between liquidity and profitability in Jordanian banks (2005-2011) and finds liquidity extremely affects profits of which some part that will be divided to shareholders. The study findings show the liquidity severely affects profitability. The author found there exist a negative relationship between liquidity and profitability. That means the return on assets is significantly affected by quick ratio.
All the above study has been done on the banks and manufacturing companies in different countries. But no study has been made on Islamic banking institutions. With reference to the above study a new effort has been made to evaluate and identify the relationship in Islamic banking in Bangladesh.

3. Liquidity Measurement

Liquidity means the cash availability. It is the ability of the firm to support or meet up the short-term liabilities. That means, the level of current assets the firm has against the current liabilities. It can be measured by different ratios like current and quick ratios. In banking industry there are special ratios to measure the liquidity level of the firm. The major ratios which are used in Islamic banking are Current ratio, Liquid assets ratio, Snap Liquid ratio and Short term borrowing/ Liquid assets ratio.

3.1.1 Current Ratio: This is one of the liquidity ratios which measures the level of liquidity of a firm. It measures the unit of current assets available as against a unit of current liability of a particular firm. High ratio indicates excess liquidity

and low ratio indicates inadequate liquidity. The following formula is used for calculating the current ratio of a firm.
Current Ratio = Current Assets / Current Liabilities
Current ratios from year 2011 to 2015 are given on the following table-

Table I: Current Ratio

Year	2011	2012	2013	2014	2015
Current ratio	1.117	1.077	1.081	1.377	1.080

Source: Financial Statement of the stated company

3.1.2 Liquid Assets Ratio: Another important ratio is liquid assets ratio. It measures the level of liquid assets against total assets of a particular firm. That means, the amount of liquid assets the company holds as against its total assets. Lower liquid assets ratio indicates higher investment in long-term assets and generation of more profit. The formula which is used for calculating liquid assets ratio of a firm is given below.
Liquid Assets Ratio = Liquid Assets/Total Assets
Liquid Assets Ratios from year 2011 to 2015 are given on the following table-

Table II: Liquid Asset ratio

Year	2011	2012	2013	2014	2015
Liquid Assets Ratio	0.1725	0.1610	0.1659	0.1590	0.1561

Source: Financial Statement of the stated company

3.1.3 Snap Liquidity Ratio
The ratio indicates the level of solvency of the bank to pay the external liabilities from its liquid assets. The greater ratio indicates the higher capacity of any particular firm to pay out its external liabilities with its liquid assets. That means, quick payment capacity of the firm with its liquid assets. To calculate the ratio for a particular firm, the following formula is used.
Snap Liquidity Ratio= Liquid Assets/Total External Liabilities
Snap Liquidity Ratios from year 2011 to 2015 are given on the following table-
Table III: Snap Liquidity ratios

3.1.4 Shortterm Borrowings/Liquid

Year	2011	2012	2013	2014	2015
Short term Borrowing/Liquid Assets Ratio	0.0950	0.2325	0.2237	0.2516	0.0399

Source: Financial Statement of the stated company

Assets
This is the ratio which is to be used for measuring the level of short-term borrowings of a firm as against liquid assets. More borrowings as expressed by the greater ratio means the inability of the firm to pay its liability with a certain level of liquid assets in short-term. Lower ratio indicates higher level of payment capacity of the firm in short-term.
Short term Borrowing/Liquid Assets ratios from year 2011 to 2015 are given on the following table-
Table IV: Short-term borrowings/Liquid

Year	2011	2012	2013	2014	2015
Short term Borrowing/Liquid Assets Ratio	0.0950	0.2325	0.2237	0.2516	0.0399

Source: Financial Statement of the stated company

Assets
3.2 Profitability Measurement
Profitability is the operating efficiency of a firm to generate profit by using its assets. It indicates the earnings efficiency of the firm. By using these ratios, it can be assumed that the amount of investment made by the firm and how efficiently it utilizes its resources to make profit. The major profitability ratios which are used in Islamic banking are Gross Profit Margin, Earnings per Share, Return on Assets and Return on Equity.

3.2.1 Gross Profit Margin
It is one of the profitability ratios of a firm. The ratio shows the profit margin that a firm is capable to earn on its business activity. Gross profit is important as it shows the operating proficiency of the firm. In case of net profit, it varies due to capital structure of the firm as interest is a cost of financing and that is to be deducted to find profit before tax.

Net profit does not always show the operating efficiency of the firm when debt portion in capital structure is high or there is excess tax implication due to government decision. Gross profit is used to quantify the operating efficiency of the business. The following formula is used to calculate gross profit margin of a firm.
(Gross profit / Net sales)× 100
Gross Profit Margin ratios from year 2011 to 2015 are given on the following table-

Year	2011	2012	2013	2014	2015
Gross Profit	0.5990	0.6872	0.4965	0.5526	0.6370

Source: Financial Statement of the stated company

Table V: Gross Profit Ratios
3.2.2 Earning Per Share
Earnings per share (EPS) is the unit of net profit that a firm can earn against each outstanding common stock. Earnings per share is one of the indicators of a company's profitability ratios. It is commonly used by the investor before taking their investment decision. The following formula can be used to find the Earnings per share of a firm.
Net Income available to common stockholders/Total share outstanding
Earnings per Share ratios from year 2011 to 2015 are given on the following table-

Year	2011	2012	2013	2014	2015
Earnings per Share	1.810	2.250	1.740	2.710	2.950

Source: Financial Statement of the stated company

Table VI: Earnings Per Share
3.2.3 Return on Assets

Return on assets (ROA) is an indicator of the firm, i.e. how profitable it is in terms of its total assets. It gives an idea as to how efficiently the firm uses its assets to generate earnings. It is also referred to as return on investment as total assets is considered as the investment of the firm.
The formula for calculating the ratio is-
Net Income/Total Assets
Return on Assets ratios from year 2011 to 2015 are given on the following table-

Year	2011	2012	2013	2014	2015
Return on Assets	0.0270	0.0275	0.0167	0.0236	0.0268

Source: Financial Statement of the stated company

Table VII: Return on Assets
3.2.4 Return on Equity
Return on equity (ROE) is the percentage of net income returned as against the total equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the investment of the shareholder.
The formula for calculating the ratio is-
Return on Equity = Net Income/Shareholder's Equity
Return on Equity ratios from year 2011 to 2015 are given on the following table-

Year	2011	2012	2013	2014	2015
Return on Equity	0.1151	0.1415	0.1139	0.1568	0.1600

Source: Financial Statement of the stated company

Table VIII: Return on Equity

4. Findings and Analysis

Appendix-Table 1 shows the relationship between the Liquidity and profitability. The liquidity has been shown through the Current Ratio (CR), Liquid Assets Ratio (LAR), Snap Liquidity Ratio (SLR) and Short Term Borrowing Ratio (STB). The profitability has been shown through Gross Profit Margin (GPM), Earning per share (EPS), Return on Assets (ROA) and Return on Equity (ROE).
It has been found that the Liquid Assets Ratio is negatively related with the Gross Profit Margin, Earnings per Share and Return on Equity. Snap Liquidity Ratio is negatively related with the Gross Profit Margin, Earnings per Share, Return on Assets and Return on Equity. Short term Borrowing/Liquid Assets is negatively related with the Gross Profit Margin, Earnings per Share, Return on Assets and Return on Equity. Among these relationships there exist significant relationship between Gross profit margin, Snap Liquidity Ratio and Short-term Borrowing/Liquid assets. (5% significance level). There exists close to significant

relationship (5.2% significance level) between Liquid Assets ratio and Earning per share (Appendix-Table 1).

It can be rationalized through a simple linear regression analysis (Appendix-Table 2) between liquidity and profitability. Here three independent variables (CR, LAR, and SLR) are found to have linear relationship with dependent variable-profitability (GPM) Liquid Asset Ratio and Snap Liquidity Ratio are used as independent variables to show the linear relationship with profitability (EPS). Return on Assets (ROA) has one independent variable- Short term borrowings (STB). Liquid assets ratio and Short term borrowing ratios are used as independent variables to show the linear relationship with profitability (ROE). From this analysis it can be concluded that the Liquidity is inversely related with profitability of the firm. If Liquidity increases profitability decreases and vise-versa.

Appendix-Table 2 also shows the nature of relationship between dependent variables and independent variables. The dependent variables are Gross Profit Margin (GPM), Earnings per share (EPS), Return on Assets (ROA) and Return on Equity (ROE). The independent variables are Current Ratio (CR), Liquid Assets Ratio (LAR), Snap Liquidity Ratio (SLR) and Short-term Borrowing Ratio (STB). GPM is negatively correlated with CR, LAR and SLR. While CR, LAR and SLR increase GPM decreases and vise-versa. The negative relationship can be explained by CR, LAR and SLR. EPS as a dependent variable can be explained by LAR and SLR as it is negatively related to these two independent variables. ROA can only be explained by STB as it is only negatively related to this independent variable. ROE can be explained by LAR and STB as it is negatively related to these variables.

Regression analysis shows the correlation between variables GPM, SLR and LAR are strong as R =0.971 (Appendix-Table 3. From the regression analysis it is found, at least one variable- GPM is negatively correlated with SLR and LAR where the relationship is significant as shown in ANOVA table. (Appendix-Table 4) From this findings of the analysis, The H1 is accepted with 5% level of significance. At least one dependent variable (GPM) is inversely correlated with two independent variables (SLR and LAR). (Appendix-Table 4). So it is substantiated that there exists an inverse relationship between liquidity and profitability in Islamic banking industry in Bangladesh.

5. Conclusion

Liquidity and profitability are the key factors of a business firm. A firm cannot continue its daily operations without liquidity. On the other hand, it is quite impossible to ensure growth of the firm without making sure profitability of the firm. Excess or inadequate liquidity is also problematic for the firm as the liquidity affects the profitability. The management of a firm is always keen on making trade off between liquidity and profitability. Similar to traditional business firm, Islamic banks also maintain liquidity and try to increase profitability. In Bangladesh the Islamic banking institutions operate their business without following appropriately the framework of this relationship between liquidity and profitability. This is the common scenario of Islamic banking industry in Bangladesh.

6. Recommendations

Based on the findings of the analysis, the following recommendations are made-

i. Islamic banking, a rising industry in Bangladesh in recent time, should manage the liquidity and profitability relationship efficiently to compete with the traditional banks who are maintain-

ing the liquidity and profitability effectively.

ii. Islamic banking should conduct an intensive investigation to discover the causes of positive relationship between some profitability and liquidity variables as it provides inappropriate information to the investors.

iii. Islamic banking should appoint cash and liquidity manager separately to manage liquidity properly.

iv. Though liquidity and profitability relationship is vital for manufacturing industry, Islamic banking as part of banking industry should also take care of it as the customer satisfaction also depends on the liquidity to some extent.

v. To satisfy the customers during seasonal demand and to achieve the profit target, liquidity management decision is crucial for the manager and it should be given highest level of priority.

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Appendix:

Table 1: Correlation Matrix

		Current Ratio	Liquid Assets Ratio	Snap Liquidity Ratio	Short Term borrowing/Liquid Assets	Gross Profit Margin	Earnings Per Share	Return on Assets	Return on Equity
Current Ratio	Pearson Correlation	1	-.443	-.268	.001	.379	.818	.441	.871
	Sig. (2-tailed)		.455	.663	.999	.529	.091	.457	.054
	N	5	5	5	5	5	5	5	5
Liquid Assets Ratio	Pearson Correlation	-.443	1	.378	.436	-.487	-.875	.279	-.801
	Sig. (2-tailed)	.455		.530	.463	.406	.052	.649	.104
	N	5	5	5	5	5	5	5	5
Snap Liquidity Ratio	Pearson Correlation	-.268	.378	1	.934*	-.977**	-.345	-.157	-.230
	Sig. (2-tailed)	.663	.530		.020	.004	.570	.801	.710
	N	5	5	5	5	5	5	5	5
Short Term borrowing /Liquid Assets	Pearson Correlation	.001	.436	.934*	1	-.879*	-.234	-.012	-.103
	Sig. (2-tailed)	.999	.463	.020		.049	.704	.984	.869
	N	5	5	5	5	5	5	5	5
Gross Profit Margin	Pearson Correlation	.379	-.487	-.977**	-.879*	1	.484	.050	.358
	Sig. (2-tailed)	.529	.406	.004	.049		.409	.937	.554
	N	5	5	5	5	5	5	5	5
Earnings Per Share	Pearson Correlation	.818	-.875	-.345	-.234	.484	1	.017	.981**
	Sig. (2-tailed)	.091	.052	.570	.704	.409		.978	.003
	N	5	5	5	5	5	5	5	5
Return on Assets	Pearson Correlation	.441	.279	-.157	-.012	.050	.017	1	.153
	Sig. (2-tailed)	.457	.649	.801	.984	.937	.978		.806
	N	5	5	5	5	5	5	5	5
Return on Equity	Pearson Correlation	.871	-.801	-.230	-.103	.358	.981**	.153	1
	Sig. (2-tailed)	.054	.104	.710	.869	.554	.003	.806	
	N	5	5	5	5	5	5	5	5

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2: Regression Analysis

Dependent Variable	Constant	Independent Variables			
		CR	LAR	SLR	STB
GPM	2.284	-0.331	-.381	-2.013	1.168
EPS	7.486	0.414	-.738	-.284	.353
ROA	-0.346	02.599	1.948	4.806	-5.355
ROE	0.024	0.843	-0.449	0.634	-0.500

Table 3: Summary of Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.985[a]	.971	.942	.01559877

a. Predictors: (Constant), Snap Liquidity Ratio, Liquid Assets Ratio

Table 4: Analysis of Variance

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.016	2	.008	33.283	.029[a]
	Residual	.000	2	.000		
	Total	.017	4			

a. Predictors: (Constant), Snap Liquidity Ratio, Liquid Assets Ratio

b. Dependent Variable: Gross Profit Margin

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