MEASURING EFFICIENCY OF LIQUIDITY MANAGEMENT FOR RESOURCES UTILIZATION AND BUSINESS PROFITABILITY

AN EMPIRICAL ASSESSMENT OF BANKING SECTOR OF BANGLADESH

Fakir Tajul Islam ✉

Senior Lecturer, School of business, Uttara University, Bangladesh

ftiprince_gb@yahoo.com

Afrida Akhter Tithi

Senior Lecturer, School of Business, Uttara University, Bangladesh

aatithi85@gmail.com

Md. Shahnawaz Mostofa

Senior Lecturer, School of Business, Uttara University, Bangladesh

mostofa.shah@gmail.com

Abstract

Liquidity is a critical phenomenon for maintaining both profitability and maximum utilization of resources including both human and non-human, by investing more and retaining less money deposited. But if there is an uncontrolled mismatch between assets and liabilities due to inefficient management of liquidity, a bank may not survive and face tremendous difficulties in managing its operations. This study attempts to measure the efficiency of liquidity management for profitability and asset utilization in the banking sector of Bangladesh. 10 private commercial banks were selected using convenience sampling. Data was collected on Cash and Cash Equivalent, Return on Assets, Total operating income, Earnings per share, Net asset value, No. of Branches and No. of employee. The time frame of the study was from 2010 to 2014. Findings showed that Total operating income and number of employees as a representative of profitability and asset efficiency respectively, influence cash and cash equivalent account significantly and positively. Number of branches is negatively influence the liquidity management practices due to the sharing of fund among the branches when it is necessary. It is

recommended that the branches should be opened with rationality and with efficient employees who can manage liquidity for short term support along with long term effectiveness. Eventually, this practice will result in higher profitability and efficiency of resources utilization altogether.

Keywords: Liquidity Management, Resources Utilization, Commercial Bank, Efficiency, Profitability. Bangladesh

INTRODUCTION

Liquidity is defined as the ability of a bank to meet the demand of depositors, processing loan request and maintaining liabilities without occurring any setback (Rahman and Banna, 2015). Liquidity management involves the ability of a firm to pay its daily operational expenses including obligations sourced from liability. In the practice of liquidity management, maintenance of sufficient cash and its equivalent is meant as the most liquid form of assets which plays key role in the management of liquidity of a firm. It may involve analysis to plan and predict daily cash inflow and outflow in different time period, such as by week, month and year; to minimize the risk of inability to meet due obligations (Sanni, 2012). Liquidity may become a matter dilemma between excess liquidity and shortage of liquidity. For a bank in Bangladesh, must have 80 percent of its deposits in cash form to meet the demand of customers and expenses of operations. Possibility of failure of adequate liquid asset may become a liquidity risk. In most of the cases, working capital management becomes major area for liquidity supervision. Liquidity management can be defined as different components of working capital management which are used to measure state of liquidity of a Corporation (Sandhar and Janglani, 2013). In he past, the key reason for failure of banks was shortage of liquidity which may lead to lack of competitiveness. Rather than conventional banks, Islamic banks found more stable in liquidity management, due to their profit sharing methodology (Ali, 2013).

Rationale of the Study

Bangladesh Bank, central bank of Bangladesh, has been using different types of tools to manage liquidity in the economy. But the measures taken by the central bank sometimes may not work or may backfire. In 2010, due to the shortage of liquidity in the commercial banks, the call money rate raised up to 190 percent (Bangladesh Business News, 2010). In addition to that, in the financial year 2012-13 borrowed Tk. 230 billion from commercial bank, though they are in big shortage of liquidity (Akber, 2014). So managing liquidity along with profitability and other resources utilization is a very daunting task and it is needed extra care and attention for

effectiveness and survival of business operation. In this study, a liquidity management practice of selected banks is represented by cash and cash equivalents which usually include cash, marketable securities etc. this account is easily found in the statement of financial position or balance sheet of banks.

Objective of the Study

As stated in the previous sections, liquidity is an important element for a bank to efficiently manage its fund for business success. Aiming at this notion, this study has set an objective to measure the level of efficiency of liquidity management of several banks for ensuring the resources utilization and business profitability.

LITERATURE REVIEW

Liquidity can be measured using different financial ratios and relevant methods. In a study conducted by scholars, liquidity was represented by liquidity ratios, such as current ratio, quick ratio etc. the main component of these ratios are current assets, current liabilities etc (Khokhar, 2015; Bolek, 2013). It was emphasized on cash as a major representative of liquidity status and as most liquidity assets to operate day to day business (Mahmud, 2014). There are numerous studies done in the past on liquidity, risk mitigation and management. In this section, different aspects of liquidity management, such as its definition, importance, its relations with profitability and productivity, usefulness in various markets in the world of business etc. have discussed and analyzed for developing a model/s for this study. According to Chaudury (2015), Productivity can be sourced from both operations and employee performances for business profitability, and productivity in the form of financial performances, can influence the fund management practices in banking business success In her research on Islamic banking practices in fund management, operational productivity represented by the ratio between employee and other operational performance indicators, such as investment, cost, revenue, operational profit, deposits etc. apart from that, number of branches and employees were also stated in that study for analyzing employee productivity. It is found that adequate liquidity maintenance usually depends on the ability to meet both expected and unexpected cash flows without influencing the business operation negatively (Rahman and Banna, 2015). It was also revealed in that study, that excess liquidity may become a idle money as it is not making any profit, on the other hand, shortage of liquidity may result financial loss or bankruptcy eventually. Liquidity plays vital role to establish trust between a bank and its customer, because adequate liquidity can meet the demand of depositor at any time they require. It is evident that a bank tries to win customer trust by ensuring the fulfillment of the financial requirement by depositors by maintaining adequate

liquidity (Alshatti, 2014). For internal and external analysis of a company, knowledge of liquidity is very important as there is a strong relationship between liquidity and daily operational management through ensuring productivity and efficiency leading to profitability (Obida and Owolabi, 2012). In another scholarly work done in the banking sector of Bangladesh by Islam and Hasan (2014), it found that total liquidity gap, which is calculated by subtracting current assets from current liabilities, had negative relationship with profitability indicators, namely, Return on Assets, Return on Equity and Earning per Share.

Jaffar and Manarvi (2011) conducted a study to assess the performance of banks in Pakistan, and study revealed that Islamic banks performance in capital adequacy and liquidity management is better than the conventional banks. In another study, it is revealed that Islamic banks had more liquidity in the operational management and it leaded to less riskiness (Ansari and Rehman, 2011). Ernst & Young conducted a survey in 2010 guided by International Institute of Finance to explore different perspectives of banking sector. In that survey, 62 top banks were participated. This survey analysis revealed that: 92 percent of banks have made changes to their approaches to managing liquidity risk and Liquidity risk management has become single most important area for banks. Primary challenges to liquidity management identified by the survey are: Systems 87%; Data Quality and Consistency 81%; Regulatory Uncertainty 69%.

Cash management is an important component of liquidity management in a bank. Cash management is meant as the best utilization of the revenue earned by a firm to get highest possible return for an organization (James, 2002). Cash management may include inflow and outflow of cash for a firm, cash flow within a firm, cash balance for period of time of firm; and these elements make cash management a major component for managing liquidity in a firm (Pandey, 2005). There are various factors that influence liquidity management practice, identified in scholarly works, such as, nature of a business, seasonality of business operation, production policy, size of the business, manufacturing cycle, credit terms, business cycle fluctuations etc.(Pandey, 2005; Ravi, 2004). Liquidity was found important for investment in stocks, and determining the return of stock (Shammakhi and Mehrabi, 2016). As every bank in Bangladesh is registered in the joint stock registers of Bangladesh, their stock prices will be influenced by the liquidity status of the stock and their business also. In a study on some selected banks in Bangladesh, it was found that excess liquidity caused decrease in profitability (Sobol, 2013; Das et al, 2015). In Nigeria, a study conducted on the deposit money banks, reveals that there were significant relationship between profitability and liquidity of fund of the banks (Pervez, 2000; Ejoh et al, 2014; Bassey and Moses, 2015). In that study, it was

emphasized to keep a balance between deposit and loan ratio to overcome asset liability mismatch.

In an empirical analysis of liquidity management in Islamic banks in Pakistan showed that the Islamic banks vulnerable to hold their cash in statutory liquidity requirement (SLR) higher than that of conventional banks (Zaheer et al., 2013). In another analysis on banks in Bangladesh, it was found that the major reason behind suffering from negative liquidity gap in the nationalized banks was asset liquidity mismatch (Ara and Haque, 2014). After the financial crisis in 2008, liquidity maintenance had become a critical issue for banks. Its significance recognized by the Basel Committee and they forced to add liquidity risk as a key element of Basel III framework (Hartlage, 2012).

RESEARCH METHODOLOGY

Efficiency of liquidity management of commercial banks has been analyzed from two different points of view. It is necessitated by the nature of the research and its direction to useful findings. Firstly, the efficiency of liquidity management is analyzed by few profitability indicators identified by the review of literatures in the earlier sections. The profitability indicators used in this study include, Net Asset Value (NAV), Earnings per Share (EPS), Total Operating Income (TOI) and Return on Assets (ROA). The change in liquidity may result from extensive investment approach which resulted from the influence of the variables of profitability mentioned before. Here the representative of liquidity variable is a "Cash or Cash Equivalent (CCE)" account which is a balance sheet account in every banks financial statement. This account is chosen for various reasons and, by the opinion of scholars as found in the literature review section. So the first model is

CCE = ∫ (NAV, EPS, TOI, ROA)………………………Model - 1
Multiple regression equation: $CCE = \beta_0 + \beta_1 \times NAV + \beta_2 \times EPS + \beta_3 \times TOI + \beta_3 \times ROA) + \mu_t$

Secondly, liquidity management efficiency can depend on the productivity concern through effective utilization of resources such as human resource, assets. Here, in this second model, resources utilization in the form of asset efficiency is represented by two variables, namely, Number of Employees in a bank (NOE) and Number of Branches of a Bank (NOB). The dependent variable is as same as it is used in the Model-1.

CCE = ∫ (NOE, NOB)…………………………..Model - 2
Multiple regression equation: $CCE = \beta_0 + \beta_1 \times NOE + \beta_2 \times NOB + + \mu_t$

Sampling

In this study, 10 commercial banks are selected based on convenient sampling technique. The data collected from the financial statements by these banks in last five years, from 2010 to 2014. This time range is selected for two reasons, firstly, the availability of the data, especially audited financial statements and secondly, the convenience of the researchers. The selected banks are First Security Islami Bank Limited, IFIC Bank Limited, United Commercial Bank Limited, Southeast Bank Limited, Mercantile Bank Limited, AB Bank Limited. The total number of private commercial banks is 31 (Bangladesh Bank, 2017), and the samples represent more than 33% of the population.

Table 1: Banks selected for this study.

No.	Bank name	Year of Establishment	Generation
01	AB bank limited	1982	1st
02	IFIC bank limited	1983	1st
03	Uttara bank limited	1983	1st
04	Pubali bank limited	1983	1st
05	National bank limited	1983	1st
06	The city bank limited	1983	1st
07	United Commercial Bank Limited	1983	1st
08	Southeast bank limited	1995	2nd
09	Mercantile Bank Limited	1999	2nd
10	First Security Islamic Bank Limited	1999	2nd

Source: Bangladesh Bank

Data Analysis Approach

The data collected from the financial statements of the banks in the last several years, then the collected data analyzed using different statistical analysis such as, Pearson correlations analysis, Least squares multiple regression analysis etc using SPSS 16. The selected banks are the oldest banks in Bangladesh and has been playing important role in the financial market and in the economy.

EMPIRICAL FINDINGS AND DISCUSSION

In the analysis, firstly the selected variables of the study were tested using Pearson correlation analysis, and the result showed in the following table. There all seven variables are analyzed and their correlations are revealed in the table.

Table 2: Correlations among the variables of profitability and resources utilization

	Cash and cash equivalent	Return on Assets	Total operating income	Earnings per share	Net asset value per share	No of Branches	No of employee
Cash and cash equivalent	1	.393*	.923**	.168	.405*	.380*	.854**
Return on Assets	.393*	1	.491**	.463**	.785**	.393*	.332*
Total operating income	.923**	.491**	1	.304	.500**	.567**	.902**
Earnings per share(ESP)	.168	.463**	.304	1	.297	.219	.273
Net asset value per share	.405*	.785**	.500**	.297	1	.234	.259
No of Branches	.380*	.393*	.567**	.219	.234	1	.726**
No of employee	.854**	.332*	.902**	.273	.259	.726**	1

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

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

As it is shown in the above table, cash and cash equivalent account is strongly correlated with total operating income and number of employees in the banks selected for this study. Number of employees showed significant correlations with other two variables, namely total operating income and number of branches. With the increase of branch, employee is increased also, so it is general phenomena.

Table 3: Regression model summary in the profitability analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.932[a]	.868	.852	6213413070.92954

a. Predictors: (Constant), Net asset value per share, Earnings per share (EPS), Total operating income, Return on Assets

In the analysis of variance of the Model-1, the regression analysis for profitability analysis is found significant as it is shown in the following table (Table 4).

Table 4: ANOVA in the regression analysis of profitability

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8407375665358695000000	4	2101843916339673800000	54.443	.000[a]
	Residual	1274014565669934700000	33	38606501989998030000		
	Total	9681390231028630000000	37			

a. Predictors: (Constant), Net asset value per share, Earnings per share (EPS), Total operating income, Return on Assets.   b. Dependent Variable: Cash and cash equivalent

In the coefficient value analysis (Table 5) of Model-1, the result shows that only Total Operating Income resulted positive influence to measure the efficiency of Cash and Cash Equivalent. The other two independent variables show negative influence on the dependent variable.

Table 5: Coefficient values in the regression analysis of profitability

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	6682101571.765	7603108316.917		.879	.386
	Return on Assets	88455861.423	641781227.801	.015	.138	.891
	Total operating income	2.499	.190	.984	13.152	.000
	Earnings per share(ESP)	-1225242175.890	743021411.527	-.119	-1.649	.109
	Net asset value per share	-180121788.510	295138213.276	-.064	-.610	.546

a. Dependent Variable: Cash and cash equivalent

As stated in the research methodology part of the study, that there are two models to be tested. Model-1 is discussed in the earlier sections, now the Model-2, where the dependent variable same as before, Cash and Cash Equivalent; and the independent variables are number of employees and number of branches of respective banks chosen for the study.

Table 6: Regression model summary in the resources utilization analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.923[a]	.852	.844	6396994293.21447

a. Predictors: (Constant), No of employee, No of Branches

As shown in the Table 6, 85.20% change in cash and cash equivalent is explained by employee number and branch density. The regression model is found very significant as it is proved in the analysis of variance (Table 7).

Table 7: ANOVA in the regression analysis of resources utilization

Model		Sum of Squares	df	Mean Square	F	Sig.
2	Regression	8249136471468983000000.000	2	4124568235734491700000	100.792	.000[a]
	Residual	1432253759559646600000.000	35	40921535987418470000		
	Total	9681390231028630000000.000	37			

a. Predictors: (Constant), No of employee, No of Branches

b. Dependent Variable: Cash and cash equivalent

In the coefficient value analysis (Table 8), it is found that number of branches is negatively related with the dependent variable, cash and cash equivalent. The other independent variable, number of employee is positively related with the dependent variable. Both these relationship are found significant.

Table 8: Coefficient values in the regression analysis of resources utilization

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
2	(Constant)	1.061E10	1801441794.025		5.888	.000
	No of Branches	-67211740.489	12505118.145	-.508	-5.375	.000
	No of employee	5577851.094	431092.975	1.223	12.939	.000

a. Dependent Variable: Cash and cash equivalent

Though changes of branches and employee can change the state of cash money and may cause change in liquidity, but in the long run, it may become a major source of liquidity by bringing deposits from customers of new branches. A branch cannot be source of income without incorporating efficient employees for operation. The key reason behind the mix of influences on the dependent variable by the independent variables, in case of number of branches is a practice of banks to loan liquidity or fund from other branch when a branch is in shortage of liquidity. Moreover, the number of employee is larger than that of number of

branches for a bank, which may overrun the branches influences in the statistical measure. A branch is operated by employees, who can change the state of liquidity by collecting regular installment of loans and bringing deposits in a large amount.

CONCLUSION AND RECOMMENDATIONS

The findings showed that there are negative relationships between the indicators of management efficiency and liquidity; more efficient management resulted from lower liquidity. In profitability analysis, high level of profitability results from low level of liquidity in most of the banks. Based on the research findings, the recommended steps should be taken by the concerned banks, are:

- A branch should be opened based on profitability and cost efficiency for cash management, which need to be addressed in the short run and long run planning both. It will ensure use of efficient employee and rationality of opening a new branch.
- Cash and Cash Equivalents should be kept in balance for earning highest level of profitability and maximum utilization of resources. It is possible through regular check and balance which will lead to profitability and efficiency. It may ensure good association with the indicators of profitability and resources utilization.

Earnings per Share (EPS), Return on Assets (ROA), Total operating income (TOI) do not show any significant influence on Cash and Cash Equivalent. It may happen due to the other factors which are not considered in this study. These accounts of profitability (ROA, EPS and NOI) and of resources utilization (no. of Branches) should be come out positively as a result of optimum liquidity management practices. In this study, the number of samples is not adequate for deriving concrete findings. It considers mostly first generation banks, which was one of the major limitations of this study. By adding more banks from other generations, may give more useful findings. For further study, other business sectors, including non-banking financial sector, manufacturing sector can be focused for measuring the efficiency of liquidity management.

REFERENCES

Akber, C.S. (2014). What to do with excess liquidity in banks? The Financial Express, 21(266).

Ali, S.S. (2013). State of Liquidity Management in Islamic Financial Institutions. Islamic Economic Studies. 21 (01), 63-98.

Alshatti, A. A. S. (2014). The effect of the liquidity management on profitability in the Jordanian commercial banks. International Journal of Business and Management, 10.

Ansari, A. and Rehman, A. (2011). Financial Performance of Islamic and Conventional Banks in Pakistan: A Comparative Study. 8th International Conference on Islamic Economics and Finance - Doha. 1 (1), 1-194.

Ara, U.H.A. and Haque, E. (2014). Asset liability mismatch- an empirical study on nationalized commercial banks in Bangladesh, Asian Business Review, 4(2).

Bangladesh Bank (2017). Financial systems, banks and financial institutions. Retrieved on March 19, 2017 https://www.bb.org.bd/fnansys/bankfi.php.

Bangladesh Business News (2010). Central bank of Bangladesh intervenes in money market, retrieved on November 19, 2016, http://www.businessnews-bd.com/index.php?option=com_content&view=article&id=3026:central-bank-of-bangladesh-intervenes-in-money-market-&catid=66:money-market#disqus_thread [accessed on]

Bassey, G. E. & Moses, C.E. (2015). Bank profitability and liquidity management: a case study of selected Nigerian deposit money banks. International Journal of Economics, Commerce and Management, III (4).

Bolek, M. (2013). Profitability as a liquidity and risk function basing on the new connect market in Poland. European Scientific Journal, 9 (28), 1-15.

Chaudury, N.J. (2015). Fund management practices of the selected Islamic commercial banks in Bangladesh. Journal of Islamic Economics, Banking and Finance, 11(3).

Das, B.C., Chowdhury, M.M., Rahman, M.H., Dey, N.K. (2015). Liquidity management and profitability analysis of private commercial banks in Bangladesh. International Journal of Economics, Commerce and Management, III (1).

Ejoh, N. O., Okpa, I. B. & Egbe, A. A. (2014). The impact of credit and liquidity risk management on the profitability of deposit money banks in Nigeria. International Journal of Economics, Commerce and Management. II(9).

Ernst & Young (2010), "Making Strides in Financial Services Risk Management" retrieved from http://www.ey.com/Publication/vwLUAssets/Making_strides_in_financial_services_risk_management/$File/Making%20strides%20in%20financial%20services%20risk%20management.pdf [accessed on December 18, 2016]

Islam, F.T. and Islam, K. (2015). Measuring the Impact of net liquidity gap on profitability of banks: a study on some selected commercial banks in Bangladesh. The Eastern University Journal, 5 (2). Pp 53-67.

Jaffar, M., & Manarvi, I. (2011). Performance comparison of Islamic and Conventional Banks in Pakistan. Global Journal of Management and Business Research, 11(1), 1-76.

James, C. & Van, H. (2002). Financial Management and Policy. New Delhi: Prentice hall of India Private Limited.

Khokhar, M. M. I. (2015). Investigating liquidity-profitability relationship. Journal of Applied Finance & Banking, 3, 159-173.

Mahmud, A. K. (2014). Liquidity-profitability relationship in Bangladesh. Banking Industry, 143-151.

Obida, S. S. & Owolabi, S.A. (2012). Liquidity management and corporate profitability: case study of selected manufacturing companies listed on the Nigerian stock exchange. Business Management Dynamics, 2 (2), 10-25.

Pandy I.M. (2005).Financial Management. New Delhi, India, Vikas Publishing House.

Ravi, K.M. (2004). Financial Management, 5th ed. New Delhi: Taxman allied services Pvt. Ltd.

Sandhar, S.K. & Janglani, S. (2013). A study on liquidity and profitability of selected Indian cement companies: A regression modeling approach. International Journal of Economics, Commerce and Management, 1(1), 1-24.

Shammakhi, H.R. & Mehrabi, A. (2016). Study the effect of liquidity of stock on stock returns in the companies listed in Tehran stock exchange. International Journal of Economics, Commerce and Management, 4 (12).