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Assessing the Impact of Liquidity on Profitability: Specific to the Banking Industry of Bangladesh

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ABSTRACT

Purpose: The present study investigates whether liquidity positively or negatively stimulates the profitability of commercial banks of Bangladesh.
Methodology: The analysis has been performed on 5 randomly selected banks over a period of 10 years (2011-2020). The respective banks' annual reports were the sources of secondary data based on which the study has been performed. For study purpose, dominant profitability ratios are studied along with the calculation of liquidity. ROA served profitability measures being considered as dependent variables whereas Loan-Deposit, Deposit-Assets, & Cash-Deposit ratios served liquidity measures being considered as independent variables. Ordinary Least Square Models have been made use of testing how liquidity affects the banking sector's profitability.
Findings: From the analysis, it is founded that a rise in the banks' aforementioned liquidity ratio would escalate the Return on Assets i.e. profitability.
Practical Implications: The study has evident that commercial banks of Bangladesh might have a better balance between the profitability and liquidity.
Originality: The impact of liquidity on profitability has been stated in this paper which considered data from randomly selected 5 banks. The outcomes of the paper will demonstrate valuable addition to the existing research work in the related field.
Research Limitations: Only 5 randomly selected commercial banks among 61 scheduled banks of Bangladesh were the study samples for which the overall financial scenario is difficult to know. It is also quite impossible to comment on the liquidity and profitability position as well as their relationship by considering only 5 banks.

1. Introduction

In general, maintaining a sufficient level of liquidity plays a fundamental role to assure effective operations of an organization worldwide. Liquidity management has become a very

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crucial concept that has caused serious concern for the current financial situation of the global economy. Basically, the corporate goal reflects the need for profit maximization, maintaining a sufficient level of liquidity to ensure financial safety, and achieving an optimum level of the owner's net worth and also achieving substitute company goals. The significance of liquidity management over profitability can't be denied since it affects the company's performance in today's complex business world. Therefore, an enterprise, by itself, should ensure a balanced liquidity position for the smooth continuation of business functions.

Liquidity, a crucial financial tool used to immediately get an idea about the financial health of an entity, is the ability to easily convert an asset into cash without incurring a loss to its value against the current market price. The easier an asset to be turned into cash, the more liquid it is. Cash is the most liquid asset that becomes useful rapidly to pay off debts & short-term liabilities. Usually, primary importance goes to the liquidity, which helps the smooth continuation of an organization's regular operations by paying its short-term obligations on time, & all these things ensure the survival of the entity. Net working capital & current ratios are two useful measures of an organization's current liquidity position.

Typically, banks are rated upon their liquidity or potentiality to fulfill their obligations for cash and collateral obligations without experiencing massive loss in value. Besides, liquidity management stimulates timely attempts taken by different parties such as investors or managers for lessening their exposure to liquidity risk. Different parties such as lenders, investors, managers, & others use the liquidity measurement ratios while going through a company's financial statements with a view to assessing liquidity risk. Comparing short-term liabilities with liquid assets is significant enough to estimate whether the company can make additional investments, pay bonuses and repay the debt obligations on time (Ross & Brock, 2015). Liquidity management, to put it simply, is an approach that can be deployed by an organization in order to optimize, maximize, & secure its liquidity. Full insight into spend, cash, liabilities, as well as financial resources, not just the bigger financial picture, is an indication of significant liquidity management. Business Spend Management (BSM) involves the best liquidity management strategies to create a seamless source-to-settle process across finance, treasury, AP, and procurement for a comprehensive, unified view of all spends and financial resources (Coupa, 2022). Liquidity management, according to Ibe (2013), encompasses the strategic movement of liquidity compatible with a preferred amount of short-term funds without endangering the profit-generating capacity of banks. Liquidity management aims to make sure that an entity has available cash on hand to meet its requirements at any time, which can be attained only through the effective and efficient management of its liquidity. Profitability & profit are closely connected, except a key difference. Profit offers an absolute amount while profitability shows relative numbers. A company can generate profit but still not be profitable (Horton, 2021). Being an effective cross-functional performance management tool, profitability management helps identify the segment from where money can be derived as well as find out how to improve profitability.

There may be a conflict between profitability and liquidity, which must be reconciled and harmonized through the effective and efficient management of the liquidity to secure the existence and expansion of banks. In accordance with their responsibilities, commercial banks can make proper use of idle cash deposited by the surplus units by investing in diversified financial assets with a view to earning profits. Moreover, the deposited money can be withdrawn by the depositors at any time. When a bank fails to pay its debts in time, the public gradually begins to lose faith in it. To keep pace with the emerging banking business world, banks must be strategic in earning profit & satisfying depositors' requirements at a time by retaining sufficient liquidity.

The present study, as its principal goal, aims to investigate the relationship between liquidity and profitability of commercial banks which are being operated in Bangladesh.

2. Reviewing Prior Studies

Many researches in the past sought to comprehend the nature of the link between banks' liquidity & profitability, and in this field, almost all the researches have offered some similar outcomes along with a few opposite outcomes. Hence, the need for the present research to fill the study gap.

The prominence of the conception of liquid assets lies at the root of something like trade-off and prioritization theory. The costs and benefits of every segment are indeed the focal points of tradeoffs that advocate reversing the relationship between liquidity and profitability. Given, the hierarchical order favors a fair relationship between the performance & current assets of the entities. Priya & Nimalathasan (2013) and Zygmunt (2013) performed research on some companies that were listed in the Colombo Stock Exchange (CSE) & Warsaw Stock Exchange. The survey's intention was to ascertain how liquidity affected profitability, and the result from that survey was negative. In Malaysia, Zainuddin (2006) studied the relationship between profitability and liquidity by focusing on some medium & small-sized manufacturing entities. Attempting to do so, the study polled 145 SMEs over a period of 5 years (1999-2003), and finally, a positive correlation was found between liquidity and profitability.

Over time, the impact of liquidity on the profitability was examined by many scholars, namely Ajantan (2013); Aravenasab & Davudi (2013); Wanye & Ogaku (2013); (2012); Ahmed (2013); Azam & Haider (2011) and Rahman (2011) who showed a considerable positive correlation between the ROA & current ratios in the findings of their studies. The findings inferred that firms that have high liquidity ratios typically experienced less risk and performed better.

In India, during a study of the C-suite of four steel companies, Bhunia et al., (2011) viewed a contradictory impact of liquidity on profitability. Their study found that profitability

was positively correlated with the current ratios of Tata Steel & JSW Steel Ltd., whereas negatively correlated with the current ratios of Lloyds Steel & Kalyani Steels Ltd.

Agha (2014) & Afeef (2011) showed that there was no visible relationship between ROA & current ratios. In a study, Malik & Ahmed (2013) experienced a correlation between quick ratio & ROA. The investigation fortifies the profitability & liquidity trade-off theory. A rise in liquidity would show a decreasing trend in the asset utilization capacity of enterprises.

Researchers including Ajantan (2013); Eggbied et al., (2013); and Rahman (2011) showed how the quick ratio & ROA are connected to each other. Saleem & Rehman (2011) examined the relationship between liquidity and profitability & also found a positive correlation between them.

The cash conversion cycle is found to be negatively correlated with the return on assets by Aravenasab & Davouti (2013); Anser & Malik (2013); Eggbide et al., (2013); Makori & Jagongo (2013); Wanye (2013); Azam & Haider (2011); Sajir et al. (2011); Vijayakuma (2011); Karaduman et al., (2010) and Padachi (2006). A short-term cash conversion cycle could significantly aid performance and generate income promptly for diversified production requirements.

Afeef (2011) explored how an organization's profitability was affected by the management of working capital. The study covered 40 SMEs that were listed in the Karachi Stock Exchange from 2003 to 2008, a period of 6 years, and found no significant relationship between ROA & cash conversion cycle. Bagchi et al., (2012) investigated the effect of the variables of working capital on the profitability of 10 FMCG companies in India from 2000/01 to 2009/10. The cash conversion cycle and ROA were negatively correlated in the Pearson's analysis but Spearman's correlation coefficient and regression evidenced a positive linkage between the cash conversion cycle and return on assets.

Akter & Mahmud (2014) conducted a research in the four sectors of Bangladeshi banks and exhibited no significant relationship between liquidity and profitability at those banks, but still, liquidity and profitability played a vital role upholding the financial strength of organizations.

Samad (2015) adopted a regression model with panel data from 2009 to 2011 in order to evaluate the variables which affected the profitability of 43 commercial banks in Bangladesh. The study found that bank internal factors (liquidity risk, credit risk, capital risk, bank efficiency etc.) had decisive influence in the profitability of banks in Bangladesh.

Fagboyo et al., (2018) empirically examined the impact of liquidity management on the profitability of Nigerian deposit money banks and identified how these banks can maintain a balance between the two. It was suggested that banks should invest the excess liquidity they held in diversified investment portfolios to boost their profitability and get benefits from the time value of the available money, and also recommended banks to adopt a general

framework for liquidity management to ensure adequate liquidity in order to carry out their banking functions effectively.

In a study, Chamler et al., (2018) revealed that banks' liquidity significantly affected the profitability. The study found a positive correlation between banks' profitability & liquidity. According to the study, if banks desire to boost their profitability, they must critically scrutinize their liquidity.

3. Scope of the Study

Regardless of business model and nature, management of an organization frequently takes two crucial issues namely liquidity and profitability into consideration for the evaluation of the financial health of the entity. For the survival as well as the continuation of an entity's ongoing operations, liquidity has its influencing role. Profitability can be upheld by ensuring a strong liquidity position, which also helps keep the company viable by paying its current debt on time. Liquidity and profitability are in a position where an increase in one may decrease the other. They also demonstrate the way to explain how the business is being performed at present as well as the potentiality for growth, development, & sustainability in the long run through the best possible utilization of resources available to the industry.

4. Hypothesis

Hypothesis that has been proposed for this research are underneath:

- H_1: There is a positive impact of liquidity on the profitability of commercial banks of Bangladesh.
- H_0: There is no positive impact of liquidity on commercial banks' profitability in Bangladesh.

5. Research Question

Through the current paper, researchers have attempted to answer the following question:

- Is there any significant relationship between liquidity and profitability of the commercial banks of Bangladesh?

6. Study Objectives

i. To experience whether there is any remarkable impact of liquidity on the profitability of banking industry of Bangladesh.

ii. To recognize & accordingly, analyze the relationship between liquidity and profitability of 5 selected Bangladeshi commercial banks.

iii. To fill the research gap left by prior studies relating to the liquidity's impact on banking sector profitability.

iv. To recommend balance among the stated variables with a view to achieving business goals and gaining ultimate benefits for the Bangladeshi commercial banks.

7. Research Methodology

From the banking industry of Bangladesh, 5 randomly selected commercial banks were the study samples and these were analyzed to serve the ultimate objective of this paper i.e. to work out how profitability is affected by the liquidity of these banks. Authors collected data from the annual reports of the respective banks and websites of the Bangladesh Securities and Exchange Commission (BSEC) as well as Dhaka Stock Exchange (DSE) to perform the following analysis. The research was based on 10-years' time series data from 2011 to 2020. Different statistical methods like descriptive statistics, correlation, and analysis of regression etc. were applied to the study samples to draw the results. The dependent variable (profitability) has been derived from ROA, whereas banks' liquidity was used as independent variable. The following variables and model were taken into consideration for the purpose of the present research:

Variables under Consideration:

Dependent Variable

$$\text{Return on Assets (ROA)} = \frac{\text{Net Profit Before Tax (NPBT)}}{\text{Total Assets}}$$

Independent Variables

$$\text{Loan-Deposit Ratio} = \frac{\text{Loan \& } \textit{Advances}}{\text{Total Deposit}}$$

$$\text{Deposit-Asset Ratio} = \frac{\text{Total Deposits}}{\text{Total Assets}}$$

$$\text{Cash-Deposit Ratio} = \frac{\text{Cash \& } \textit{Cash Equivalent}}{\text{Total Assets}}$$

Model:

$$\textbf{ROA} = \alpha + \beta_{11}\,\text{LTD} + \beta_{12}\,\text{DTA} + \beta_{13}\,\text{CTD} + \text{Ui}$$

Here,

Return on Assets = ROA

Loan-Deposit Ratio = LTD

Deposit-Asset Ratio = DTA

Cash-Deposit Ratio = CTD

(α: Constant and β: Regression Coefficient)

8. Conceptual Framework

Liquidity is an asset and may be converted into cash without dropping in value, whereas capital has the potentiality to pay debts off. Liquidity is crucial to meet the daily withdrawals of clients (Francis 2016). In order to pay dividends to shareholders, banks must have an adequate amount of productive assets. Samiksha (2013) strongly argued that it ought to be maintained all time to honor daily withdrawal requirements. Hence, in order for each & every bank to be successful and eventually uphold the existing & potential clients' faith & trust, suitable & timely liquidity measures must be put in place with a view to consistently meeting the diverse needs of clients. Failure to retain sufficient liquid assets on hand, may cause a big loss of variety of clients & the trust of general public over its banking operations. Shareholders always demand a return on their investments & that's why a business should be profitable, which is its prime objective. The opportunity cost of holding strong liquidity position is the benefits forgone investing in assets with a higher interest rate of returns. There may be conflicts among the necessity & requirement of bank retention, the desire & need for liquidity, and the pursuit of profitability. In order to settle this conflict in many perspectives, concerned bank management should be able to meet the demands of the opposing parties, including shareholders who focus on profitability and depositors' liquidity.

9. Analysis and Interpretation

For selected 5 Bangladeshi commercial banks over a period of 10 years, Table-1 depicted the descriptive statistics of ROA as the dependent variable, at the same time LTD, CTD & DTA variables as independent. It revealed that all the variables have positive averages for ROA (.060), LTD (.510), DTA (.486) as well as CTD (.583). The optimum & minimum value were 1.801 for LTD & .144 for ROA. The minimum value of DTA is .0317 while LTD is .004. LTD (.409) is the highest standard deviation value and the minimum value is ROA (.028). It is evident that almost all of the variables have positive descriptive values, as per the descriptive statistics.

Table-1: Descriptive Statistics of Variables

	ROA	LTD	DTA	CTD
Mean	.0600	.510	.486	.583
Median	.0555	.466	.492	.571
Maximum	.144	1.801	.853	1.002
Minimum	.007	.004	.031	.017
Std. Dev.	.028	.409	.229	.213
Skewness	.735	.998	-0.247	-0.477
Kurtosis	3.601	3.961	2.403	3.506
Jarque-Bera	4.731	9.216	1.127	2.187
Probability	.093	.009	.569	.334
Sum	2.730	22.985	21.877	26.258
Sum Sq. Dev.	.0348	7.363	2.313	2.0143
Observations	45	45	45	45

Source: Calculation by Authors

The relationship between dependent variable (ROA) and independent variables (LTD, DTA, CTD etc.) is illustrated in Table-2. A positive connection between dependent and independent variables has been visible from the table. The dependent variable increases with the increases of independent variables. It did not pass the rule of thumb of high coefficients (+/- 0.8) although LTD & DTA are equivalent. The correlation between independent variables is negative, which is a key indication of the correlation matrix used in the current study.

Table-2: Matrix of Correlation

Variables	**ROA**	**LTD**	**DTA**	**CTD**
ROA	1	.028	.036	.206
LTD	.028	1	-0.656	-0.425
DTA	.036	-0.656	1	.360
CTD	.206	-0.425	.360	1

Source: Calculation by Authors

Table-3: Output Drawn from E-views

Dependent Variable: ROA				
Method: Panel Least Squares (PLS)				
Sample: 2011-2020				
Cross-Sections included: 5				
Total Panel (balanced) Observations: 45				
Variables	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	.030	.022	1.375	.176
LTD	.012	.014	.858	.395
DTA	.007	.024	.294	.770
CTD	.034	.022	1.548	.129
R-squared	.061	Mean dependent variable		.060
Adjusted R- squared	-0.007	S.D. dependent variable		.028
S.E. of Regression	.028	Akaike info criterion		-4.210
Sum Squared Residuals	.032	Schwarz criterion		-4.050
Log likelihood	98.746	Hannan-Quinn criter.		-4.151
F-statistic	.888	Durbin-Watson stat		1.521
Prob (F-statistic)	.454			

Source: Authors' Calculation

Table-3 exhibited that panel least squares were used to calculate the regression results. Here, it was found that while LTD increased by one unit & all other factors remained constant, ROA increased by .012 which made a sense of positive relationship between LTD & ROA. Similarly, if DTA & CTD both increased, ROA increased by .007 and .034 respectively, whilst maintaining a constant LTD. Here, the constant term yields a ROA of about .030 on an average while other explanatory variables are zero. It implied that the ROA would be .030 in this case & also there were no independent variables. It was economically absurd.

Variables	**t-Statistic**	**Prob.**
C	1.375	.176
LTD	.858	.395
DTA	.294	.770
CTD	1.548	.129

Source: Calculation by Authors

Every test is bidirectional and performed at 5% level of significance along with the degree of freedom (N-K-1) equal to 40. The null hypothesis is rejected at 5% level if the t-statistic is higher than the t-critical value, which was approximately +/-2.462.

Let's say, for LTD, H_0: B_1= 0; H_1:B_1 not equal to 0

/.858/</2.462/ therefore not rejecting the null hypothesis. B_1 was distinct from zero at 5% level. At 10% level, null hypothesis would not be rejected because of the p-value of .176.

H_0: B_1= 0 for DTA; However, H_1:B_1 not equal to 0

/.294/</2.462/ hence, not rejecting the null hypothesis, let's assume, B_1 was substantially different from zero at 5% level. The null hypothesis wouldn't be rejected at the level of 10% because the p-value is .770.

H_0: B_1=0 for CTD; H_1: B_1 is not equal to 0

/1.548/</2.462/ thus not rejecting null hypothesis, let's consider, B_1 became different from 0 at 5% level. At 10% level, null hypothesis would not be rejected because the p-value was .129.

Testing of Overall Significance:

H_0: B_1=B_2=B_3=0; H_1: at least one B_1 was not equal to zero.

Here, F-statistic of .888 & also employed a P-value of .454. If the variables were statistically different from zero at 10% level, the null hypothesis couldn't be rejected. R^2= .061 and adjusted R^2= -0.007. This meant that the 0.062 changed in ROA that could be narrated by interpretability variable. This low percentage implied that the model was doing a poor job of

explaining variations in ROA. Furthermore, since the Durbin-Watson statistic was 1.521, there were no autocorrelation issues found in the model equations.

The equation was: ROA = .030+ .012 (LTD) +.007 (DTA) +.034 (CTD) + Ui

10. Findings

The findings of the linear regression analysis revealed that LTD, CTD as well as DTA had significantly positive impacts on ROA. Tragically, this result was compatible with what Abdullah & Jahan (2014) did. They acknowledged the null hypothesis, which demonstrated no meaningful relationship between liquidity and profitability. However, the findings of Ismail (2016) and Ajanthan (2013).

11. Concluding Remarks

The present study investigated how liquidity affected the 5 commercial banks of Bangladesh over a specific time period (2011-2020). More interestingly, liquidity and profitability management are undeniable facts which facilitate the way to become successful entities. The study concluded showing a positive impact of liquidity on the profitability of commercial banks in Bangladeshi. In Bangladesh, sixty-plus banks are in operation, but the paper covered only five banks & 10 years' data which can be remarked as the limitations of the study. According to the preceding conclusions, the net income of banks will rise with the increases in cash & cash equivalents, loans and advances, as well as total deposits. Further studies might be conducted on commercial banks functioning in Bangladesh to look into how liquidity affects profitability in a large sample.

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