

**LIQUIDITY AND PROFITABILITY STUDY OF STATE OWNED  
COMMERCIAL BANKS (SCBs), PRIVATE COMMERCIAL BANKS  
(PCBs) AND FOREIGN COMMERCIAL BANKS (FCBs)  
- BANGLADESH PERSPECTIVE**

by

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degree of Professional Master in Banking and Finance

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## ABSTRACT

In this paper the commercial banking sectors of Bangladesh has been emphasized. In commercial banking sector, liquidity is the symbol of trust to the customers and on the other hand profit is the main objective. So, reserving more liquidity hampers the profitability and less liquidity hampers the trust of the customers. The primary function of commercial bank is to receive deposit and to lend money. Simultaneously, its primary responsibility is to maintain adequate liquidity. If it is not ensured adequately, it may face obvious difficulties. On the other hand, maintaining excess liquidity may reduce earnings. So, liquidity management is like a Knife-edge management problem. That's why one of the most important tasks faced by the management of any bank is ensuring adequate liquidity. In this regard the liquidity and profitability of banking sector of Bangladesh has been studied on a comparison basis emphasizing on State Owned Commercial Banks (SCBs), Domestic Commercial Banks (PCBs) and Foreign Commercial Banks (FCBs). The fact has been revealed in the study is that overall banking industry of Bangladesh is maintaining the adequate and excess liquidity in the period of 2002 to 2010 and FCBs are more liquid than the SCBs and PCBs. Simultaneously FCBs are also more profitable than the others. Reasons behind the excess liquidity, different profitability of the various types of banks have been discussed. How excess liquidity is hampering the profitability, the inherent reasons behind this has been also described in the study.

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## **LIST OF ABBREVIATIONS**

BB	Bangladesh Bank
BDT	Bangladesh Taka
CRR	Cash Reserve Requirement
FCB	Foreign Commercial Bank
PCB	Private Commercial Bank
PD	Primary Dealer
ROA	Return on Assets
ROE	Return on Equity
SCB	State owned Commercial Bank
SLR	Statutory Liquidity Requirement



# **CHAPTER 1 INTRODUCTION**

## **1.1 Rationale of the Study**

Banking sector plays an important role in the economy of a country. In choosing the topic of this study the importance of the banking sector has been considered.

Since, capital market of Bangladesh is not developed enough. So, banking sector is playing important role for supply of credit to industry, agriculture and service sectors. To ensure the increment of self dependency through investing in the domestic production sectors, a sound banking sector is one of the most important challenges.

Maintaining the sound liquidity position is one of the significant indicators of better performance of a bank. Without ensuring the adequate liquidity the banking sector will fail to hold its current leading position in mobilizing resources and allocating funds in profitable ends in the economy. So, the topic “Liquidity and Profitability study of State Owned Commercial Banks (SCBs), Private Commercial Banks (PCBs) and Foreign Commercial Banks (FCBs) - Bangladesh Perspective” will cover the relevant field to have a look in the liquidity and profitability position of banking sector as an indicator of the performance of the overall banking industry.

## **1.2 Problem Statement**

What are the liquidity positions of SCBs, PCBs and FCBs? Are they maintaining adequate liquidity?

What type of banks is making more profit? What are the main reasons behind making more profits? Is there any impact of liquidity on profit of different types of banks?

## **1.3 Objective of the Study**

To have a look in profitability and liquidity position of the SCBs, PCBs and FCBs is the main target of this study. The liquidity and profitability position of these sectors of the banking industry has been evaluated in a comparative mode. To determine the profitability position of the SCBs, PCBs and FCBs in relation to the liquidity is the supplementary objective of the study. To reveal some inherent reasons for the profit differentials among the SCBs, PCBs and FCBs through the study is a part of the objective.

## **1.4 Methodology**

For the study both primary and secondary data has been used.

**Collection of Primary Data:** Assessment of existing literature as well as of discussions with some experts associated with the Liquidity and Treasury managers of commercial banks.

**Collection of Secondary Data:** The secondary data has been collected from different sources- Bangladesh Bank, published research journals, published books, websites, etc.

## **1.5 Organization of the Study**

The Study will be organized into six chapters

The first chapter covers rational of the study, problem statement, methodology and limitation of the study.

The second chapter draws a picture of banking industry of Bangladesh.

The third chapter draws a literature review and theoretical background about the liquidity and profitability of banks.

The fourth and fifth chapters analyze the liquidity and profitability scenario of SCBs, PCBs and FCBs in individual and comparative mode. Reasons behind the excess liquidity, different profitability of the various types of banks have been discussed here. How excess liquidity is hampering the profitability, the inherent reasons behind this has been also described in this chapter.

The last chapter draws a conclusion liquidity and profitability scenario of various types of banks.

## **1.6 Limitation of the Study**

The main problem faced in preparing the paper was the inadequacy and lack of availability of required data. Having no practical knowledge regarding the liquidity management in the banking sector was another problem, because the theoretical and practical scenario may not be identical in all the time. And the extent of knowledge is not sufficient enough to prepare the paper in a professional way. Subject to these problems, the study is not out of shortcomings. This paper only reveals the liquidity and profitability position of the banking industry, but nothing is highlighted regarding the management of the liquidity due to the above mentioned shortfalls.

## CHAPTER 2 BANKING INDUSTRY OF BANGLADESH: AN OVERVIEW

### 2.1 Background of overall Banking Industry

After liberation in 1971, the banks operating in Bangladesh (except those operated abroad) were nationalized. These banks were merged and grouped into 6 commercial banks. The two government owned specialized banks have been renamed as Bangladesh Krishi Bank and Bangladesh Shilpa Bank. After that few banks were given to the private sectors. Foreign banks were allowed to operate in Bangladesh. Many private sector commercial banks were permitted to operate in Bangladesh in 1980s and 2000s.

All such banks operating in Bangladesh with different paid-up capital and reserves having a minimum on aggregate value of Taka 0.5 million and conducting their affairs to the satisfaction of the Bangladesh Bank (Central Bank of Bangladesh) have been declared as scheduled banks in term of Section 37(a) of Bangladesh Bank order 1972. Now in term of 13 of Bank Company Act, 1991, the minimum aggregate value is Taka 4 billion.

Currently in total 47 banks are in operation in the banking industry in different ownership. Among these 47, 04 are the State Owned Commercial Banks (SCBs), 05 are specialized banks and 39 are Private Commercial Banks (PCBs). Out of 39 PCBs, 23 are conventional and 07 Islamic domestic Private Commercial Banks and the rest 09 are the foreign commercial Banks. (BB (2010))

### 2.2 Structural Position of the Banking Industry

Before going to the main issue of study it is needed to highlight on the structural position of Banking Industry in Bangladesh. There are 47 commercial and Specialized Banks operating in Bangladesh (Table 2.1). These banks have total 7095 branches spread all over the country.

Types of Banks	No. of Banks	No. of Branches
SCBs	4	3387
Specialized Banks	4	1365
PCBs	30	2285
FCBS	9	58
Total	47	7095
Source : BB(2010)		

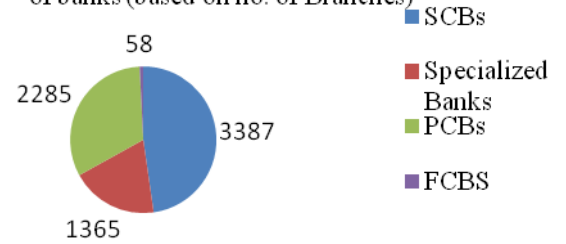
Table 2.1 Number of Banks in Bangladesh

As shown in Figures 2.1 and 2.2, though the no. of SCBs is the least, but its no. of branch is the highest. Similarly, no. of specialized bank is also same as SCBs, but its no. of branches is in the second position which is much more than the PCBs' branches.

Figure 2.1 Structural Position of different types of banks (based on no. of Banks)



Figure 2.2 Structural Position of different types of banks (based on no. of Branches)



So, in term of number of bank, PCBs are in the highest position and SCBs are in the lowest position, but in term of the no. of branches of SCBs is in the highest position, specialized banks are in the second position and PCBs and FCBS are much less in this regard, which are very clear from the above figures.

### 2.3 Total Assets

Like number of branches SCBs were in the leading position in term of their assets. But gradually they have been losing their position in the industry. The following table shows the position of various types of banks.

Figure in Billion									
years	Total Assets of All Banks	Total Assets of SCBs	% of Industry (SCBs)	Total Assets of PCBs	% of Industry (PCBs)	Total Assets of FCBS	% of Industry (FCBs)	Total Assets of Specialized Banks	% of Industry (Specialized Banks)
2001	3706.16	2603.32	70	638.36	17	173.66	5	290.82	8
2002	4130.45	2882.49	70	742.13	18	209.29	5	296.54	7
2003	4643.14	3140.68	68	925.58	20	247.38	5	329.50	7
2004	5140.85	3450.91	67	1129.81	22	214.43	4	345.70	7
2005	5829.20	3826.88	66	1369.98	24	230.74	4	401.61	7
2006	6613.70	4173.15	63	1722.62	26	285.52	4	432.42	7
2007	5928.46	3059.18	52	2149.20	36	332.09	6	387.99	7
2008	6012.88	2374.60	39	2844.41	47	416.26	7	377.61	6
2009	7040.69	2714.69	39	3396.57	48	481.74	7	447.69	6
2010	8633.30	3152.77	37	4461.46	52	540.67	6	478.40	6

Source : BB( 2010)

Table 2.2 Total Assets of Banking Industry

From the above Table 2.2, it is observed that SCBs are holding 37 to 70% of the total assets of the banking industry. On the other hand, PCBs are holding 17 to 52% and FCBS are holding 4 to 7% of the total assets of the banking industry. Here the most important observation is that SCBs are losing their market share to the PCBs.

## 2.4 Total Deposits

In saving mobilization currently PCBs are dominating the banking industry of Bangladesh. But before 2003 SCBs were dominating. Currently PCBs are playing the major role in collecting the savings from the people. The amounts of the deposits of all types of banks are increasing but PCBs are in the highest position in savings-mobilizing. The following Table 2.3 shows the position of various types of banks.

Figures in Billion									
years	Deposits of All Banks	Total Deposits of SCBs	% of Industry (SCBs)	Total Deposits of PCBs	% of Industry (PCBs)	Total Deposits of FCBs	% of Industry (FCBs)	Total Deposits of Specialized Banks	% of Industry (Specialized Banks)
2000	771.20	425.86	55	242.67	31	56.52	7	46.15	6
2001	886.48	467.64	53	303.58	34	61.31	7	53.96	6
2002	1005.29	509.12	51	371.48	37	65.45	7	59.25	6
2003	1134.37	527.92	47	464.40	41	78.95	7	63.10	6
2004	1318.95	571.67	43	583.33	44	87.13	7	76.81	6
2005	1549.06	627.74	41	719.83	46	109.09	7	92.41	6
2006	1829.26	663.11	36	936.02	51	127.73	7	102.40	6
2007	2116.12	706.15	33	1119.63	53	172.79	8	117.56	6
2008	2527.56	775.34	31	1415.18	56	199.85	8	137.19	5
2009	3042.77	858.31	28	1804.57	59	219.15	7	160.75	5
2010	3689.20	1026.57	28	2243.43	61	231.00	6	188.21	5

Source : BB ( 2010)

Table 2.3 Total Deposits of Various Types of Banks in Bangladesh

From the table 2.3, it is observed that PCBs are holding about 61% of the total deposits of the banking industry. It is mentionable that SCBs are going far behind than PCBs in mobilizing savings from the people.

## 2.5 Total Loans and Advances

From the following Table 2.4, it is observed that PCBs are dominating over the SCBs in disbursement of loans and advances. Before 2003 SCBs were dominating. Currently PCBs are playing the major role in loans and advances.

Figure in Billion (Taka)									
years	Advances of All Banks	Total Advances of SCBs	% of Industry (SCBs)	Total Advances of PCBs	% of Industry (PCBs)	Total Advances of FCBs	% of Industry (FCBs)	Total Advances of Specialized Banks	% of Industry (Specialized Banks)
2000	631.72	297.95	47	196.68	31	35.03	6	102.06	16
2001	727.49	327.73	45	253.72	35	37.77	5	108.28	15
2002	830.31	355.86	43	314.31	38	50.92	6	109.22	13
2003	895.37	361.68	40	372.42	42	61.64	7	99.63	11
2004	1024.37	381.09	37	466.27	46	69.05	7	107.95	11
2005	1202.48	423.86	35	589.41	49	78.80	7	110.41	9
2006	1394.60	424.81	30	749.23	54	98.29	7	122.26	9
2007	1600.19	419.51	26	919.48	57	131.93	8	129.27	8
2008	1963.85	467.05	24	1206.10	61	144.63	7	146.07	7
2009	2334.80	524.13	22	1499.71	64	149.06	6	161.89	7
2010	2958.81	644.97	22	1934.69	65	173.51	6	205.64	7

Source : BB(2010)

Table 2.4 Total Advances of Various Types of Banks in Bangladesh

Though all sectors' loans and advances has been increased but SCBs' domination is no longer prevails. Currently PCBs are enjoying the highest percentage of total industry (65%). FCBs' percentage contribution remained same over the decade.

## **CHAPTER 3**

### **LIQUIDITY AND PROFITABILITY: LITERATURE REVIEWS AND A THEORETICAL BACKGROUND**

The recent economic crisis has underlined the importance of liquidity management in banking sector. In response, regulators are evaluating the existing liquidity position and trying to devise new liquidity standards with the aim of making the financial system more stable and resilient. There is a general sense that banks do not fully appreciate the importance of liquidity risk management. That is why Basel Committee on Banking Supervision (BCBS2010) tried to fix common measures and standards for facing liquidity risk by the banks.

Bordereau, E. and Graham, C. (2010) in their paper “The Impact of Liquidity on Bank Profitability” analyze the impact of liquid asset holdings on bank profitability for a sample of large U.S. and Canadian banks (1997 to 2009). Results indicate that profitability has been improved for banks (In US and Canada) that hold more liquid assets, however, there is a point at which holding further liquid assets diminishes a banks’ profitability, all else equal. The paper also found that this relationship varies depending on a bank’s business model and the state of the economy.

A model has been developed by Morris and Shin (2010) where a bank’s credit risk is decomposed into insolvency risk (the conditional probability of default due to deterioration of asset quality if there is no run by short-term creditors) and illiquid risk (the probability of a default due to a run when the institution would otherwise have been solvent). The model provides a formula for “illiquidity risk” and the authors show that an increase in the liquidity ratio of a bank decreases the probability of an “illiquid” default.

Bourke (1989) finds some evidence of a positive relationship between liquid assets and bank profitability for 90 banks in Europe, North America and Australia from 1972 to 1981, while Molyneux and Thornton (1992) and Goddard, et al (2004) find mixed evidence of a negative relationship between the two variables for European banks in the late 1980s and mid-1990s, respectively.

Mujere.M, and Younus.S (2009) in their paper “ An analysis of interest rate spread in banking sector” showed that The statutory reserves requirements(SLR) and the high NSD certificate interest rates leads to higher interest rate spreads in the banking sector in Bangladesh.

#### **3.1 What is Liquidity?**

In general liquidity means the ease with which an asset can be converted into cash. In banking sector liquidity means the ability of the banks to meet up the claim of the deposit holders or any other client in cash instantly with minimum cost. So having the adequate amount of cash and near cash assets with the banks indicates better liquidity position of banks.

#### **3.2 Why Liquidity?**

The economics and finance literature analyze four possible reasons for firms to hold liquid assets; the transaction motive (Miller and Orr 1966), the precautionary motive (Opler,

Pinkowitz, Stulz, and Williamson 1999), the tax motive (Foley, Hartzell, Titman, and Twite 2007) and finally the agency motive (Jensen 1986).

One of the most important tasks faced by the management of any bank is ensuring adequate liquidity. A bank is considered to be liquid if it has ready access to immediately spendable funds at reasonable cost at precisely the time those funds are needed. This suggests that a liquid bank either has the right amount of immediately spendable funds on hand where they are required or can quickly raise liquid funds by borrowing or by selling assets.

Lack of adequate liquidity is often one of the first signs that a bank is in serious financial trouble. The troubled bank usually begins to lose deposits, which erodes its supply of cash and forces the institution to dispose of its more liquid assets. Other banks become increasingly reluctant to lend the troubled bank any funds without additional security or higher rate of interest, which further reduces the earnings of the problem institution and threatens it with failure.

Many banks assume that liquid funds can be borrowed virtually without limit any time they are needed. Therefore, they see little need to store liquidity in the form of easily marketed stable-price assets. The enormous cash shortages experienced in recent years by banks in trouble make clear that liquidity needs cannot be ignored. Liquidity management is far more important than ever before, because a bank can be closed if it cannot raise enough liquidity even though, technically, it may still be solvent. Moreover, the competence of a bank's liquidity managers is an important barometer of a management's overall effectiveness in achieving the bank's long-term goals.

### **3.3 Liquidity Management**

A liquid asset can be turned into cash quickly and at low cost with little or no loss in principal value. The ultimate liquid asset is cash, of course. Although it is obvious that a Financial Institution's (FI's) liquidity risk can be reduced by holding large amounts of assets such as cash, treasury bills and other money market instruments. FIs usually face a return or interest earnings penalty from doing this. Because of their high liquidity and low default risks, such assets often bear low returns reflecting their essentially risk free nature.

Holding relatively small amount of liquid assets exposes FI to enhance illiquidity and risk of bank run. Excess illiquidity can result in and FI's inability to meet required payments on liability claims and, at extreme, insolvency and can even lead to contagious effects that negatively impact other FIs. Consequently, regulators have often imposed minimum liquid asset reserve requirement on FIs. In general, these requirements differ in nature and scope for various FIs and even according to country. The requirements depend on the illiquidity risk exposure perceived for the FI's type and other regulatory objectives that relate to minimum liquid asset requirement. Especially, regulators often set minimum liquid asset requirements for at least two additional reasons than simply ensuring that FIs can meet expected and unexpected liability withdrawals. The other two reasons relate to monetary policy and taxation.

#### **3.3.1 Monetary Policy Reasons**

Many countries set minimum liquid asset reserve requirements to strengthen their monetary policy. Specifically, setting a minimum ratio of liquid reserve assets to deposits limits the



ability of banks and bank-related institutions to expand lending and enhances the central bank's ability to control the money supply. In this context requiring depository institutions to hold minimum ratios liquid assets to deposits allow the central bank to gain greater control over deposit growth and thus over the money supply (of which bank deposits are a highly significant portion) as part to its overall macro control objectives.

### 3.3.2 Taxation Reason

Another reason for requiring minimums on FI liquid asset holdings is to force FIs to invest in government financial claims rather than private sector financial claims. That is, a minimum required liquid asset reserve requirement tax is an indirect way for governments to raise additional "taxes" from FIs. Having banks hold cash in the vault or cash reserves at the central bank (when no interest rate compensation is paid) requires banks to transfer a resource to the central bank. This tax or cost effect is increased if inflation creates the purchasing power value of those balances.

## 3.4 The Composition of the Liquid Assets Portfolio

The composition of a bank's asset portfolio, especially cash and government securities is determined partly by earnings considerations and partly by the type of minimum liquid asset reserve requirements that the central bank imposes. So there two segments of the liquid assets of a bank. These two are as follows:

### 3.4.1 Liquid Asset Ratio

A minimum ratio of liquid assets total assets set by the central bank. In many countries, like UK, reserve ratios have historically been imposed to encompass both cash and liquid government securities such as treasury bills. By contrast, the minimum liquid asset requirements for banks in the United States have been based and have excluded government securities. As a result government securities are less useful because they are not counted as part of the reserves held by banks and at the same time yield lower promised returns than loans do.

### 3.4.2 Buffer Reserve

These are the non-reserve assets that can be quickly turned into cash. In times crisis, when significant drains on cash reserves occur, these securities can be turned into cash quickly and with very little loss of principal value because of the deep nature of the market in which these assets are traded. These assets are shown in the Balance Sheet as Balance with other Banks and Financial Institutions, Money at call and short notice and other short term investments.

In Bangladesh according to the Bangladesh Bank direction the scheduled banks have to maintain the Cash balance with Bangladesh Bank of 6% of the deposits (Total of Demand and Time Deposits) as Cash Reserve Requirement (CRR) and also have to maintain (except specialized and Islamic banks) the liquid assets to total assets of 19% of the deposits amount as Statutory Liquidity Reserve (SLR), but for the Islamic banks this ratio is only 11.5%.

### **3.5 The Demand and Supply of Bank Liquidity**

A bank's need for liquidity immediately spendable funds can be viewed within a demand-supply framework. What activities give rise to the demand for liquidity inside a bank? And what sources can the bank rely upon to supply liquidity when spendable funds are needed?

These various sources of liquidity demand and supply come together to determine each bank's net liquidity position at any moment in time. That net liquidity position at time is as follows:

A bank's Liquidity Position (L) Services = (Incoming deposits (inflows)+ Revenue from the sale of non deposit assets +Customer loan repayment + Sale of bank assets + Borrowing from money market)- (Deposit withdrawals (outflows) + Volume of acceptable loan request + Repayment of bank borrowings + Other operating expenses + Dividend payments to bank stockholders.

When the bank's total demand for liquidity exceeds its total supply of liquidity, management must prepare for a liquidity deficit, deciding when and where to raise additional liquid funds. On the other hand, if at any point in time the total supply of liquidity to the bank exceeds all of its liquidity demands, management must prepare for a liquidity surplus, deciding when and where to profitably invest surplus liquid funds until they are needed to cover future liquidity demands.

### **3.6 Relation with Liability Management**

Liquidity and liability management are closely related. One aspect of liquidity risk control is the buildup of a prudential level of liquid assets. Another aspect is the management of the banks' liability structure to reduce the need for large amounts of liquid assets to meet liability withdrawals. Excessive use of purchased funds in the liability structure can result, however, in a liquidity crisis if investors lose confidence in the bank and refuse to over such funds. Unfortunately, constructing a low-cost, low-withdrawal-risk liability portfolio is more difficult than it sounds. This is true because those liabilities or sources of bank funds that are the most subject to withdrawal risk are often the least costly to the bank. That is, a bank must trade off the benefits of attracting liabilities at a low funding cost with a high chance of withdrawal against liabilities with a high funding cost and low liquidity.

### **3.7 Risk-Return trade-off for Liquid Assets**

In optimizing its holdings of liquid assets, a bank must trade the benefit of cash immediacy for lower returns. In addition, the bank manager's choice is one of constrained optimization in the sense that liquid asset reserve requirements imposed by regulators set a minimum bound on the level to which liquid reserve assets can fall in the balance sheet.

### **3.8 Undershooting the Reserve Target**

This situation occurs when at the end of the reserve maintenance period it is found that the bank holds the liquid assets less than the required minimum reserve ratio. If the reserve shortfall exceeds required percent, the bank is liable to explicit and implicit penalty interest rate charge equal to the central bank's discount rate plus a 2 percent markup the implicit charges can include more frequent monitoring, examinations and surveillance if bank regulator's view the inadequate reserve amount as a reflection of an unsafe and unsound

practice by the bank's manager. Such a view is likely to be taken only if the bank consistently undershoots its reserve targets.

### **3.9 Overshooting the Reserve Target**

This situation occurs when at the end of the reserve maintenance period it is found that the bank holds the liquid assets in excess of the minimum required ratio. The cost of overshooting depends on whether the bank perceives its prudent level of reserves to meet expected and unexpected deposit withdrawals to be higher or lower than the regulatory-imposed minimum reserve amount. The excess reserve—either cash or on deposit on central bank—earns no interest and could have been lent out at the bank lending rate. In contrast, if the bank manager perceives that the regulatory required minimum level of reserves is lower than it need for expected and unexpected deposit withdrawal exposure, the bank overshoots the required minimum reserve target. This policy maintains the bank's liquidity position at a prudently adequate level. In choosing to overshoot the target, the manager must consider the least cost instrument in which to hold such reserves.

So, liquidity management is like a knife-edge management problem. Because holding too many liquid assets penalize a bank's earnings and, thus, its stockholders. A bank manager who holds excessive amounts of liquid assets is unlikely to survive long; similarly, a manager who undershoots the reserve target faces enhanced risk of liquidity crisis and regulatory intervention. Again, such a manager's tenure at bank may be relatively short. Avoiding the cost of excessive overshooting or undershooting made more difficult for the banks because the exact minimum required reserve target is not known until two days before the end of the reserve maintenance period. This makes the optimal management of the reserve position of a bank similar to a complex dynamic control problem with a moving target.

## CHAPTER 4 ANALYSIS AND DISCUSSION

### 4.1: Liquidity Study of SCBs

Cash Reserve Requirement (CRR), Statutory Liquidity Reserve (SLR), excess liquidity and liquid assets have been used as indicators of liquidity.

#### 4.1.1: Cash Reserve Requirement (CRR)

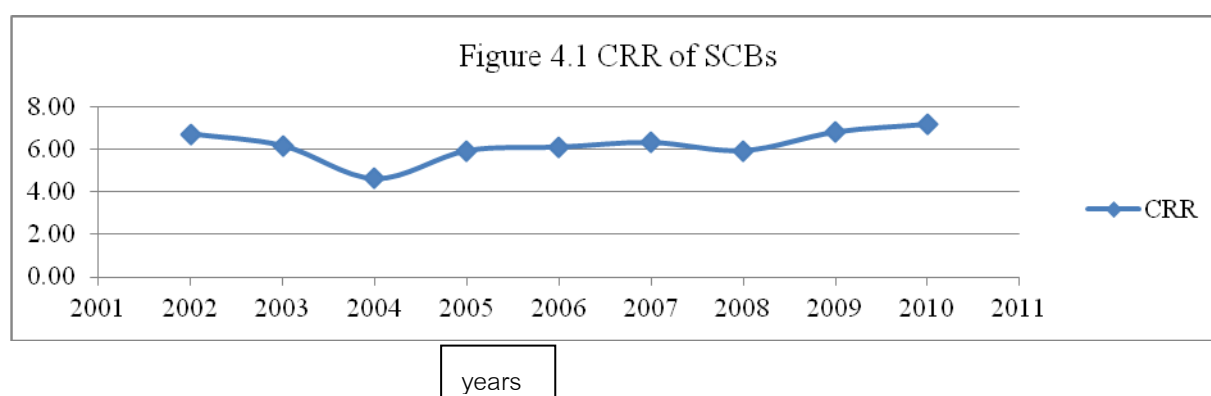
According to the imposition of Bangladesh Bank, all the Scheduled banks are required to maintain cash reserve of 6% of their total deposit (Demand and Term Deposits) with the central bank, which is known as CRR. This rate has been changed in different times, but now this rate is 6% and this reserve has to be maintained with the domestic currency only. The position of this compulsory reserve of the state-owned commercial banks is being shown in the following Table 4.1 and Figure 4.1.

Year	Cash in tills and Balance with Bangladesh Bank (Taka in Billion)	Total Deposits (Demand and Term) (Taka in Billion)	CRR	Figure in billion
				Mandatory Reserve set by Bangladesh Bank
2002	34.23	509.12	6.72	4.00
2003	32.56	527.92	6.17	4.00
2004	26.42	571.67	4.62	4.00
2005	37.27	627.74	5.94	5.00
2006	40.48	663.11	6.10	5.00
2007	44.65	706.15	6.32	5.00
2008	46.05	775.34	5.94	5.00
2009	58.46	858.31	6.81	5.00
2010	73.6555	1026.5704	7.17	5.50

Source BB (2010)

Table 4.1 CRR of SCBs

Historically it is shown that SCBs have been maintaining cash reserve with the Bangladesh Bank more than the rates set by the Bangladesh Bank. The maximum reserve was in the fiscal year of 2010 and the lowest was 2004.



#### 4.1.2 Statutory Liquidity Reserve (SLR) of SCBs

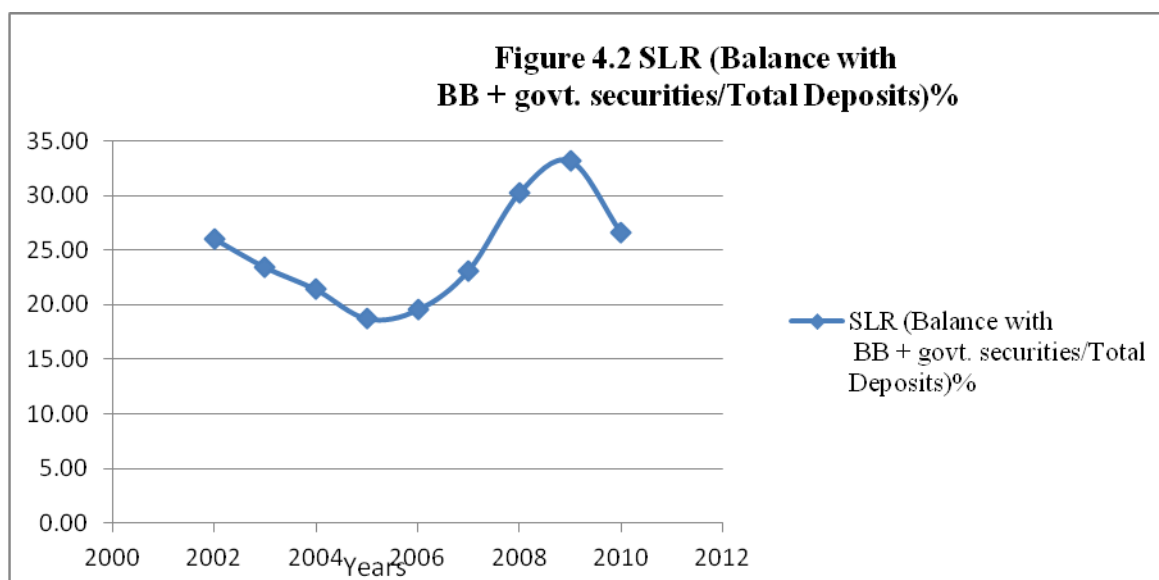
According to the requirement imposed by the Bangladesh Bank regarding the overall liquidity position of scheduled commercial banks are required to maintain liquid assets minimum a certain percentage of their total deposit (Demand and Term Deposits) with the central bank, which is known as SLR. Currently the minimum requirement is 19%. This minimum requirement of liquidity is changed by the central bank on the basis of macroeconomic condition. The Position of SLR of SCBs of the last nine years is shown in the following Table 4.2.

Years	Cash in tills +Balance with BB + govt. securities (Taka in Billion)	Total Deposits (Taka in Billion)	SLR (Balance with BB + govt. securities/Total Deposits)%
2002	132.50	509.12	26.03
2003	123.58	527.92	23.41
2004	122.27	571.67	21.39
2005	117.54	627.74	18.73
2006	129.49	663.11	19.53
2007	163.31	706.15	23.13
2008	234.33	775.34	30.22
2009	284.78	858.31	33.18
2010	273.50	1026.57	26.64

Source: BB (2010)

Table 4.2 SLR of SCBs

The above Table 4.2 shows that the SLR ratios of SCBs over the last 9 years are more than the required rate. SLR ranges from 21.39% to 33.18%, which indicates excess liquidity of SCBs. The following Figure 4.2 reflects the scenario.

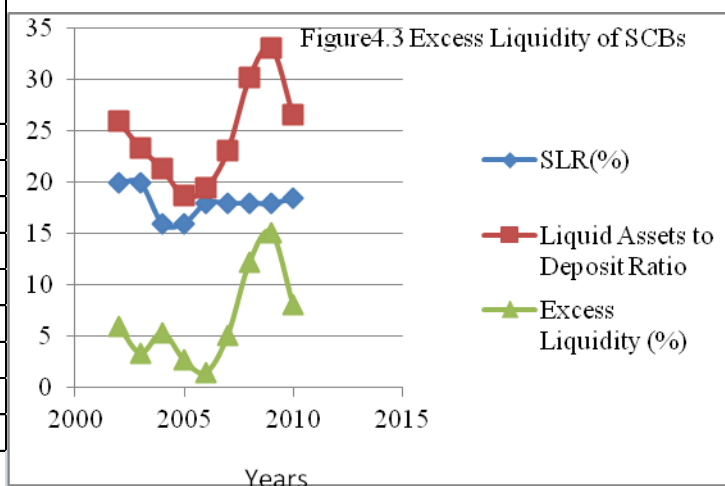


### 4.1.3 Excess Liquidity of SCBs

The following Table4.3 shows that state-owned banks are holding excess liquidity. The excess liquidity is the excess of liquidity ratio (Liquid assets to deposits) over the required minimum rate imposed by the Bangladesh Bank.

Years	Mandatory SLR(%)	Liquid Assets to Deposit Ratio(%)	Excess Liquidity (%)
2002	20	26.03	6.03
2003	20	23.41	3.41
2004	16	21.39	5.39
2005	16	18.73	2.73
2006	18	19.53	1.53
2007	18	23.13	5.13
2008	18	30.22	12.22
2009	18	33.18	15.18
2010	18.5	26.64	8.14

Table4.3: Excess Liquidity of SCBs



The Table4.3 and Figure4.3 indicate that in each of the last 9 years SCBs are holding excess liquidity which ranges 1.53% to 15.18%. In the year of 2009 SCBs held the highest excess liquidity reserve which was 15.18% and in 2006 it was the lowest. From the above Table4.3 and Figure4.3 it is clear that the rates of excess liquidity in the recent few years are much higher than those of the earlier.

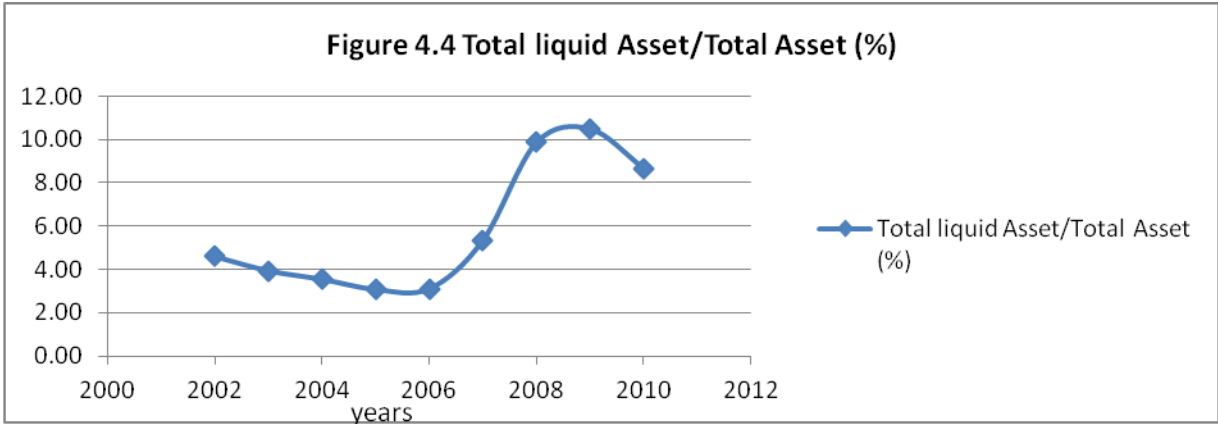
### 4.1.4 Liquid Assets to Total Assets Ratio of SCBs

This ratio indicates what portion of total asset has been invested in the risky and profitable sources. The more of this ratio implies the less profitable investment the bank has made. On the other hand, the use of this ratio indicates the higher riskiness of the bank. The Position of the SCBs in this regard over the years is shown in the following Table4.4.

Years	Total Liquid Asset (Figure in Billion)	Total Asset (Figure in Billion)	Total liquid Asset/ Total Asset (%)
2002	132.50	2882.49	4.60
2003	123.58	3140.68	3.93
2004	122.27	3450.91	3.54
2005	117.54	3826.88	3.07
2006	129.49	4173.15	3.10
2007	163.31	3059.18	5.34
2008	234.33	2374.60	9.87
2009	284.78	2714.69	10.49
2010	273.50	3152.77	8.67

Table4.4 Liquid Assets of SCBs

The total assets' position of SCBs was highest position in 2006. After 2006 it has been decreasing slowly. Interestingly it was lowest position in 2009. So, undoubtedly it can be said that SCBs are not expanding over the years in term of its' total asset.



The liquidity position of SCBs in relation to the total assets is shown graphically in Figure4.4. Up to the 2007 the liquidity position was very low but afterwards it increased sharply up to 4 to 5 percent. In 2009, it was highest (10.49%). So, it is clear that SCBs invested in the less profitable and less risky investment in the recent years. In other words it can be said that currently SCBs are not finding more profitable investment areas of the economy.

**4.2 Profitability of SCBs**

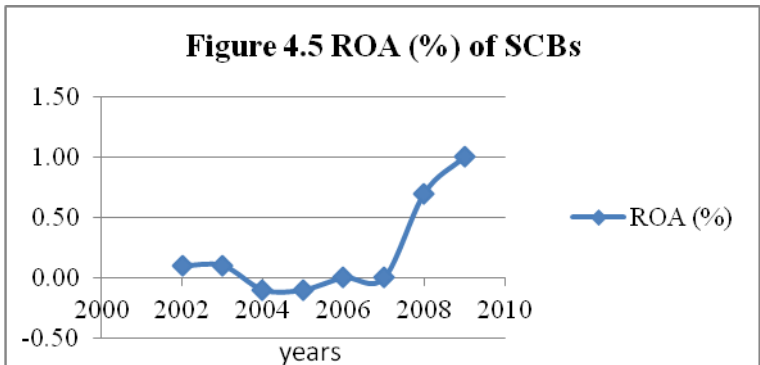
Return on Assets (ROA) and Return on Equity (ROE) have been used as indicators of measuring profitability as they not only show the accounting profitability but they also show the position in relation to the total assets and equity of the banks.

**4.2.1 ROA of SCBs**

ROA of SCBs over the years is shown in the following Table4.5 and Figure4.5.

Years	ROA (%)
2002	0.10
2003	0.10
2004	-0.10
2005	-0.10
2006	0.00
2007	0.00
2008	0.70
2009	1.00

**Table4.5 ROA of SCBs**



From the previous discussion it was observed that SCBs hold the maximum assets of the overall banking industry, but the above Table4.5 and Figure4.5 say that the profitability is very low for SCBs. In the year of 2002 and 2003 the net profit was only 10 taka out of 10,000

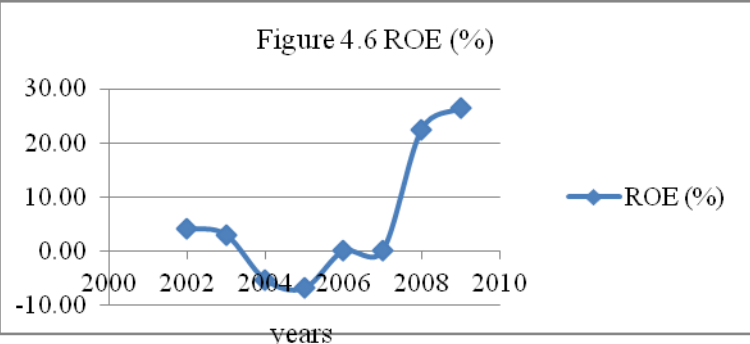
taka of their total assets, and in 2004 and 2005 it was 10 taka loss for the same amount for the same amount of total assets. In the year of 2006 and 2007 the net profit was nil. In the last two years that is in 2008 and 2009, ROA was quite significant.

4.2.2 ROE of SCBs

ROA of SCBs over the years is shown in the following Table4.6 and Figure4.6.

Years	ROE (%)
2002	4.20
2003	3.00
2004	-5.30
2005	-6.90
2006	0.00
2007	0.00
2008	22.50
2009	26.40

Table4.6 ROE of SCBs



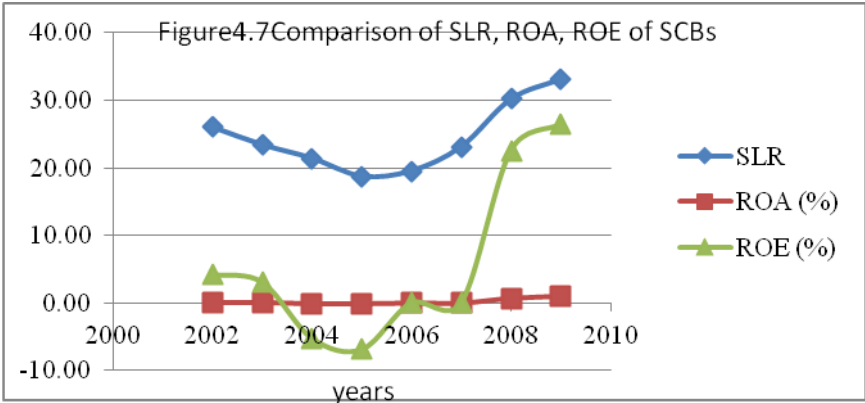
Like the ROA position, the ROE of SCBs presents the same poor profitability condition. From 2002 to 2007 the ROE was very insignificant. It is really interesting that in the year of 2008 and 2009, the ROE increased significantly.

4.3 Relationship of Liquidity with Profitability of SCBs

Statutory Liquidity Ratios (SLR) along with the Profitability Ratios (ROA & ROE) is being shown in the following Table4.7.

Years	SLR	ROA (%)	ROE (%)
2002	26.03	0.10	4.20
2003	23.41	0.10	3.00
2004	21.39	-0.10	-5.30
2005	18.73	-0.10	-6.90
2006	19.53	0.00	0.00
2007	23.13	0.00	0.00
2008	30.22	0.70	22.50
2009	33.18	1.00	26.40

Table4.7 Comparison of SLR, ROA, ROE of SCBs



There is negative relationship between liquidity and profitability of bank. From the above table it is shown that the relationship became positive. It means the profitability ratios don't reflect the expected relationship. On the contrary in the first 4 years ROA & ROE ratios were decreasing when liquidity ratio was also decreasing. Again on the contrary in the last 4 years ROA & ROE ratios were increasing when liquidity ratio was also increasing. So there is no



systematic relation between the liquidity positions with the profitability as the theory suggests.

In last 8 years the SLR ratios of SCBs were more than the required rates set by the Bangladesh Bank. Each of these years SCBs were maintaining excess liquidity. The profitability position of SCBs was very poor in these years, but in the latest couple of years this ratio is improving. The liquidity position and the profitability of SCBS show no systematic relation.

#### 4.4: Liquidity Study of PCBs

Like the SCBs Private commercial Banks have to maintain a certain percentage liquid assets of their total deposits (Time and Demand) with Bangladesh Bank.

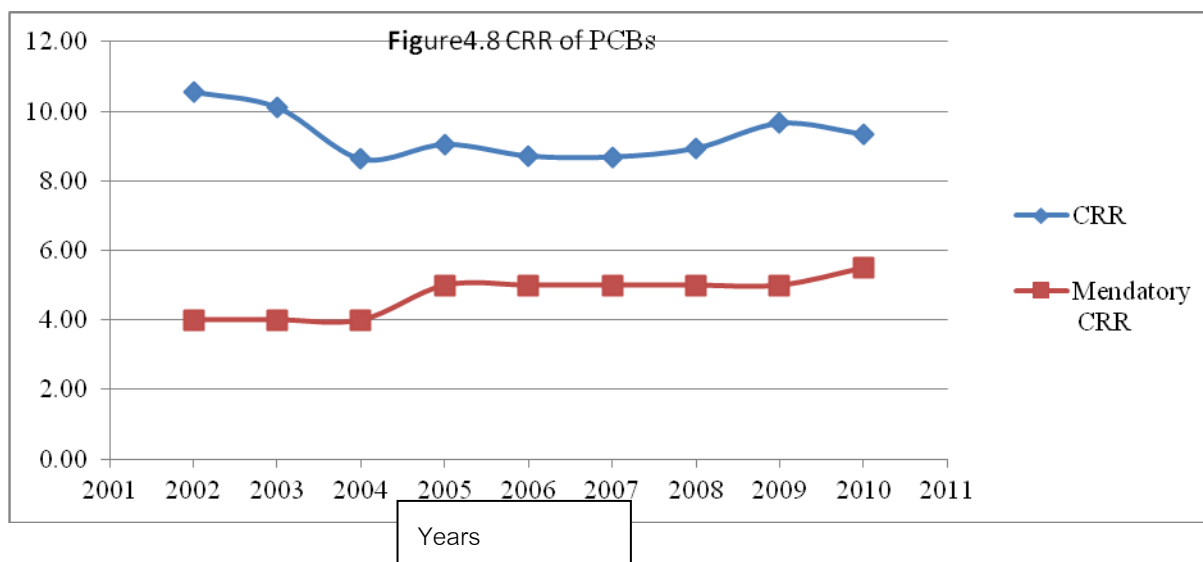
##### 4.4.1 Cash Reserve Requirement (CRR) of PCBs

Like the SCBs, Private Commercial Banks also have to maintain cash reserve of 6% of their total deposit (Demand and Term Deposits) with the central bank, which is known as CRR. The position of this compulsory reserve of the Private Commercial Banks is being shown in the following Table4.8 and Figure4.8.

Years	Cash in tills andBalance with Bangladesh Bank (Taka in Billion)	Total Deposits (Demand and Term) (Taka in Billion)	CRR	Mendatory Reserve set by Bangladesh Bank
2002	39.28	371.48	10.57	4.00
2003	46.99	464.40	10.12	4.00
2004	50.33	583.33	8.63	4.00
2005	65.15	719.83	9.05	5.00
2006	81.55	936.02	8.71	5.00
2007	97.29	1119.63	8.69	5.00
2008	126.53	1415.18	8.94	5.00
2009	174.40	1804.57	9.66	5.00
2010	209.75	2243.43	9.35	5.50

Table4.8 CRR of PCBs

Historically it is shown that PCBs have been maintaining cash reserve with the Bangladesh Bank more than the rates set by the Bangladesh Bank. The maximum reserve was in the year of 2002 and the lowest was 2004.



#### 4.4.2 Statutory Liquidity Reserve (SLR) of PCBs

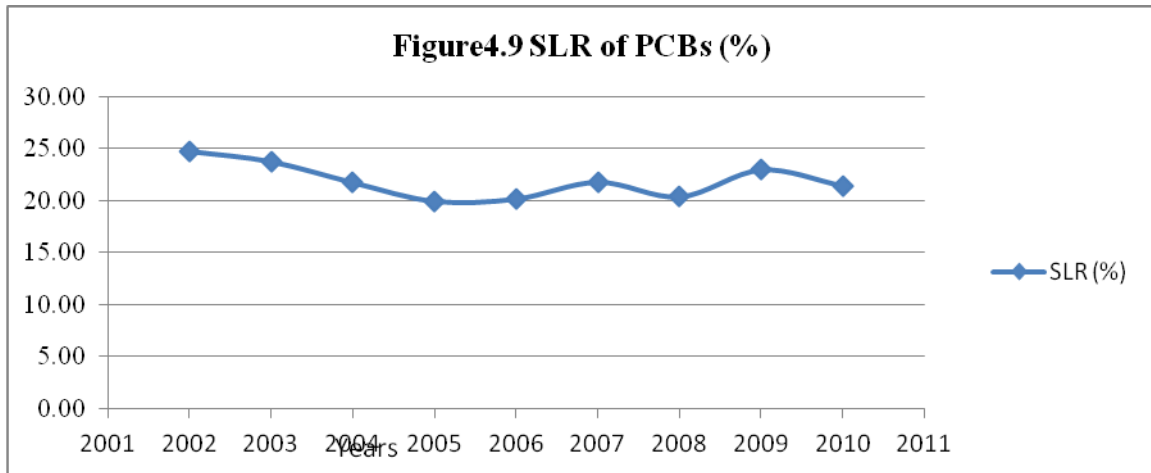
The Position of SLR of PCBs of the last nine years is shown in the following Table 4.9 and Figure 4.9:

Years	Cash in tills +Balance with BB + govt. securities Taka in Billion)	Total Deposits (Taka in Billion)	SLR (Balance with BB + govt. securities/Total Deposits)%
2002	92.09	371.48	24.79
2003	110.49	464.40	23.79
2004	126.95	583.33	21.76
2005	143.64	719.83	19.95
2006	188.88	936.02	20.18
2007	244.13	1119.63	21.80
2008	288.42	1415.18	20.38
2009	414.91	1804.57	22.99
2010	480.90	2243.43	21.44

Source: BB(2010)

Table 4.9 SLR of PCBs

The above statistics of the PCBs show that the SLR ratios over the last 9 years are more than the required rate. SLR ranges from 19.95% to 24.79%, which indicates excess liquidity of PCBs.

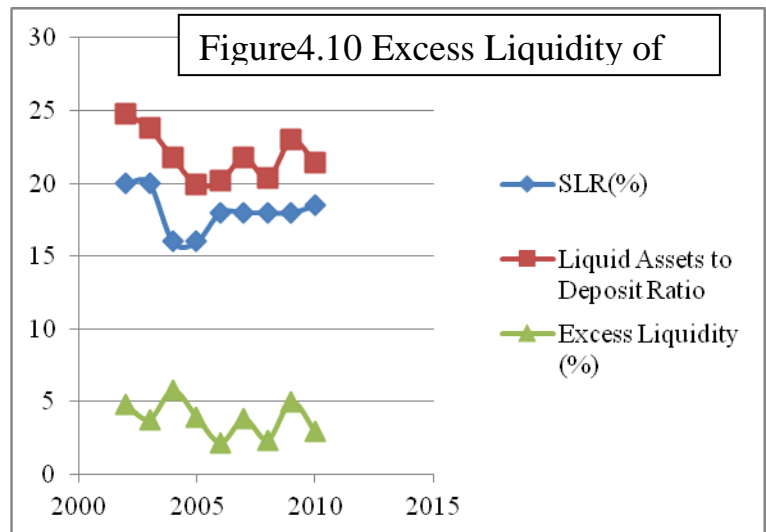


#### 4.4.3 Excess Liquidity of PCBs

The Table4.10 shows that private commercial banks are holding excess liquidity. The excess liquidity is the excess of liquidity ratio (Liquid assets to deposits) over the required minimum rate imposed by the Bangladesh Bank.

Years	Mandatory SLR (%)	Liquid Assets to Deposit Ratio	Excess Liquidity (%)
2002	20	24.79	4.79
2003	20	23.79	3.79
2004	16	21.76	5.76
2005	16	19.95	3.95
2006	18	20.18	2.18
2007	18	21.80	3.80
2008	18	20.38	2.38
2009	18	22.99	4.99
2010	18.5	21.44	2.94

Table4.10 Excess Liquidity of PCBs



The statistics indicate that in each of the last 9 years PCBs are holding excess liquidity which ranges 2.18% to 5.76%. In the year of 2004 PCBs held the highest excess liquidity and in 2006 it was the lowest. From the Table4.10 and Figure4.10 it is clear that the rates of excess liquidity are much lower than the SCBs.

4.4.4 Liquid Assets to Total Assets Ratio of PCBs

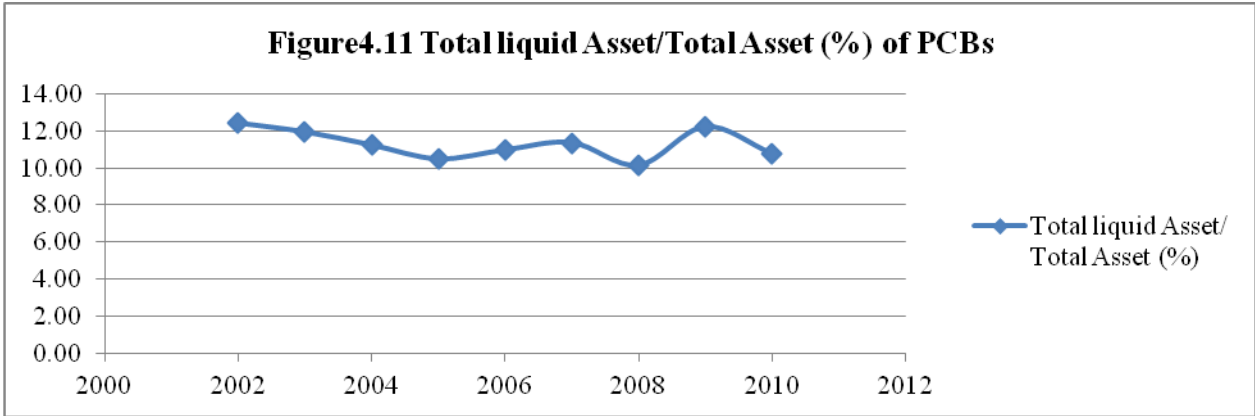
This ratio indicates what portion of total asset has been invested in the risky and profitable sources. The more of this ratio implies the less profitable investment the bank has made. On the other hand, the use of this ratio indicates the higher riskiness of the bank. The Position of the PCBs in this regard over the years is shown in the following Table4.11.

Years	Total Liquid Asset (Taka in Billion)	Total Asset (Taka in Billion)	Total liquid Asset/ Total Asset (%)
2002	92.09	742.13	12.41
2003	110.49	925.58	11.94
2004	126.95	1129.81	11.24
2005	143.64	1369.98	10.48
2006	188.88	1722.62	10.96
2007	244.13	2149.20	11.36
2008	288.42	2844.41	10.14
2009	414.91	3396.57	12.22
2010	480.90	4461.46	10.78

Source BB(2010)

Table4.11 Liquid Assets/Total Assets of PCBs

The total assets’ position of PCBs was highest position in 2010. After 2002 it has been increasing rapidly. So, undoubtedly it can be said that PCBs are expanding very fast over the years in term of its total asset.



The liquidity position of PCBs in relation to the total assets is shown graphically in the above Figure4.11. Though total asset of PCBs are increasing rapidly, but their percentage of their liquid asset relation with total assets are stable over the years.

## 4.5 Profitability of PCBs

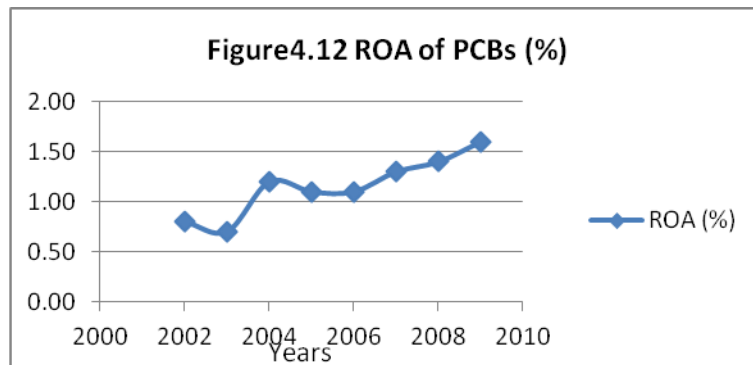
Like SCBs, Return on Assets (ROA) and Return on Equity (ROE) have been used as profitability indicators for PCBs.

### 4.5.1 ROA of PCBs

ROA of PCBs over the years is shown in the following Table4.12 and Figure4.12.

Years	ROA (%)
2002	0.80
2003	0.70
2004	1.20
2005	1.10
2006	1.10
2007	1.30
2008	1.40
2009	1.60
Source BB(2010)	

Table4.12 ROA of PCBs



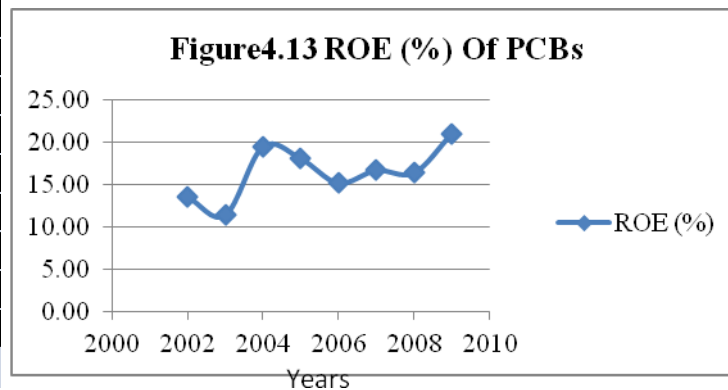
From the previous discussion it is seen that PCBs holding of assets of the overall banking industry is increasing over the years. Though the assets are increasing, PCBs became capable to keep the ROA stable over the years. ROA of PCBs over the years is very significant.

### 4.5.2 ROE of PCBs

ROE of PCBs over the years is shown in the following Table4.13 and Figure4.13.

Years	ROE (%)
2002	13.60
2003	11.40
2004	19.50
2005	18.10
2006	15.20
2007	16.70
2008	16.40
2009	21.00
Source BB (2010)	

Table4.13 ROE of PCBs



Like the ROA position, the ROE of PCBs presents better profitability condition. Over the last eight years ROE of PCBs was very significant. In 2003, it was lowest 11.40% and in 2009, it was highest 21.00%.

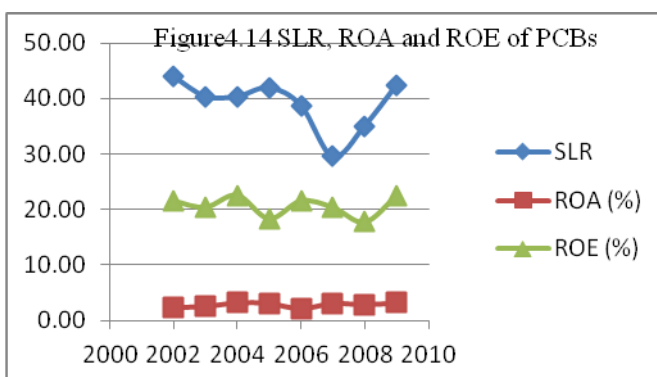
#### 4.6 Relationship of Liquidity with Profitability of PCBs

Statutory Liquidity Ratios (SLR) along with the Profitability Ratios (ROA & ROE) of PCBs is being shown in the following Table 4.14.

Years	SLR	ROA (%)	ROE (%)
2002	43.96	2.40	21.50
2003	40.40	2.60	20.40
2004	40.36	3.20	22.50
2005	41.96	3.10	18.40
2006	38.76	2.20	21.50
2007	29.56	3.10	20.40
2008	35.06	2.90	17.80
2009	42.42	3.18	22.38

Source BB(2010)

Table4.14 Comparison of SLR, ROA and ROE of PCBs



PCBs' liquidity ratio is rolling 21% to 25% but ROA and ROE are increasing significantly over the years. Like the SCBs, in last 9 years the SLR ratios of PCBs were more than the required rates set by the Bangladesh Bank. Each of these years PCBs were maintaining excess liquidity. The profitability position of PCBs was very strong in these years. Like the SCBs the liquidity position and the profitability of PCBs show no systematic relation.

#### 4.7: Liquidity Study of FCBs

##### 4.7.1: Cash Reserve Requirement (CRR) of FCBs

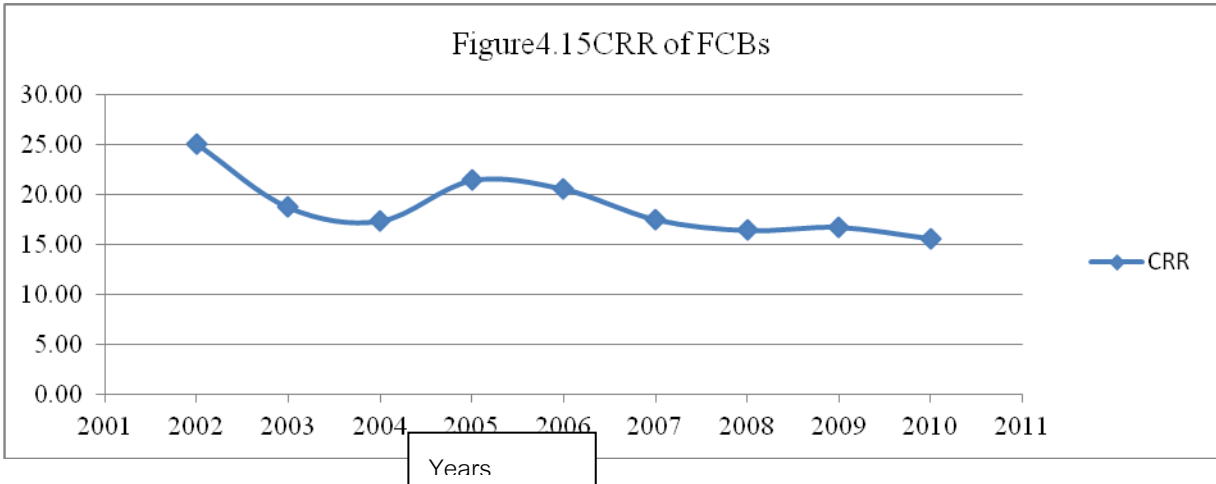
The position of this compulsory reserve of the foreign commercial banks is being shown in the following Table 4.15 and Figure 4.15.

Year	Cash in tills and Balance with Bangladesh Bank (Taka in Billion)	Total Deposits (Demand and Term) (Taka in Billion)	CRR	Mandatory Reserve set by Bangladesh Bank
2002	16.405	65.4456	25.07	4.00
2003	14.7819	78.9456	18.72	4.00
2004	15.1282	87.1341	17.36	4.00
2005	23.3562	109.0859	21.41	5.00
2006	26.2454	127.7255	20.55	5.00
2007	30.264	172.7857	17.52	5.00
2008	32.8396	199.8548	16.43	5.00
2009	36.7022	219.1493	16.75	5.00
2010	36.0646	230.9985	15.61	5.50

Source BB(2010)

Table4.15 CRR of FCBs

Historically it is shown that FCBs have been maintaining cash reserve with the Bangladesh Bank more than the rates set by the Bangladesh Bank. The maximum reserve was in the fiscal year of 2002 and the lowest was 2010.



#### 4.7.2 Statutory Liquidity Reserve (SLR) of FCBs

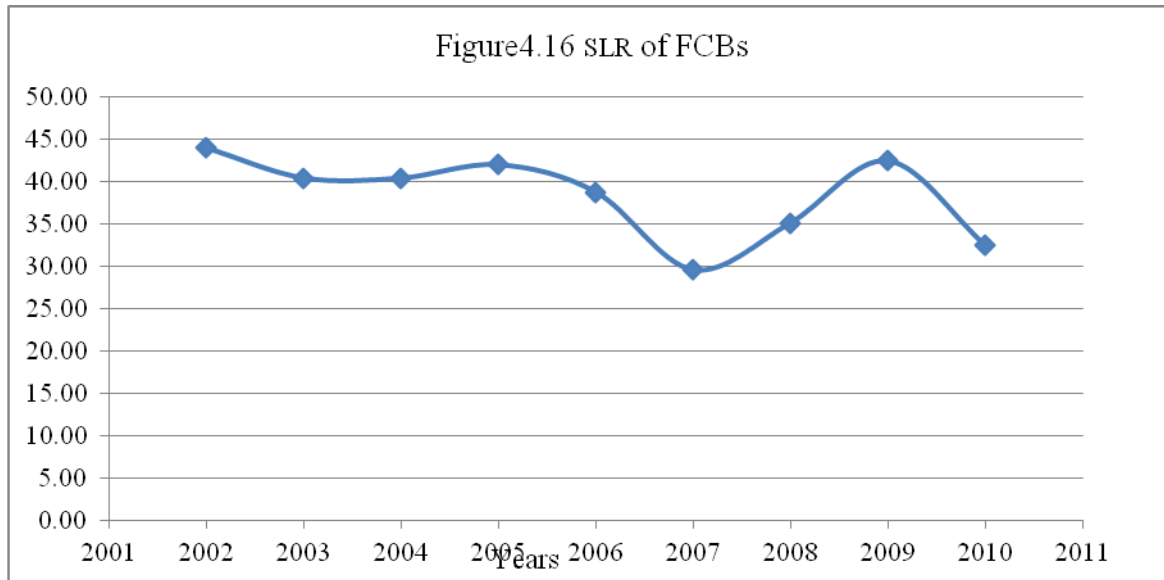
The Position of SLR of FCBs of the last nine years is shown in the following Table 4.16 and Figure 4.16:

Years	Cash in tills +Balance with BB + govt. securities (Taka in Billion)	Total Deposits (Taka in Billion)	SLR (Balance with BB + govt. securities/Total Deposits)%
2002	28.77	65.45	43.96
2003	31.89	78.95	40.40
2004	35.17	87.13	40.36
2005	45.77	109.09	41.96
2006	49.50	127.73	38.76
2007	51.07	172.79	29.56
2008	70.07	199.85	35.06
2009	92.95	219.15	42.42
2010	75.03	231.00	32.48

Source: BB(2010)

Table 4.16 SLR of FCBs

The above statistics of the PCBs show that the SLR ratios over the last 9 years are more than the required rate. SLR ranges from 29.56% to 43.96%, which indicates excess liquidity of PCBs.



#### 4.7.3 Excess Liquidity of FCBs

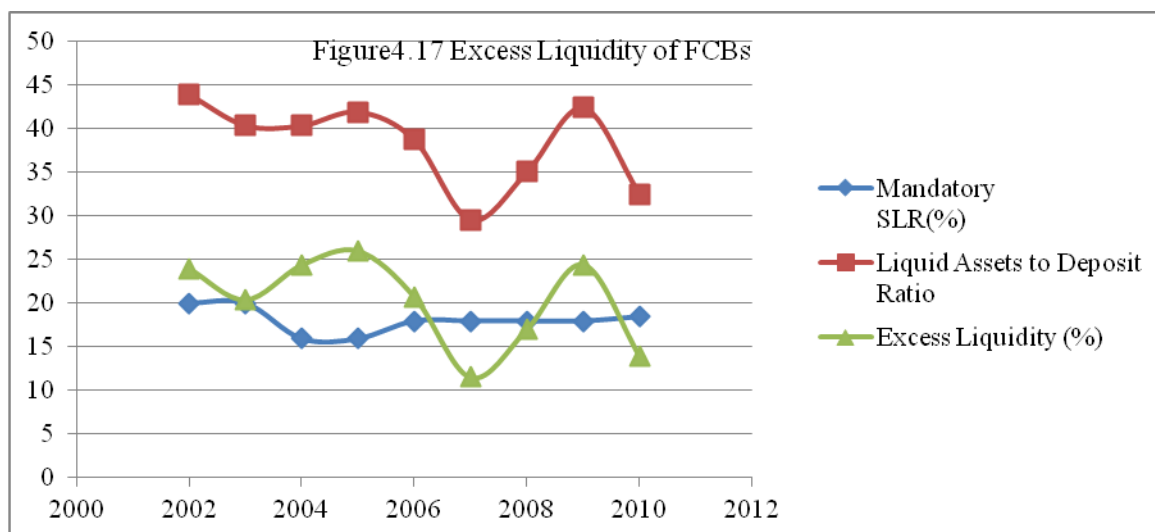
The following Table4.17 shows that foreign banks are holding excess liquidity. The excess liquidity is the excess of liquidity ratio (Liquid assets to deposits) over the required minimum rate imposed by the Bangladesh Bank.

Years	Mandatory SLR(%)	Liquid Assets to Deposit Ratio	Excess Liquidity (%)
2002	20	43.96	23.96
2003	20	40.40	20.40
2004	16	40.36	24.36
2005	16	41.96	25.96
2006	18	38.76	20.76
2007	18	29.56	11.56
2008	18	35.06	17.06
2009	18	42.42	24.42
2010	18.5	32.48	13.98

Table4.17 Excess Liquidity of FCBs

The statistics indicate that in each of the last 9 years FCBs are holding excess liquidity which ranges 11.56% to 24.42%. In the year of 2009 FCBs held the highest excess liquidity reserve and in 2006 it was the lowest. From the above statistics it is clear that the rates of excess liquidity in the recent few years are much higher than those of the earlier. The fact is clear in following Figure4.17





#### 4.7.4 Liquid Assets to Total Assets Ratio of FCBs

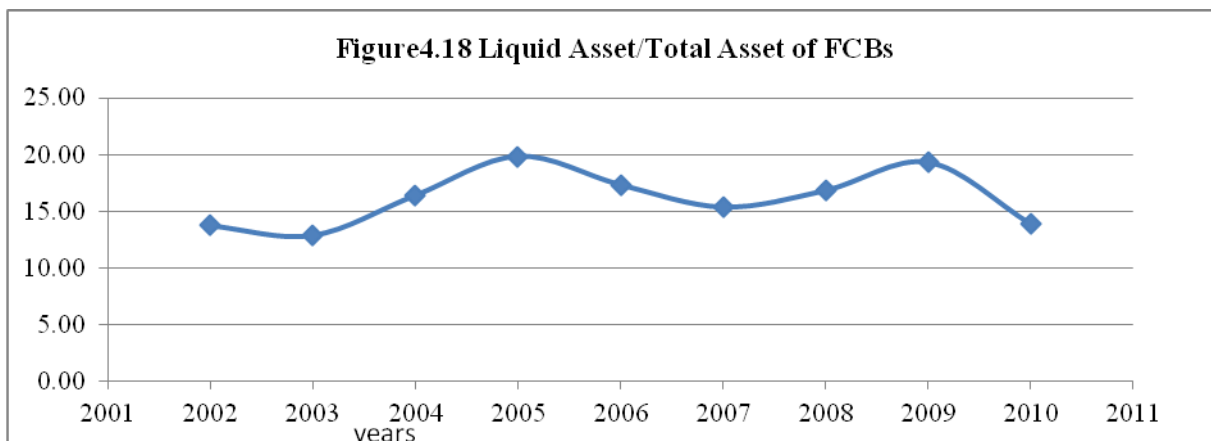
This ratio indicates what portion of total asset has been invested in the risky and profitable sources. The more of this ratio implies the less profitable investment the bank has made. On the other hand, the use of this ratio indicates the higher riskiness of the bank. The Position of the FCBs in this regard over the years is shown in the following Table 4.18.

Years	Total Liquid Asset (Taka in Billion)	Total Asset (Taka in Billion)	Total liquid Asset/ Total Asset (%)
2002	28.77	209.29	13.75
2003	31.89	247.38	12.89
2004	35.17	214.43	16.40
2005	45.77	230.74	19.84
2006	49.50	285.52	17.34
2007	51.07	332.09	15.38
2008	70.07	416.26	16.83
2009	92.95	481.74	19.30
2010	75.03	540.67	13.88

Source: BB(2010)

Table 4.18 Liquid Asset/Total Asset of FCBs

The total assets' position of FCBs was highest position in 2006. After 2005 it has been decreasing slowly. Interestingly it was lowest position in 2003. So, undoubtedly it can be said that FCBs are maintaining more assets over the years. Following Figure 4.8 can show the trend Liquid Asset/Total Asset of FCBs



The liquidity position of FCBs in relation to the total assets is shown graphically in the above Figure4.18. Over the years liquidity position was more than 12.89%. It means that FCBs are not investing in profitable and risky areas of the economy.

#### 4.8 Profitability of FCBs

Like SCBs and PCBs Return on Assets (ROA) and Return on Equity (ROE) have been used for FCBs as indicators of profitability.

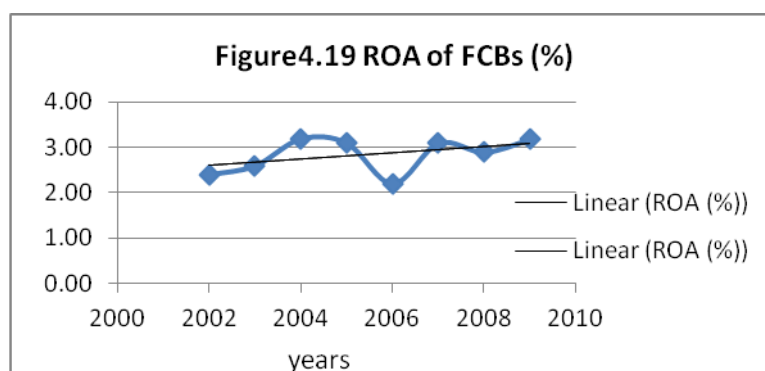
##### 4.8.1 ROA of FCBs

ROA of FCBs over the years is shown in the following Table4.19 and Figure4.19.

Years	ROA (%)
2002	2.40
2003	2.60
2004	3.20
2005	3.10
2006	2.20
2007	3.10
2008	2.90
2009	3.18

Source:BB(2010)

Table4.19 ROA of FCBs



From the previous discussion it is seen that FCBs hold the minimum assets of the overall banking industry, but the above scenario ROA say that the profitability is very high and insignificant. In the previous 9 years ROA of FCBs was very high comparing with the SCBs and PCBs.

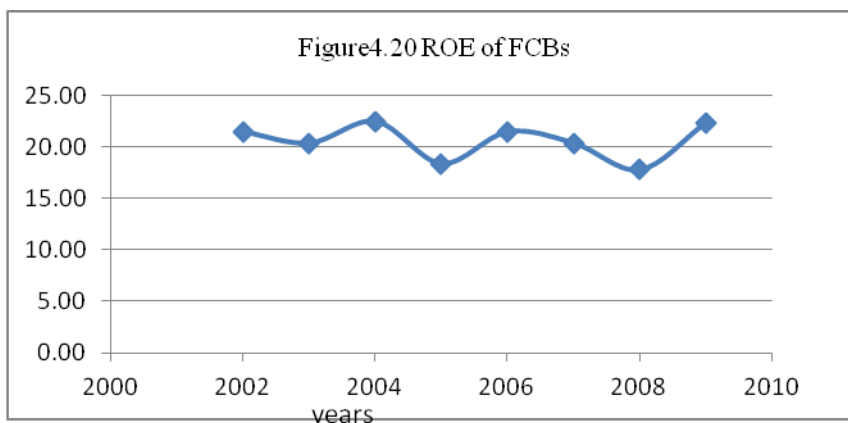
##### 4.8.2 ROE of FCBs

ROA of FCBs over the years is shown in the following Table4.20 and Figure4.20.

Years	ROE (%)
2002	21.50
2003	20.40
2004	22.50
2005	18.40
2006	21.50
2007	20.40
2008	17.80
2009	22.38

Source :BB(2010)

Table4.20 ROE of FCBs



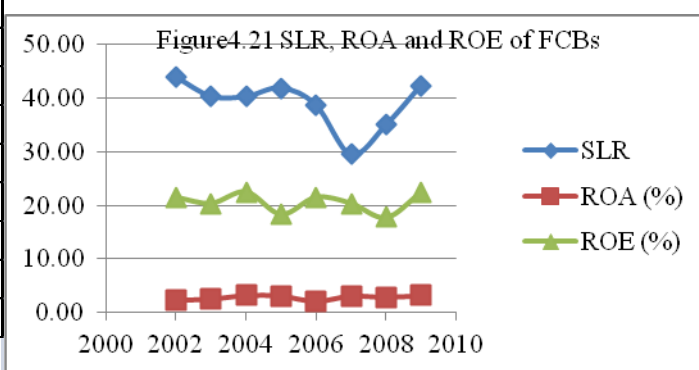
Like the ROA position, the ROE of FCBs presents the same profitability condition. Over the years ROE was very insignificant. It is really significant that FCBs are maintaining very good ROE over the years.

#### 4.9 Relationship of Liquidity with Profitability of FCBs

Statutory Liquidity Ratios (SLR) along with the Profitability Ratios (ROA & ROE) are being shown in the following Table4.21 and Figure4.21

Years	SLR	ROA (%)	ROE (%)
2002	43.96	2.40	21.50
2003	40.40	2.60	20.40
2004	40.36	3.20	22.50
2005	41.96	3.10	18.40
2006	38.76	2.20	21.50
2007	29.56	3.10	20.40
2008	35.06	2.90	17.80
2009	42.42	3.18	22.38

Table4.21 SLR,ROA and ROE of FCBs



In last 9 years the SLR ratios of FCBs were more than the required rates set by the Bangladesh Bank. Each of these years FCBs were maintaining excess liquidity. The profitability position of FCBs was very good in these years.

## CHAPTER 5 COMPARATIVE STUDY OF LIQUIDITY AND PROFITABILITY

### 5.1 Liquidity and Excess Liquidity

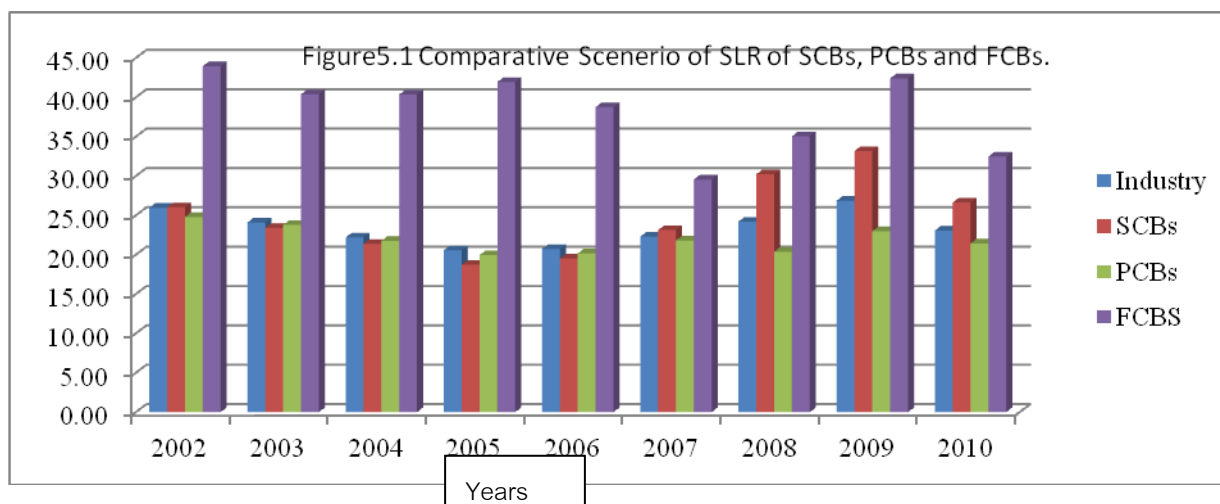
#### 5.1.1 Liquidity Position

In chapter four the liquidity position of SCBs, PCBs and FCBs were shown separately. Comparison of these individual scenarios with each other as well as with the overall industry will provide a clear idea of liquidity position of various types of banks. The liquidity positions (Balance with BB + govt. securities/Total Deposits) of the overall industry, SCBs, PCBs and FCBs are shown in the following Table5.1.

Years	Industry	SCBs	PCBs	FCBs
2002	25.96	26.03	24.79	43.96
2003	24.10	23.41	23.79	40.40
2004	22.19	21.39	21.76	40.36
2005	20.57	18.73	19.95	41.96
2006	20.72	19.53	20.18	38.76
2007	22.31	23.13	21.80	29.56
2008	24.21	30.22	20.38	35.06
2009	26.87	33.18	22.99	42.42
2010	23.07	26.64	21.44	32.48

Table5.1 Comparative Scenario of SLR of various types of banks

Foreign Commercial Banks are in the highest position in term of liquidity measured by the Liquidity Ratios. On the other hand SCBs and PCBs are more or less in the same position as industry average position lies. So, FCBs are much more liquid than the SCBs and also than the industry average.



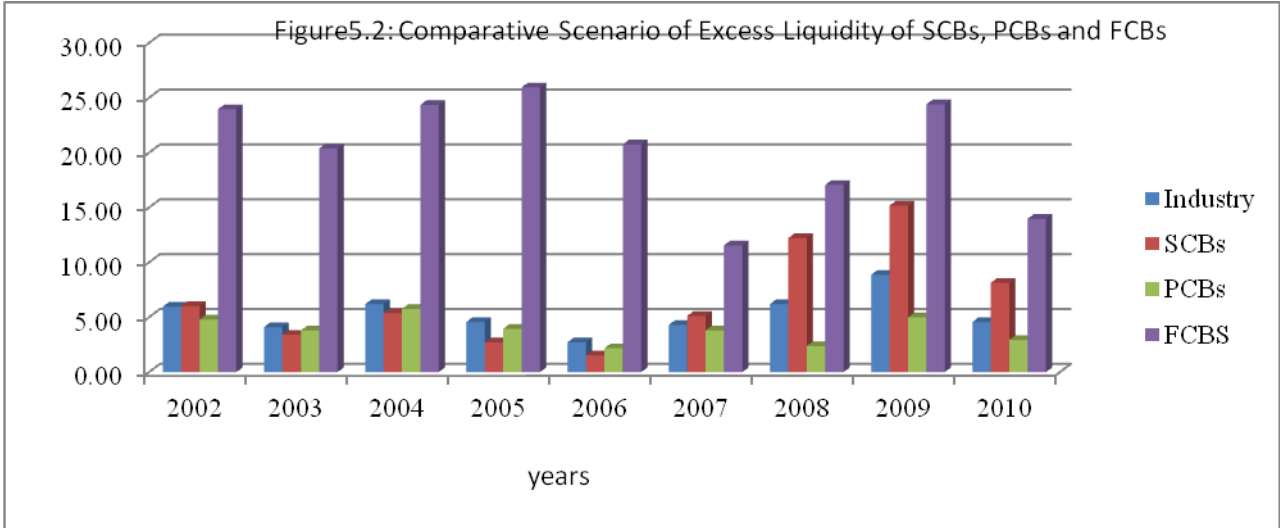
5.1.2 Excess Liquidity Position

Excess Liquidity is the excess of Statutory Liquidity Reserve (SLR) over the required rate as set by Bangladesh Bank. The statistics of the excess liquidity position of the industry and the different banks are shown in the following Table5.2:

Years	Industry	SCBs	PCBs	FCBs
2002	5.96	6.03	4.79	23.96
2003	4.10	3.41	3.79	20.40
2004	6.19	5.39	5.76	24.36
2005	4.57	2.73	3.95	25.96
2006	2.72	1.53	2.18	20.76
2007	4.31	5.13	3.80	11.56
2008	6.21	12.22	2.38	17.06
2009	8.87	15.18	4.99	24.42
2010	4.57	8.14	2.94	13.98

Table5.2 Comparative Scenario of Excess Liquidity

From the above data it is shown that the excess liquidity in the overall banking industry ranges from 2.72% to 8.87%. In case of SCBs this range is 1.53% to 15.18%, 2.18% to 4.99% for PCBs and 11.56% to 25.96%.The statistics shows that FCBs have been holding the most excess liquidity and SCBs have been holding the least excess liquidity. The scenario is clear in the following Figure5.2.



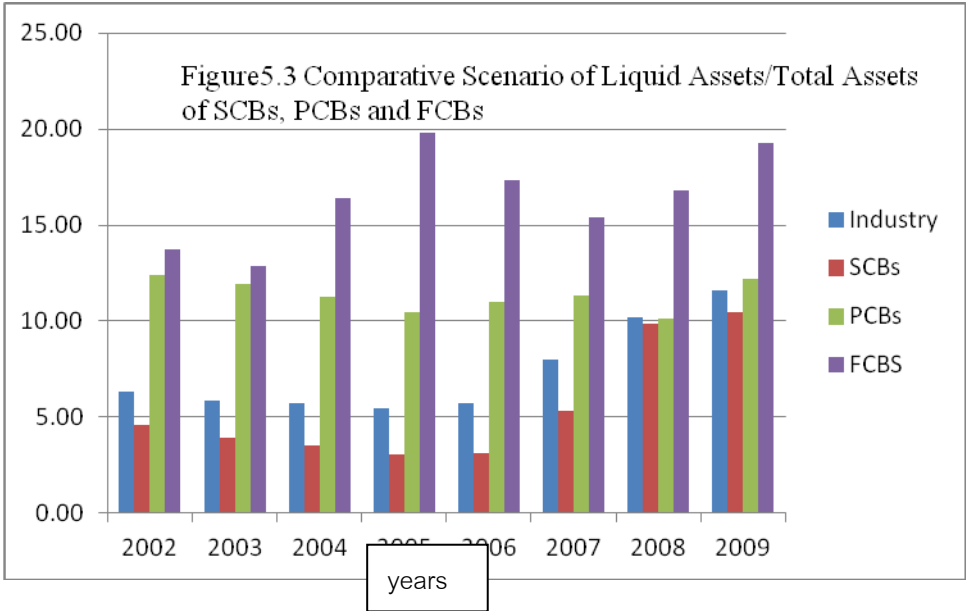
5.1.3 Liquid Assets/Total Assets position

Position of Liquid Assets/Total Assets position of the SCBs, PCBs and FCBS comparing with the banking industry is shown in the following Table5.3.

Years	Industry	SCBs	PCBs	FCBS
2002	6.32	4.60	12.41	13.75
2003	5.89	3.93	11.94	12.89
2004	5.69	3.54	11.24	16.40
2005	5.47	3.07	10.48	19.84
2006	5.73	3.10	10.96	17.34
2007	7.96	5.34	11.36	15.38
2008	10.18	9.87	10.14	16.83
2009	11.61	10.49	12.22	19.30

Table5.3 Comparative Scenario of Liquid Assets/Total Assets

Here it is observed that a liquid asset has become very significant in the year of 2008 and 2009. PCBs and FCBS kept more liquid assets than SCBs. The scenario is clear in the following Figure5.3.



## 5.2 Profitability

Like the previous chapters the ROA and ROE ratios have been used as the indicators of profitability for determining the comparative scenario of different types of banks comparing with the industry.

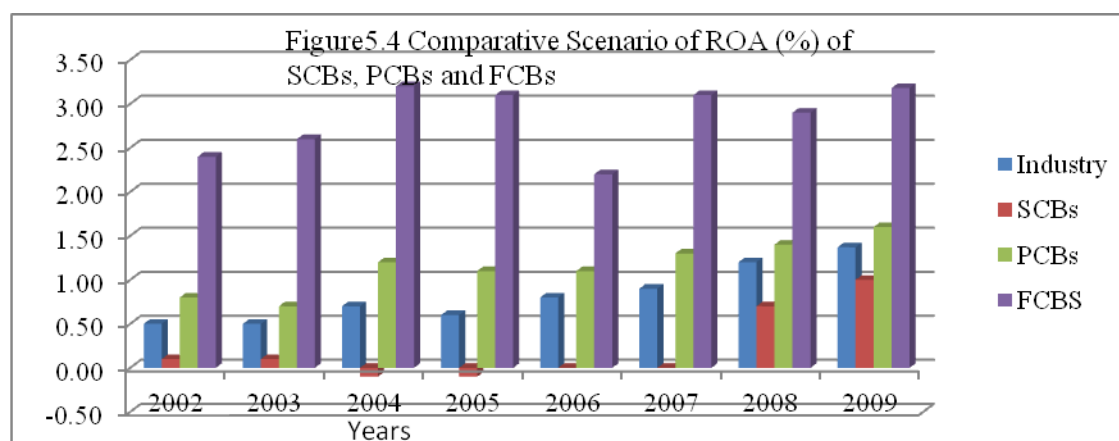
### 5.2.1 ROA

The ROA position of overall industry, SCBs, PCBs and FCBs is shown in the following table:

Years	Industry	SCBs	PCBs	FCBs
2002	0.50	0.10	0.80	2.40
2003	0.50	0.10	0.70	2.60
2004	0.70	-0.10	1.20	3.20
2005	0.60	-0.10	1.10	3.10
2006	0.80	0.00	1.10	2.20
2007	0.90	0.00	1.30	3.10
2008	1.20	0.70	1.40	2.90
2009	1.37	1.00	1.60	3.18

Table5.4 Comparative Scenario of ROA

The ROA position PCBs and FCBs is more than the position of industry average and much more than the SCBs. The SCBs' ratios are much lower than the industry average. On the other hand PCBs and FCBs are in better position than the position of industry average. This comparative position is clearly evidenced in the following graphical presentation in Figure5.4.



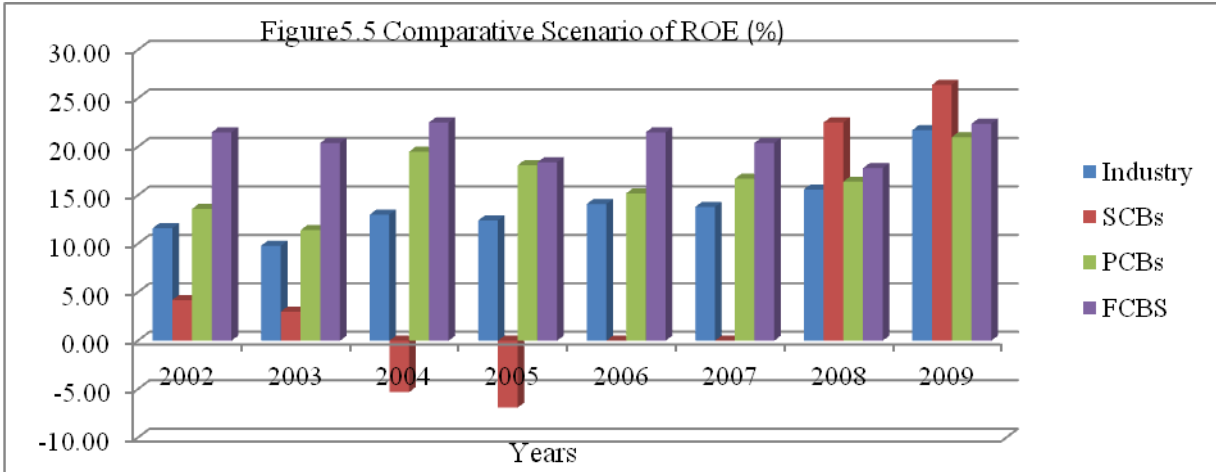
5.2.2 ROE

The same scenario, as was shown in the ROA, is reflected by the ROE position of different types of banks also. The following Table5.5 clarifies the scenario:

Years	Industry	SCBs	PCBs	FCBs
2002	11.60	4.20	13.60	21.50
2003	9.80	3.00	11.40	20.40
2004	13.00	-5.30	19.50	22.50
2005	12.40	-6.90	18.10	18.40
2006	14.10	0.00	15.20	21.50
2007	13.80	0.00	16.70	20.40
2008	15.60	22.50	16.40	17.80
2009	21.72	26.40	21.00	22.38

Table5.5 Comparative Scenario of ROE

Like the ROA position, the ROE position of SCBs is much less than the position of the PCBs and FCBs. These ratios for SCBs are much lower than the industry ratios and even negating in the year of 2004 and 2005. On the other hand both the PCBs and FCBs are better position than the position of industry average. The following Figure5.5 reflects the graphical presentation of this scenario.





### 5.3 Reasons for the Higher Liquidity in Banking Industry

In the analysis section it has been observed that banking industry of Bangladesh has enjoyed higher liquidity in the years of 2002-2010. The main reasons for this higher liquidity are as follows.

#### 5.3.1 More investment in government securities

Bangladesh Bank changed the SLR time to time which made banks bound to increase the holding of government securities. On the other hand devolvement on Primary Dealers (Banks and non bank financial institution that are authorized to underwrite the government securities) has increased a lot. That is why investment in government securities by the banks has increased over the years compare to their deposits. Table5.6 clarifies the fact.

Years	2004	2005	2006	2007	2008	2009	2010
Govt. Securities/ Total Deposits (%)	13.57	13.14	9.99	11.32	16.37	17.46	17.26
Source BB(2010)							
Table5.6 Investment in government securities by banks							

#### 5.3.2 Lower scope of secondary trading of government securities

Though PDs (Primary Dealers) are holding more government securities than their mandatory requirement, they cannot sell them in the secondary market. As a result in spite of having government securities PDs maintain more liquid assets as cash for meeting up the depositors demand.

#### 5.3.3 Non-competitive nature of the banking system

The banking sector of Bangladesh is not so competitive and the structure permits the banks to have power to set mark-up lending rates. Always the bank set their lending and deposit rate by themselves. As a result banks especially the PCBs and FCBs are earning better and they do not like to face liquidity crisis and maintaining more liquidity.

#### 5.4 Reasons for the difference in profitability of different types of banks.

In theoretical discussion it was discussed that more liquidity shows less profitability. But interestingly it is seen that though PCBs and FCBs maintaining the more liquidity, they are more profitable. Reasons behind this reverse relationship are:

##### 5.4.1 Interest rate-wise differences of deposits and loans and advances of different types of banks.

In absolute figure SCBs are playing the most vital role in deposit collection, loan disbursement or the total assets in the overall banking industry. So, their percentage position of the total deposit and loans and advances collection is significant. But in interest margin SCBs are far behind from the PCBs and FCBs.

As on 31 Dec 2010				
Interest rate (%)	Industry	SCBs	PCBs	FCBs
On deposit	6.07	5.01	6.80	3.01
On Loans and Advances	11.19	9.18	12.02	11.84
Interest Margin	5.12	4.17	5.22	8.83
Source: BB(2010)				

Table5.7 Interest Rate of Deposits and Loans and Advances

The above Table5.7 interest margin for FCBs is very high (8.83%) comparing with the position of industry, SCBs and PCBs. So, this high margin of interest rate of FCBs is playing important role for higher profit in spite of high liquidity.

#### 5.4.2 Lower classified loan.

Classified loan volume both in absolute figure and in proportional to the total assets of SCBs is much more than that of PCBs and FCBs which is evidenced by the following Table5.7. As non-performing loan amount is considered as assets up to a certain period, that increases the total assets volume but it doesn't contribute to earnings of the SCBs, this type of asset is contributing to reduce the profitability of SCBs.

Years	Industry	SCBs	PCBs	FCBs
2004	17.60	25.30	8.50	1.50
2005	13.60	21.40	5.60	1.30
2006	13.20	22.90	5.50	0.80
2007	13.20	29.90	5.00	1.40
2008	10.80	25.40	4.40	1.90
2009	9.20	21.40	3.90	2.30
Source : BB(2010)				
Table5.8 Classified Loan of Different Types of Banks				

Above Table5.8 shows that SCBs' classified loan is very high comparing with the PCBs and FCBs.

#### 5.4.3 Non- interest earnings

The major sources of non-interest earnings of banks are the contingent assets (like letter of credits, credit cards etc), and these types of assets (contingent) requires higher liquidity. That's why FCBs are in practice of holding higher liquidity than the SCBs and PCBs. On the other hand these types of assets are not shown in the balance sheet, as these are considered as off-balance sheet items. So, these types of assets are contributing the earnings of FCBs without increasing the total assets volume, which is also increasing profitability (ROA and ROE) in a greater degree.

## 5.5 Correlation Coefficients of Liquidity and Profitability

### 5.5.1 Correlation Coefficients of liquidity and profitability of SCBs during 2002-2009

	CRR	SLR	LIQUID ASSETS /TOTAL ASSETS
ROA	0.45	0.94	0.96
ROE	0.48	0.96	0.96

Table5.9 Correlation Coefficient of Liquidity and Profitability of SCBs

In the Table5.9, all of the correlation coefficients are positive. It should be negative because liquid assets normally hamper the profitability because of their lower returns. For SCBs, it happened because their non interest income has been increased over the last few years (2005-2008) but interest income decreased significantly which is clear in following Table5.10

Years	Liquid Asset/ Total Assets (%)	Interest income/ Total Assets(%)	Non interest income/ TotalAssets (%)
2005	5.94	5.59	1.41
2006	6.10	5.19	2.02
2007	6.32	4.26	2.37
2008	5.94	3.84	2.90

Source :BB(2009)

Table 5.10 Interest and Non Interest income of SCBs

The correlation coefficients between Liquid Assets to Total Assets ratio and Interest Income to Total Assets ratio is negative (-0.23). It means liquid assets have impact on interest earning.

### 5.5.2 Correlation Coefficients of liquidity and profitability of PCBs during 2002-2009

	CRR	SLR	LIQUID ASSETS /TOTAL ASSETS
ROA	-0.54	-0.43	-0.29
ROE	-0.50	-0.37	-0.19

Table5.11 Correlation Coefficient of Liquidity and Profitability of PCBs

In the Table5.11, all of the correlation coefficients are negative. It means that more liquidity decreases the profitability of PCBs. For PCBs, interest and non interest income are as follows (Table 5.12)

Years	Liquid Asset/ Total Assets (%)	Interest income/ Total Assets(%)	Non interest income/ TotalAssets (%)
2005	9.05	7.81	2.07
2006	8.71	8.17	2.77
2007	8.69	8.34	3.07
2008	8.94	8.74	3.07

Source BB(2009)

Table 5.12 Interest and non interest income of PCBs

The correlation coefficients between Liquid Assets to Total Assets ratio and Interest Income to Total Assets ratio for the PCBs is also negative (-0.23)

### 5.5.2 Correlation Coefficients of liquidity and profitability of FCBs during 2002-2009

	CRR	SLR	LIQUID ASSETS /TOTAL ASSETS
ROA	-0.61	-0.21	0.46
ROE	0.05	0.33	-0.14

**Table 5.13 Correlation Coefficient of Liquidity and Profitability of FCBs**

In the Table 5.13, correlation coefficients of CRR, SLR and with the ROA are negative but liquid assets to total assets ratio with ROA is positive. On the other hand correlation coefficients of CRR, SLR and with the ROA are positive but liquid assets to total assets ratio with ROE is positive. But as like as SCBs and PCBs the correlation coefficients between Liquid Assets to Total Assets ratio and Interest Income to Total Assets ratio for the FCBs is also negative (-0.65) which is clear from the following Table 5.14

Years	Liquid Asset/ Total Assets (%)	Interest income/ Total Assets(%)	Non interest income/ Total Assets (%)
2005	21.41	7.37	3.23
2006	20.55	4.84	2.35
2007	17.52	7.63	3.80
2008	16.43	8.53	3.62

Source BB(2009)

**Table 5.14 Interest and non interest income of FCBs**

So, correlation coefficients between Liquid Assets to Total Assets ratio and Interest Income to Total Assets ratio for the SCBs, PCBs and FCBs have become negative which indicates that more liquid assets hampered the interest earnings of the banks.

## **CHAPTER 6 CONCLUSION**

In this work it has been focused to find out the liquidity and profitability study of different banking sectors of Bangladesh. In observation it is seen that the overall banking industry of Bangladesh is much liquid in the years of 2002 to 2009. On average, all the banks (SCBs, PCBs and FCBs) are maintaining more liquidity reserve than the central bank's requirement. FCBs are maintaining more liquidity than SCBs and PCBs. Reasons behind this higher liquidity by banking industry are i) More investment in government securities by banks ii) Lower scope of secondary trading of government securities iii) Non-competitive nature of the banking system.

In term of profitability SCBs are in the poorest condition. After maintaining the more liquidity, the FCBs are also more profitable than the SCBs. PCBs' position is moderate in liquidity and profitability. FCBs are profitable than PCBs and SCBs due to the facts that i) their weighted average net interest spread is more than that of other types of banks ii) their non-performing assets are much less than others iii) their non interest income is higher than SCBs and PCBs.

The correlation between Liquid Asset to Total Assets ratio and ROA for the various types of banks did not show the same relationship. It is positive for SCBs and FCBs, negative for PCBs. These differences occurred due to non interest income. Non-interest income over the last few years (2005 to 2008) increased a lot and this helped to boost up the profitability for SCBs. When correlation coefficients between Liquid Assets to Total Assets ratio and Interest Income to Total Assets ratio have been calculated, the result showed negative relationship for all types of banks.

The scope of the study was confined to only a limited area. Further study should be conducted on the sensitivity of banks' liquidity on profitability. Considering all factors that influence liquidity, an effort should be made to construct a model that will enable to determine or give an indication of the optimal liquidity position for the banking system.

## REFERENCES

1. Bangladesh Bank. (various years).: Annual Report. Bangladesh Bank.  
\_\_\_\_\_. (various years). Economic Trends. Bangladesh Bank.  
\_\_\_\_\_. (various years). Scheduled Bank Statistics. Bangladesh Bank.
2. Bordeleau, E. and Graham, C. (2010):” The Impact of Liquidity on Bank Profitability”  
Bank of Canada Working Paper 2010-11.
3. BCBS (2010): “Basel III: International framework for liquidity risk measurement,  
standards and monitoring”, Bank for International Settlements. December 2010.
4. Foley, F., Hartzell, J., Titman, S., and Twite, G. (2007): “Why do firms hold so much  
cash? A tax based explanation” Journal of Financial Economics 86
5. Jensen, M., (1986): “Agency costs of free cash flow, corporate finance and takeovers”  
American Economic Review 76
6. Miller, M., and Orr, D. (1966): “A model of the demand for money by firms”,  
Quarterly Journal of Economics 80
7. Molyneux, P., and Thornton, J. (1992): “Determinants of European bank profitability:  
A note” Journal of Banking and Finance, 16.
8. Morris, S., and Shin, H. Song. (2010): “Illiquidity Component of Credit Risk”,  
Working Paper, Princeton University.
9. Mujere and Younus : An analysis of interest rate spread in banking sector (2009)
10. Opler, T., Pinkowitz, L., Stulz R., and Williamson, R. (1999): “The determinants and  
implications of corporate cash holdings” Journal of Financial Economics 52, 3-46
11. Statistics Department, Bangladesh Bank
12. Research Department, Bangladesh Bank

Appendix 1: List of Scheduled Banks (As on 30 June 2010)

**State owned/government controlled banks (4+4=8)**

**State owned commercial banks (4)**

Agrani Bank Limited

Janata Bank Limited

Rupali Bank Limited\*

Sonali Bank Limited

**Specialised banks (4)**

Bangladesh Krishi Bank

Bangladesh Development Bank Limited

Bangladesh Small Industries and Commerce (BASIC) Bank Limited

Rajshahi Krishi Unnayan Bank (RAKUB)

**Private commercial banks (30)**

Al-Arafah Islami Bank Limited

AB Bank Limited

Bangladesh Commerce Bank Limited

Bank Asia Limited

BRAC Bank Limited

Dhaka Bank Limited

Dutch Bangla Bank Limited

Eastern Bank Limited

Export Import Bank of Bangladesh Limited

First Security Islami Bank Limited

International Finance Investment and Commerce (IFIC) Bank Limited

Islami Bank Bangladesh Limited

Jamuna Bank Limited

Mercantile Bank Limited

Mutual Trust Bank Limited

National Bank Limited

National Credit and Commerce Bank Limited

One Bank Limited

Prime Bank Limited

Pubali Bank Limited

Shahjalal Islami Bank Limited

Social Islami Bank Limited

South East Bank Limited

Standard Bank Limited

The City Bank Limited

ICB Islamic Bank Limited

The Premier Bank Limited

Trust Bank Limited

United Commercial Bank Limited

Uttara Bank Limited

**Foreign commercial banks (9)**

Bank Alfalah Limited

Citibank N.A

Commercial Bank of Ceylon

Habib Bank Limited

National Bank of Pakistan

Standard Chartered Bank

State Bank of India

The Hongkong and Shanghai Banking Corporation Limited

Woori Bank