# LIQUIDITY MANAGEMENT OF COMMERCIAL BANKS IN NEPAL

*(With Reference to NIBL, NABIL, SCBNL & HBL)*

**Submitted by:**

**Hari Kala Kafle**

**Birendra Multiple Campus**

**T.U. Regd. No. 7-2-240-20-2004**

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# RECOMMENDATION

This is to certify that the thesis

Submitted by

**Hari Kala Kafle**

Entitled

**Liquidity Management of Commercial Banks in Nepal**

**(With Reference to NABIL, NIBL, SCBNL & HBL)**

has been prepared as approved by this department in the prescribed format of faculty of management. This thesis is forwarded for evaluation.


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Baikuntha Pd. Bhusal                    Baikuntha Pd. Bhusal
Thesis Supervisor                       Chairperson, Research Committee


…......…………                           …………...…….....…
Sushil Dahal                            Dr. Keshav Bhakta Sapkota
Programme Incharge                      Campus Chief

Date:

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(Ref): Date:

# VIVA-VOCE SHEET

We have conducted the Viva-Voce examination of the

Thesis presented by

**Hari Kala Kafle**

Entitled

**Liquidity Management of Commercial Banks in Nepal**

**(With Reference to NABIL, NIBL, SCBNL & HBL)**

and found the thesis to be the original work of the student and written

according to the prescribed format. We recommended the thesis to be

accepted as partial fulfillment of the requirement for

**Master Degree in Business Studies (MBS)**

## VIVA-VOCE COMMITTEE

Chairperson, Research Committee: ……………………….

Member (Thesis Advisor): ……………………….

Member (External Expert): ……………………….

Date:

# DECLARATION

I hereby declare that the work done in this thesis entitled "Liquidity Management of Commercial Banks in Nepal (With Reference to NABIL, NIBL, SCBNL & HBL)" submitted to Birendra Multiple Campus, Faculty of Management, Tribhuvan University is my original work. It is done in the form of partial fulfillments of the requirement of the degree of Master of Business studies (M.B.S.) under the supervision and guidance of Baikuntha Pd. Bhusal, lecture of Birendra Multiple Campus.

Date: ..................

**Hari Kala Kafle**
Birendra Multiple Campus
T. U. Regd. No. 7-2-240-20-2004

# ACKNOWLEDGEMENT

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# ABBREVIATIONS

| | | |
|---|---|---|
| A.M. | : | Arithmetic Mean. |
| ADB/N | : | Agriculture Development Bank Nepal. |
| ALM | : | Asset Liability Management |
| C.V. | : | Coefficient of Variation. |
| CP | : | Commercial Paper. |
| CRR | : | Cash Reserve Ratio. |
| e.g. | : | Example |
| FDIC | : | Federal Deposit Insurance Corporation. |
| FED | : | Federal Reserve System. |
| GAO | : | General Accounting Office. |
| GAP | : | 'Good' , 'Average' or 'Poor'. |
| HBL | : | Himalayan Bank Limited. |
| ISO | : | International Organization for Standardization. |
| NIBL | : | Nepal Investment Bank Limited. |
| NRB | : | Nepal Rastra Bank. |
| OCC | : | Office of the Comptroller of the Currency |
| SCBNL | : | Standard Chartered Bank Nepal Limited. |
| TU | : | Tribhuvan University |
| U.S. | : | United States |

## CHAPTER ONE

## INTRODUCTION

### 1.1 General Background

Liquidity means allocation of funds in close relation to their respective source. Liquidity is the status and part of the assets that can be used to meet the obligation in the commercial banks. Liquidity can be viewed in terms of liquidity stored in the balance sheet and in terms of liquidity available through purchased funds. (Pradhan, 2007; P-113)

Liquidity is valuable. The more liquid a business is, the less likely it is to experience financial distress (that is, difficulty in paying debts or buying needed assets). Unfortunately, liquid assets are generally less profitable to hold. For example, cash holdings are the most liquid of all investments, but they sometimes earn no return at all they just sit there. There is therefore a trade-off between the advantages of liquidity and forgone potential profits.

Liquidity refers to the speed and ease with which an asset can be converted in to cash. Gold is relatively liquid asset; a custom manufacturing facility is not. Liquidity actually has two dimensions: ease of conversion versus loss of value. Any assets can be converted to cash quickly if cut the price enough. A highly liquid asset is therefore one that can be quickly sold without significant loss of value. Liquid of asset is one that cannot be quickly converted to cash without a substantial price reduction. (Pradhan, 2007; P-112)

Assets are normally listed on the balance sheet in order of decreasing liquidity, meaning that the most liquid assets are listed first. Current assets are relatively liquid and include cash and those assets that we expect to convert to cash over the next 12 months. Accounts receivables, for example, represents amounts not yet collected from customers on sales already made. Naturally, we hope these will convert to cash in the near future. Inventory is probably the least liquid of the current assets, at least for many businesses.

The term liquid asset is said to be used to describe money and assets that are readily convertible into money. Different assets may be said to exhibit different degrees of liquidity. Money itself is, by definition, the most liquid assets; other assets have varying degree of liquidity, depending upon which they can be turned into cash.

This thesis is concerned with the liquidity management of commercial banks in Nepal with respect to NABIL Bank Limited, Nepal Investment Bank Limited, Standard Chartered Bank Nepal Limited and Himalayan Bank Limited. Liquidity plays vital role in the banking sectors. The researcher is keenly interested to find out the real picture on liquidity of those sample banks.

### 1.1.1 Commercial Banks at a Glance:

An institution, which accepts deposits, makes business loans, and offers related services. Commercial banks also allow for a variety of deposit accounts, such as checking, savings, and time deposit. These institutions are run to make a profit and owned by a group of individuals. While commercial banks offer services to individuals, they are primarily concerned with receiving deposits and lending to businesses.

Commercial banking can also refer to a bank or a division of a bank that mostly deals with deposits and loans from corporations or large businesses, as opposed to normal individual members of the public (retail banking).

Commercial Bank is defined in the Commercial Bank Act 2031 as, "A Commercial bank means bank which deals in exchanging currency, accepting deposits, giving loans and doing commercial transaction".

Nepal's first commercial bank, the Nepal Bank Limited, was established in 1937. The government owned 51 percent of the shares in the bank and controlled its operations to a large extent. Nepal Bank Limited was headquartered in Kathmandu and had branches in other parts of the country. There was other government banking institutions. Rastriya Banijya Bank (National Commercial Bank), a state-owned commercial bank, was established

in 1966. In the mid-1980s, three foreign commercial banks opened branches in Nepal. The NABIL Bank was co-owned by the Emirates Bank International Limited (Dubai), the Nepalese government, and the Nepalese public. Nepal Investment Bank was jointly owned by the French Banque Indosuez, Rastriya Banijya Bank, Rastriya Beema Sansthan (National Insurance Corporation), and the Nepalese public. Standard Chartered Bank was co-owned by a British firm called Grindlays Bank, local financial interests, and the Nepalese public. Himalayan Bank was established in 1993 in joint venture with Habib Bank Limited of Pakistan.

## 1.2 Focus of the Study

The main focus of the study is to find out the liquidity position of the bank and the measures used to maintain and manage the liquidity. It is important for banks too to focus on liquidity management. The risk affects a company's credit worthiness as well as its total balance sheet composition (assets in light of liabilities). The key to managing liquidity is to ensure that the bank constantly keep channel of communication open and act promptly to avoid situation of extreme liquidity risk. So, the study analyzes about the mobilization of funds and the proper steps to monitor liquidity in an appropriate manner.

Each and every business organization needs appropriate amount of liquidity (i.e. cash and other near cash items) to run its daily operations. The liquidity totally depends on how big or small an organization is? Big organization such as bank, manufacturing organization, finance companies needs huge amount of liquidity and small organization needs small amount of liquidity. The liquidity requirement is different for different organization. Commercial banks should keep plenty of liquid funds to fulfill their customer's needs and in other hand; there will be equal chance of being idle of the liquid fund. So it is very important to manage liquidity with balancing demand and supply. The main focus of this study is comparative analysis of managing liquidity in Nepalese commercial banks by taking four sample banks. Thus, how the liquid assets

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influence and what the real solution can be suggested will be the focus point of this study.

## 1.3 Statement of the Problem

Good liquidity management requires a strategic management plan, possible action plans and ongoing analysis and monitoring at all levels of the organization. Since, commercial banks are profit oriented, they believe in optimum disbursement of deposits in loan and advances so that more and more income can be generated. Meanwhile, these banks are required to maintain confidence among the depositors. This confidence is always backed by the banks ability to pay depositor's immediate demand for cash. In order to maintain the confidence, banks should have a standby position of liquid funds, sufficient to cover the likely demand. But it is also true that they cannot keep all the deposits in form of cash reserves. The deposits are honored to allocate in various uses in order to generate income. The main problem for any bank is to determine the appropriate level of liquid assets to meet the threat of withdrawals. Without the proper management of the liquidity, the demands of depositors cannot be entertained. Once a depositor finds that the bank is deficit of liquidity, all the depositors will run to the bank for withdrawals of their deposits.

The most striking example of loss due to this risk is a run-on-the-bank event that causes an institutional fail. This type of event hit banks during the depression when too many customers demanded to have their money paid immediately in cash and that demand exceeds cash reserves. Less dramatically, smaller loses can occur when an organization has to borrow unexpectedly or sell assets for an unanticipated low price.

The understanding of liquidity begins with the quantification of general liquidity needs on an operational or ongoing concern basis as well as an understanding of liquidity requirements during a "crisis of confidence".

The main problem of this study is to find out the liquidity management of sample banks and the other research questions for which the researcher is interested to find out the answers are:

1. How much liquidity is needed on a going concern basis?

2. Are the banks aware for liquidity requirements and maintaining sufficient balances?

3. What is the relationship between current assets and net profit?

4. What is the trend on liquidity?

## 1.4 Objectives of the Study

The main objective of this study is to analyze liquidity management of commercial banks in Nepal. To fulfill this following specific objectives have been formulated:

1. To examine the bank's liquidity in terms of current ratio, cash and bank balance, liquid fund, short-term investment, current deposit, balance with NRB and loans and advances.

2. To assess the adequacy of bank's liquidity in FY 2004/05 to FY 2010/11.

3. To examine the relationship between current assets and net profit.

4. To analyze the liquidity trends of sample banks.

## 1.5 Significance of the Study

The management of liquidity can be complex; it is helpful to get an understanding of how the principles of liquidity management can be used in actual circumstances. Liquidity is one of the risk management processes and is integrated with pricing, capital management and Asset Liability Management (ALM) practices. Part of the risk management is the ability to meet liquidity needs by managing both the liability side (need to raise cash) and assets side

(ability to raise cash). The liquidity studies range from normal to stress situations.

The study ponders to find out whether commercial banks are alert or not in this regard and whether liquidity management is duly taken care or not. Commercial banks are always guided by the objectives of earning profit and wealth maximization of shareholders. All the financial decisions of banks are made for the betterment of shareholders wealth. There should be an effective system of funds allocation in order to safeguard the commercial banks from the danger of shortage of liquid assets. An appropriate level must be achieved between them.

The study will review the organization's integral reports applicable to liquidity management. The study will also ascertain possible situations where the commercial banks need additional liquid funds. By this study, Liquidity Management policies and strategies will be obtained so that shareholders, general public and regulatory authority can raise the relevant questions.

A few studies have been made on liquidity management in commercial banks. Most of the studies made up to present on capital market are related to financial performance, investment, capital structure analysis, dividend policy, risk and return etc. So this study will be of substantial importance to investors, planners, researchers, professionals, executives and students to meet their personal and organizational objectives. This study intends to help the national economy through mobilization of idle capital of average Nepalese in productive sectors to accelerate the economic growth and reduce dependency on foreign assistance and loan.

This study helps regulatory authority to find out liquidity management of the commercial banks. It will be a reference to the concerned personnel and researchers.

## 1.6 Limitations of the Study

Every study has its limitations. This study will be carried out in partial fulfillment of the requirements for the degree of Masters of business studies, it

possesses a number of limitations of its own kind. Basically, shortage of time, reliability of statistical tools used and lack of research experience are the main limitations. Some other limitations are as follows:

1. All the data are secondary in nature, mostly published financial documents like Balance Sheet, Profit & Loss Account and other related journals, magazines, information   from internet and books would be used, that is why the outcome may depend on the reliability of secondary data.

2. The data used for the study cover 7 years data i.e. 2004/05 to 2010/11.

3. Ratio analysis is greatly affected by inflation, the data that we had taken for the purpose of analysis, which might have changed over the different fiscal years. This might not lead to the correct conclusion if the changes had really been occurred.

**1.7 Organization of Study**

This study is divided into five chapters. Before starting the body of thesis, several pages of Preliminary materials such as title page approval sheet, viva voice sheet, acknowledgements, table of contents, list of figures, list of tables, abbreviations used etc. have been presented.

**Chapter I**

Chapter one is the introduction that includes the background of the study, a brief description about Nepalese commercial banks and liquidity and its management practice. Besides that, this chapter comprises of focus, significance, objective of the study, statement of the problem, and a brief description of sample banks and limitations of the study.

**Chapter II**

The second chapter is the review of literature. This chapter includes the theoretical concept, review of journals and articles, policy review of previous studies. This chapter view the relevant previous studies made on the liquidity management and principles set on it.

**Chapter III**

The third chapter is the research methodology. This chapter includes the detail framework of the study, such as population and sample, variable, research design, data collection, presentation and analysis tools and techniques etc.

**Chapter IV**

The fourth chapter of this research is data presentation and analysis. In this chapter, the secondary data collected from different sources are presented in systematic format, such as, table, chart, and figures. And these data have been analyzed using different statistical and financial analytical tools. In addition to that, the major findings of the study are drawn out.

**Chapter V**

The last and the fifth chapter include summary, conclusion and recommendations.

At the end of this dissertation bibliography and appendix are attached.

## CHAPTER TWO

## REVIEW OF LITERATURE

Review of literatures provides the background information about the area of study. Researcher has reviewed various Books, Journals and Newspapers and thesis that were found while studying about the problems and prospects of liquidity management of Nepalese commercial banks. The literature review section consists of two parts. Firstly it has reviewed literature for theoretical framework which helps to develop concept about what is liquidity management. It covers the area of research work and the theoretical concept which are developed by various scholars and writers. Another part is review of related studies, which includes review of journals, articles and review of thesis about capital market and related terms to it. It also helps the researcher to find out the research gap.

### 2.1 Conceptual Framework

### 2.1.1 Liquidity

Liquidity actually has two dimensions: ease of conversion versus loss of value. Any assets can be converted to cash quickly if cut the price enough. A highly liquid asset is therefore one that can be quickly sold without significant loss of value. An illiquid asset is one that cannot be quickly converted to cash without a substantial price reduction. (Pradhan, 2007: 154)

Assets are normally listed on the balance sheet in order of decreasing liquidity, meaning that the most liquid assets are listed first. Current assets are relatively liquid and include cash and those assets that we expect to convert to cash over the next 12 months. Accounts receivables, for example, represents amounts not yet collected from customers on sales already made. Naturally, we hope thee will convert to cash in the near future. Inventory is probably the least liquid of the current assets, at least for many businesses.

Liquidity is the status and part of the assets that can be used to meet the obligation in the commercial banks. Liquidity can be viewed in terms of liquidity stored in the balance sheet and in terms of liquidity available through purchased funds. The more liquid a business is, the less likely it is to experience financial distress (that is, difficulty in paying debts or buying needed assets). (Shrestha, 2009: 78)

Unfortunately, liquid assets are generally less profitable to hold. For example, cash holdings are the most liquid of all investments, but they sometimes earn no return at all they just sit there. There is therefore a trade-off between the advantages of liquidity and forgone potential profits.

The term liquid asset is said to be used to describe money and assets that are readily convertible into money. Different assets may be said to exhibit different degrees of liquidity. Money itself is, by definition, the most liquid assets; other assets have varying degree of liquidity, depending upon which they can be turned into cash.

Cash balance is a perfectly liquid asset. To hold it in larger quantity is not thought good. High cash balance increases the cost. Therefore, any organization doesn't want to hold cash more than it needs. But it is difficult to know what proportion of cash the organization should hold. However, any organization makes cash holding policy and exercise to keep cash as less as it can.

**2.1.2 Sources of Liquidity**

Just as it is important to understand the sources of the liquidity, corporate management needs to know the possible sources of cash if the need arises. Under a stress situation, neither the liabilities nor the assets are exactly equal to their book values. Therefore, a high surplus position does not necessarily eliminate liquidity problems that may face a bank under stress. It is the interplay of liquidity risks in the assets and liabilities that determines the exposure.

Assets have different degrees of liquidity. Custom designed assets and assets such as limited partnerships may not be readily marketable. Even assets that are technically liquid, such as corporate bonds, may not be immediately liquid when one is trying to sell billions of money of assets within a few days. Further, due to interest rate increases or credit deterioration of the bond issuer, assets may have to be sold at less than book value or what is normal circumstances would be fair value. Some assets that appear on the balance sheet are not even available for sale. (Pandey, 2009: 65)

Before a risk situation strikes, a bank should take an inventory of its potential sources for liquidity, both with regard to how much liquidity each source provides and what the numerous considerations exist for using those particular sources.

### 2.1.3 Why Manage Liquidity?

Cash and marketable securities are liquid assets, and they are maintained to meet the liquidity need of the firms. There is no difference between these two types of assets from the viewpoint of the purpose they are maintained for. Therefore, they are perfectly substitutable for one another. The only difference, however, is that marketable security earns some returns whereas the cash balance does not. The purpose of managing liquid assets is therefore, to minimize the opportunity cost of holding cash and maximize the returns on the portion of the funds that is not required immediately.

Business firm need to maintain a certain degree of liquidity in the form of cash in hand, bank deposits, and/or marketable securities to meet daily operating expenses and short-term financial obligations. Since the cash balance in hand and the deposits in checking account i.e. current account do not earn any returns, it is unwise to maintain the required amount of liquidity only in the form of cash or non-interest bearing accounts. Interest rates in recent years on various types of short term financing have surged up so high that they have considerably raised the opportunity cost of holding cash. Because of this reality, financial managers are more concerned these days to maximize the

returns on the available funds and reduce the cost of external financing. For the same reason, over the past years, academicians as well as financial managers have devoted much of their efforts in developing and refining the techniques of cash management.

A bank can't run without liquidity. The Nepal Rastra Bank from time to time changes the legal provision about the liquidity. The compulsion that the commercial bank should keep the cash in their various funds shows the importance of liquidity. The commercial banks and financial institutions should maintain the balance of cash fund in required quantity that the law and rules made by the Nepal Rastra Bank. The importance of liquidity is considered very sensitive because if it cannot maintain the liquidity, it has to pay fine. The commercial Banks should keep the stock of liquid assets in the ratio of their deposit liability, a fixed by the Nepal Rastra Bank. The central bank can give the interest with the rate fixed by the bank from time to time to the amount in the fund.

### 2.1.4 Levels of Liquidity Management

Given that financial institution are willing to accept some amount of liquidity risk, that risk must be managed appropriately. Liquidity Management can be broken down into three levels:

a) **Day-to-day Cash Management.**

This type of liquidity management involves controlling day-to-day cash flows variability by balancing cash positions and lines of credit. It is important to monitor short term liquidity needs so that unforeseen events do not require actions that may be detrimental to ongoing cash management and adequate cash or borrowing capability is available in the event of a large, unpredicted cash demand.

b) **Ongoing/ intermediate term cash flow management.**

This type of liquidity management involves ongoing cash needs over the next six to twenty-four months. It involves analysis of cash inflows and

outflows. If the analysis indicates a high risk of future cash needs exceeding future available cash, this type of management would include a plan to restore liquidity. Ongoing liquidity management tools can include restructuring or fine tuning the portfolio (e.g., renegotiating the terms of large liabilities or assets), selling more or fewer of selected products, diversifying where possible, and changing the investment strategy if needed.

c) **Stress Liquidity Management.**

This type of liquidity management involves the ability of the bank to meet the demands of many policy/contract holders for cash over a short period. Although such an event never occur, it is essential that the cash demand be met if it does.

Good liquidity management requires a strategic management plan, possible action plans, and ongoing analysis and monitoring at all three levels. While the focus of this thesis report is liquidity risk management, all three levels are important and interrelated.

The three levels of liquidity management should be designed to provide required cash at the appropriate time, while, at the same time, allowing for investment policies that maximize return on investments. In order to achieve the proper balance between cash availability and maximum return, it is necessary to examine a broad range of economic scenarios and risk events. Day to day and ongoing intermediate term cash management plans can provide for lower levels of adversity than stress liquidity cash management. Both day-to-day cash management and ongoing/intermediate term cash flow management generally involve cash management and cash lines. While stress liquidity risk management, will almost involve liquidation.

The liquidity profile of a bank is determined by obtaining total enterprise perspective. The rating and financial strength (mainly the capital position) of a bank are not only the indicators of a bank's ability to meet the stress liquidity risk, although the bank may provide more time to react to demands for liquidity

caused by changes in the economic environment. An organization could have highly liquid liabilities, but if its assets are totally invested in Treasury bonds with similar market characteristics to those of the liabilities, then liquidity is not an issue. Similarly, having a portfolio of very illiquid assets is not material if asset and liability maturities are well matched and there are few or no instances in which clients can demand cash before the assets mature.

Liquidity should therefore be managed by evaluating cash needs under possible scenarios. The goal is to ensure that cash will be available when needed to pay benefits under any reasonably foreseeable set of circumstances. Some banks may require less sophisticated analysis of liquidity risk. For example, for a bank with 100% traditional whole business backed by highly rated, publicly traded corporate bonds with laddered maturities, the liquidity risk may be small. Other banks may need to look at a variety of stress scenario and banks specific situations and determine what assets could be liquidated in a timely and cost effective manner. (Mc-Kinney, 2005: 194)

## 2.1.5 Principles for the ALM in Banking Organizations

### i) Developing a Structure for Managing Liquidity

Each bank should have an agreed strategy for the day-to-day management of liquidity. This strategy should be communicated throughout the organization. A bank's board of directors should approve the strategy and significant policies related to the management of liquidity. The board should also ensure that senior management takes the steps necessary to monitor and control liquidity risk. The board should be informed regularly of the liquidity situation of the bank and immediately if there are any material changes in the bank's current or prospective liquidity position. (McKinney, 2005: 15)

Each bank should have a management structure in place to execute effectively the liquidity strategy. This structure should include the ongoing involvement of members of senior management. Senior management must ensure that liquidity is effectively managed, and that appropriate policies and procedures are established to control and limit liquidity risk. Banks should set and regularly

review limits on the size of their liquidity positions over particular time horizons. A bank must have adequate information systems for measuring, monitoring, controlling and reporting liquidity risk. Reports should be provided on a timely basis to the bank's board of directors, senior management and other appropriate personnel.

## ii) Measuring and Monitoring Net Funding Requirements

A bank should establish a process for the ongoing measurement and monitoring of net funding requirements. A bank should analyze liquidity utilizing a variety of "what if" scenarios. A bank should review frequently the assumptions utilized in managing liquidity to determine that they continue to be valid.

## iii) Managing Market Access

Each bank should periodically review its efforts to establish and maintain relationships with liability holders, to maintain the diversification of liabilities, and aim to ensure its capacity to sell assets.

## iv) Contingency Planning

A bank should have contingency plans in place that address the strategy for handling liquidity crises and include procedures for making up cash flow shortfalls in emergency situations.

## v) Foreign Currency Liquidity Management

Bank should have a measurement, monitoring and control system for its liquidity positions in the major currencies in which it is active. In addition to assessing its aggregate foreign currency liquidity needs and the acceptable mismatch in combination with its domestic currency commitments, a bank should also undertake separate analysis of its strategy for each currency individually.

A bank should, where appropriate, set and regularly review limits on the size of its cash flow mismatches over particular time horizons for foreign currencies in aggregate and for each significant individual currency in which the bank operates.

**vi) Internal Controls for Liquidity Risk Management**

Each bank must have an adequate system of internal controls over its liquidity risk management process. A fundamental component of the internal control system involves regular independent reviews and evaluations of the effectiveness of the system and, where necessary, ensuring that appropriate revisions or enhancements to internal controls are made. The results of such reviews should be available to supervisory authorities.

**vii) Role of Public Disclosure in Improving Liquidity**

A bank should have in place a mechanism for ensuring that there is an adequate level of disclosure of information about the bank in order to manage public perception of the organization and its soundness.

**viii) Role of Supervisors**

Supervisors should conduct an independent evaluation of a bank's strategies, policies, procedures and practices related to the management of liquidity. Supervisors should require that a bank have an effective system in place to measure, monitor and control liquidity risk. Supervisors should obtain sufficient and timely information from each bank to evaluate its level of liquidity risk and should ensure that the bank has adequate liquidity contingency plans.

**2.1.6 Approaches to Liquidity Management**

There are a number of approaches, which financial institutions or commercial banks may adopt to manage their liquidity.

**i) Stock of Liquid Assets**

In the normal course assets required to meet minimum requirement are not available to satisfy liquidity needs and financial institutions need to maintain a working buffer above the minimum level.

Discretionary liquid assets need to be of high quality and/or readily marketable to ensure that they can be realized as required without significant loss. This

implies that valuations of liquid assets needs to be regularly adjusted to reflect market conditions and that any liquid assets which are pledged to support borrowings should be deducted from both the numerator and the denominator in calculating the liquid assets ratio.

A liquid assets ratio may not be sufficient in itself to manage liquidity because of its static nature, susceptibility to distortion by short term balance sheet movements and inability to take account of off-balance sheet obligations.

## ii) Limits on Maturity Mismatching

A financial institution needs to monitor and control the gaps between maturing assets and liabilities in various time bands. The maturity profile also needs to take account of off-balance sheet cash flows.

The construction of such maturity profiles relies heavily on assumptions such as the proportion of maturing liabilities that a financial institution will be able to roll-over and the behavior of liabilities and assets with no fixed maturity date (e.g. call deposits and overdrafts). The assumptions will, of course, vary under different scenarios and according to the business profile of the financial institution. The appropriateness of the assumptions needs to be reviewed from time to time. Control over maturity gaps in the shorter time periods obviously needs particular attention, as this is the area in which financial institutions have least room to maneuver.

## iii) Diversification of Liabilities

As part of its liquidity management strategies a financial institution should seek to:

1.  Maintain a diversified funding base: and
2.  Establish strong and lasting relationships with depositors and other liability holders.

A financial institution should establish a policy regarding concentration of sources of funding so as to avoid an excessive reliance on any one counterpart (including related entities) or any one product or funding market. It should also

undertake regular statistical analysis of liabilities to detect any signs that the deposit base is becoming more volatile.

A stable core of deposits and avoidance of reliance on large and potentially volatile deposits are significant components in successful liquidity management.

### iv) Access to Wholesale Markets

The ability to obtain funds in the inter-bank market or other wholesale markets can be an important source of liquidity but access may be substantially reduced or delayed in crises conditions. As well as meeting maturing obligations there may also be calls for early repayment or denial of access to funding lines in terms of "material adverse change" clauses.

Financial institutions should estimate their "normal" borrowing capacity in such markets and establish a policy regarding reliance on these markets accordingly.

### v) Foreign Currency

Where a financial institution has significant foreign currency funding its liquidity policy should address the measurement and monitoring of liquidity in foreign currencies. For example, a financial institution needs to assess the convertibility of individual currencies, the timing of access to funds, the impact of potential disruptions in foreign exchange markets and exchange risks.

### vi) Intra-group Liquidity

Where liquidity is managed on a group basis (i.e. for a financial institution and its subsidiaries) liquidity management strategies should address any regulatory or legal impediments to group members accessing liquidity. Branches and subsidiaries of foreign banks may have lines of liquidity support available to them from associated entities offshore entities. This support could be of particular value in the event of a crisis affecting only local operations but could prove ineffective in a crisis affecting the global group.

**2.2 Review of Previous Studies**

**1. Foreign Context**

In foreign context following independent case studies viewed during the study.

**i) Liquidity Planning at Small Banks**

In 2005, McKinney, An American researcher contends that the greatest potential for small banks to improve their funds management through quantitative methods is in better planning of their liquidity positions. He claims that the liquidity needs of small banks can be determined accurately enough using worst-case analysis. This technique employs baseline trend to estimate future loan demand and deposit supplies. Given these estimates, the banks objective is to use stored liquidity or liability management liquidity or both to meet its funds requirements. The worst-case scenario forecasts the bank's greatest liquidity need by projecting maximum loan demand and minimum deposit supplies. The difference between these projections represents the worst-case liquidity need of the bank. In the worst-case analysis a ceiling trend is employed on variables that use bank funds (i.e., loans) and the floor trend on variables that provide bank funds (i.e., deposits). By reversing this procedure (i.e., by applying a floor trend to uses and a ceiling trend to sources) a bank can project what is most-liquid position is expected to be (i.e., the one resulting from minimum loan demand and maximum deposit supplies). The most-liquid and least-liquid projection represents upper and lower bounds for a bank's liquidity planning. By carrying the analysis one step further, it is easy to construct a most likely situation. This can be accomplished by fitting a trend line to the data using regression analysis or by carefully plotting the data and drawing in the trend line.

The three situations described as three types of trends: (1) upward, (2) downward, and (3) level. In each of the situation, the upper and lower bounds represent a range within which future values of the variable are expected to lie. Based upon historical experience or statistical evidence, some degree of confidence will be associated with the upper and lower boundaries (i.e., a 95

percent confidence interval). Of course, this does not mean that some future value cannot punch through the ceiling or floor.

### ii) Continental's Liquidity Crisis: An Electronic Cash-Out

In 2007, The Bank of America made a research report and concluded that the liquidity crisis and subsequent bailout of Continental Illinois National Bank and its holding company, Continental Illinois Corporation, dominated the financial news. Continental Illinois had a reputation as an aggressive lender. In addition, it (and other large banks) had purchased energy loans from Penn Square Bank of Oklahoma City, a 1982 failure. As a result, Continental lost both financial and reputational capital, which eventually shook the confidence of large uninsured creditors and precipitated a run-on-the-bank.

The run on Continental was a silent by deadly one-an electronic one in which billions of dollars of hot money "impulsed" out of the bank. For the several days period ended May 17, 2004, which was the height of the crisis of Continental required an infusion of $8 billion to stop its electronic hemorrhaging. Continental's liquidity crisis represents, at the extreme, the risk of aggressive liability management. Without a substantial foundation of core deposits (i.e., stable local deposits), Continental was vulnerable to an electronic or silent run. Once the marketplace, in the form of uninsured creditors, lost confidence in the Continental's creditworthiness, the stage was set for the electronic run. The liquidity crisis, collapse, and bailout on Continental in 1984 caused liability managers to rethink their assumptions regarding the availability of purchased funds. Prior to Continental's problems the working assumptions was that funds would always be available, especially in the international area. However, even a guarantee by the FDIC of all on Continental' liabilities could not stop the silent electronic run-on-the-banks.

### iii) The Role of Money

In 2008, Kane, The American Researcher, introduced the idea of 'Confidence function' for the bank describing it in terms of four factors:

1. Net worth (Capital Adequacy)

2. Stability of earnings

3. Quality of information (transparency)

4. Government guarantees

Without government guarantees, what variable would you add to this function? Liquidity seems like a good choice; banks need liquidity to survive and bank regulators consider liquidity important enough to include it in their CAMEL rating system. Adding liquidity to the confidence equation and defining a liquidity function, we get:

Confidence = $f$ [NW, $\sigma_{ROA}$ IQ, L (G, $\sigma_L$, $\sigma_D$)]

Where,

NW = Net Worth

$\sigma_{ROA}$ = stability of earnings measured by the standard deviation ($\sigma$) of return on assets (ROA)

IQ = information quality (transparency) regarding the bank's earnings and asset quality

L (G, $\sigma_L$, $\sigma_D$) = Liquidity as a function of three variables:

G = government guarantees [e.g., the too-big-to-fail doctrine (TBTF) and the federal safety net of deposit insurance and lender of last resort]

$\sigma_L$ = variability of loan demand

$\sigma_D$ = variability of deposit/liability flows

In a time of crisis (lack of confidence), G is the variable of the liquidity function. Under non-crisis condition, the variability of loan demand and the variability of deposit/liability flows determine a bank's need for liquidity. If these flows were known with certainty, this chapter on liquidity and its management would not exist.

**iv) Liquidity Need and Risk**

In 2005, as illustrated by the case of New York securities firm, bank need liquidity in part to meet their liquidity requirements. Bank's customers can meet their liquidity needs by:

1. Withdrawing funds they have deposit with the bank (i.e., utilizing their existing net cash flows)

2. Drawing down established lines of credit

3. Establishing new credit facilities

4. Selling assets

Only in the case of severe liquidity risk or corporate restructuring do businesses want to resort to selling assets.

The operation of the market for commercial paper (CP), which is characterized by orderly exit, is a good example of how corporations meet their liquidity needs with the help of banks. An important characteristic of the CP market is the use of bank backup or standby lines of credit to support CP issuers. To minimize liquidity risks and costs of financial distress, issuers of CP can take several steps. When a firm cannot roll over its commercial paper, which is simply a short-term corporate IOU, it draws on its lines of credit to pay the maturing debt, if the firm's liquidity crisis continues, then it will resort to selling assets to pay off the holders of its paper.

The risks of liquidity management have price, quantity and reputation effects. Price, or interest-rate risk, focuses on the price at which assets can be sold and the rate at which liabilities can be acquired. For example, as described in the Chrysler case, Chrysler did not want to pay a premium for funds. The quantity factor focuses on whether or not assets exist that can be sold (Chrysler had assets to sell) and whether or not funds can be acquired in the marketplace at any cost. To practice active liability management, a bank must maintain its creditworthiness and its reputation in the money and deposit markets. A bank that doesn't will have to 'pay up' for funds (i.e., pay an additional risk

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premium) or may not even be able to obtain funds. Moreover, a bank that is unexpectedly heavy into the 'street' for funds will generate suspicion about its unusual need for liquidity and risk tarnishing its reputation. To avoid raising such doubts, some banks maintain a presence in money markets even if they don't need funds.

## 2. Nepalese Context

There are very few independent studies in finance in Nepalese perspective. On the core concept of liquidity risk management and factors affecting to liquidity position in the commercial banks, very negligible studies have been made. During the study the following independent studies have reviewed about liquidity management in Nepalese commercial banks:

Pradhan (2004) has done a research for which he carried out the survey of 78 enterprises. Through his research entitled, "Financial Management Practices in Nepal", he found some of the major features of the Nepalese financial management. According to him the most important one appeared to be maintaining good relation with stockholder. The finding reveals that banks and retained earnings are most widely used financing sources. Most enterprises do not borrow from one bank only and they do switch between banks to banks whichever offer best interest rates. Most enterprises find that banks are flexible in interest rate. Among the banks loan, bank loan of less than one year are more popular in public sector whereas banks loan of 1-5 years are more popular in private sector. In period of light money, the majority of private sector enterprises fell that bank will treat all firms equally while public sector does not feel so. Similarly, he concluded that the majority of enterprises in traded sector find that bank's interest rate is just right while the majority of non-traded sector find that the same is one higher side".

Liquidity management of a bank basically deals with bank's two conflicting goals namely liquidity and profitability. Liquidity is the banks ability to pay depositors on demand. In a broad sense, it is the bank's ability to convert its assets into cash without delay and minimum loss. The main technique of

liquidity management is to trade off between profitability and liquidity. Managers of bank can obtain the trade off following the method of cash planning managing cash flow, managing optimum cash level and investing idle funds in shift able assets.

A bank must manage liquid assets efficiently as they are non-earning assets. Management of liquid assets minimizes the amount invested in cash assets without taking exercise risk. A bank's liquidity need and its ability to meet such needs are difficult to measure because perception and confidence of actual and potential depositors and money market are all important but very difficult to qualify liquidity need of a bank. Liquidity may be short-term, cyclical and contingent.

In the view of Pradhan (2005) in his articles, "Deposit Mobilization, its Problem and Prospects", He has presented the following problems in the context of Nepal:

1. People do not have knowledge and proper education for saving in institutional manner. They so don't know financial organizational process, withdrawal system, depositing system etc.

2. Financial institutions do not want to operate and provide their services in rural areas.

3. He has also recommended about how to mobilize the deposit collection by the financial institutions by rendering their services in rural areas, by adding various services.

4. By operating rural banking programs.

5. Nepal Rastra Bank must organize training programs to develop the skilled human resources.

6. By spreading a numbers of co-operative societies to develop mini banking services and improves the habits of public on deposit collection to rural areas.

The reserve requirement is to meet daily and contingent liability of commercial banks. The CRR rate must be at a reasonable level by which cost of fund of commercial banks can be lowered. As a result, the bank shall be apposition to extend loans charging a minimum rate of interest. The lowered CRR rate is not only beneficial to the commercial banks but also to the country through which cost of production can be reduced. Observation of bank Balance Sheet for FY ending 1996 clearly indicates mismanagement of sources and usage of funds, because of this reason; there have been inadequacy in capital and problem in liquidity of the banks. There are instances where credit deposit ratio (loans and advances to total deposits) of commercial banks recorded very high in the range of 83 to 89 percent. The credit deposit ratio is beyond the permitted level to a typical bank. Credit deposit ratio should be fixed to a maximum of 80 percent by the regulatory body in order to avoid any kind of accident.

CRR rate has been reduced as a tool of monetary policy of the country. A policy to cut down CRR in the vault balance has been adopted in the recent decision. Provision of cash in vault is taken as a prudential norm so that commercial banks do not face payment difficulties. By this action, the central bank wants to maintain more liquidity in the banking system. There is discrimination in CRR rate for different deposits liability. The discrimination has been maintained deliberately due to variability of deposits and their behavior. However, it is up to the commercial banks to decide appropriate level of cash they need in the vault.

Shrestha (2007) has analyzed in her article, "Financial Performance of Commercial Banks using both Descriptive and Diagnostic Approach". In her studies, she has concluded the following points:

a) The structural ratio of commercial banks show that invest on the average 75% of their total deposit on the government securities and the shares.

b) The analysis of resources position of commercial banks should quit high percentage of deposit as cash reserve.

c) Return ratio of all banks show that most of the time foreign banks have higher return as well as higher risk than Nepalese banks.

d) The debt-equity ratios of commercial banks are more than 100% in most of the time period under study period. It led to conclude that the commercial banks are highly leveraged and highly risk. Joint venture banks had higher capital adequacy ratio but has been dealing every day.

e) In case of the analysis of the management achievement foreign banks have comparatively higher total management achievement index.

## 2.3 Review of Unpublished Thesis

Poudel (2002) made a thesis report entitled "A Study on Liquidity and Investment Position of Joint Venture Commercial Banks in Nepal", the study is based on the objective to examine liquidity management policy, factors affecting the liquidity position and to analyze the problem of liquidity management with special reference to the Everest Bank Ltd and NABIL Bank Ltd. The major findings from the study were:

1. There is no standard and uniform rate or ratio for maintaining liquid assets by the commercial banks. The manager may decide to maintain an appropriate level of liquid assets based on his own judgment.

2. Liquidity Management decision should be made based on the relation to the source of funds and statutory obligation. Nature of a source of fund may vary with the other like; there are demand deposit and time deposit bearing different natures. Demand deposit has nature of high turnover. Therefore, it requires high level of liquid assets to support withdrawals. Since the 80-90 percent of funds of commercial banks is deposit, the proportion of demand deposit to total deposit liability largely determined the level of liquid fund.

3. The banks do not have constant and consistent liquidity and investment policy. Both the banks are adopting discretionary fund management approach. The banks are adhering to theory of shift ability while

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investing on marketable securities, especially on government securities. Anticipated income approach is also adopted in case of long-term loans.

4. There are various active external factors affecting liquidity position of the banks, the deposit liability in the latest two-year has increased substantially. Therefore, it is suggested to conduct a study to find the reason behind over increasing trend of the banks.

Sapkota (2003), in his thesis paper "A study on Fund Mobilization Policy of Standard Chartered Bank Ltd in Comparison to Nepal Bangladesh Bank Ltd and Himalayan Bank Ltd" having main objective to examine the fund mobilizing policy adopted by three joint venture bank viz., SCBNL, NB Bank, HBL and the way these banks mobilized their funds during five years study period from 1996/97 to 1999/2000.

He found the overall condition of SCBNL seems in satisfactory position in comparison to NB Bank, and HBL. In other words, he recommended that banks be strongly recommended to provide information about its services, facilities and extension of their services towards rural areas. These three banks are recommended to increase cash and bank balance to meet the need of its funds in the purchase of shares and debentures of other financial, non financial companies, hotels and government companies.

Mr. Sapkota has not explained about the risk, which has to be faced by these joint venture banks. His study cannot show the fund mobilizing policy of the selected banks for the succeeding years because of time limitation i.e., up to 1999/2000.

Poudel (2006), made a thesis entitled "Liquidity Management of Commercial Banks in Nepal". The main objective of this study is to examine and analyze liquidity position and its management in Nepalese commercial banks. The organizations under study were: BOK, NIC, EBL HBL and NABIL.

The major findings of his study were:

Nepalese commercial banks are in over liquidity position and it is in increasing trend also. Due to lack of unfavorable investment opportunities in Nepal, liquidity management is being difficult and challenging. Liquidity management is influenced by the external factors like: national security, political instability, income of depositors, foreign remittance and fear of possibility of loan defaulters and internal factors like: lending policy of banks, management capacity, strategic planning and funds flow situation in Nepalese commercial banks.

Analysis showed that Bank of Kathmandu and Everest Bank Limited has strong liquidity position as per the different maturity period but poor in liquidity management. NIC has negative liquidity profile, it shows the liabilities are excess than assets (or payable is greater than receivable), which is a liquidity risk for banks considering the creditability. HBL is facing liquidity problem but positive in liquidity profile analysis and NABIL has not adopted this tool yet.

Liquidity Management is an important branch of total management of commercial banks. So, it should be taken as a different discipline rather than cash management, working capital management and ratio analysis. After the re-engineering of NRB, with the help of ISO partners of USA, NRB has made a directive to adopt liquidity profile and GAP analysis tools to manage liquidity properly for the commercial banks in Nepal.

While reviewing the books, articles and previous studies, it is found that there are so many theories and rules relating to liquidity management in foreign practice. Liquidity Management is considered as an important discipline in USA and other developed countries. But it is still lacking in Nepal. In Nepalese journals, books, and studies, liquidity management is taken only as a part of cash management, working capital management and ratio analysis. Even in central library, TU, the research on these disciplines are categorized in the headings of liquidity management. On these research headings, there were few theses found relating to liquidity management of Nepalese commercial banks.

Thus, this research work is done to fulfill this kind of lacks. Moreover, in this research, an attempt has been made to recognize the liquidity management as a major function of Nepalese commercial banks and the tools and techniques are also searched for the betterment of it.

Jha (2007), mainly focuses on comparative analysis of financial performance of commercial banks. The sample size only three banks which are NIBL, NGBL and HBL. Researcher used different type of statistical tools i.e. mean, standard deviation, correlation, regression analysis etc have been used for analysis.

Main objectives of the study are:

1. To analysis the loan providing system.

2. Profitability analysis the selected banks.

3. To analysis the earning capacity in average.

The research findings and recommendation of the study are as follows:

1. General loan loss provision to total loan in case of Nabil has the highest among NIBL, NGBL and HBL.

2. NGBL has been investing most of its deposits in foreign investments.

3. NGBL has the highest EPS and cash dividend per share in average.

4. Nail's other operating income is appeared higher than other banks.

Shakya (2008), focus on "Financial analysis of joint venture banks and the sample size only two banks which are NABIL and NGBL". Researcher used different type of statistical tools i.e. mean, standard deviation, correlation, regression analysis etc have been used for analysis.

Main objectives of the study are:

1. Analysis the cash and bank balance to total deposit ratio.

2. Liquidity position of sample banks.

3. To analysis the Loans and advances to total deposits ratio.

The research findings and recommendation of the study are as follows:

1. The cash and bank balance to total deposit ratio of NABIL Bank Limited is in fluctuating trend whereas the same ratio of NGBL is in decreasing trend.

2. NGBL's liquidity position is comparatively better than that of NABIL Bank Limited.

3. Loans and advances to total deposits ratio is in fluctuating trend in case of Nabil bank and the same for NGBL is firstly in increasing trend then following the declining trend.

Limbu (2010) entitled his dissertation; "Liquidity Management of NABIL Bank Limited" highlighted that aggregate performance and condition of Nabil bank. In the aspect of liquidity position, cash and bank balance reserve ratio shows the more liquidity position. Cash and bank balance to total deposit has fluctuating trend in 5 years study period. Cash and bank balance to current deposit is also fluctuating. The average mean of Cash and bank balance to interest sensitive ratio is able to maintain good financial condition

In the aspect of assets management ratio, assets management position of the bank shows better performance in the recent years. Non–performing assets to total assets ratio is decreasing trend. The bank is able to obtain higher lending opportunity during the study period. Therefore, credit management is in good position of the bank. In leverage ratio, Debt to equity ratio is in an increasing trend. High total debt to total assets ratio posses' higher financial risk and vice-versa. It represents good condition of Total assets to net worth ratio. In the aspect of profitability position, total net profit to gross income, the total interest income to total income ratio of bank is in increasing trend. The study shows the little high earning capacity of NABIL through loan and advances. Earning per share and The Price earning ratio of NABIL is in increasing trend. These mean that the better profitability in the coming last years. It represents high expectation of company in market and high demand of share. Loan loss provision to total loan and advances ratio and None-performing loan to total

loan and advance ratio of NABIL is in decreasing trend. The ratio is continuously decreasing this indicates that bank increasing performance. Thus, credit management is in a good position.

The main objectives of the research study are as follow.

1. To evaluate various financial ratio & liquidity position of the NABIL.
2. To analyze the portfolio of lending of selected sector of banks
3. To determine the impact of deposit in liquidity and its effect on lending practices.
4. To offer suitable suggestions based on findings of this study.

In the statistical tools analysis, average mean, correlation analysis and trend analysis have been calculated. Correlation coefficient between total credit and total assets shows high degree of positive correlation. Correlation coefficient between total deposit and loan & advances has high degree of positive correlation it is concluded that increasing total deposit will have positive impact towards loan & advances.

## 2.4 Research Gap

The review of above relevant literature has contributed to enhance the fundamental understanding and knowledge. There are various researches conducted on fund mobilization, liquidity and investment practices of commercial banks, impact and implementation of NRB guideline in commercial banks but it has been found that no such research has been made in the liquidity management of Commercial Banks. Few theses have been prepared on the fund mobilization, liquidity & Investment. These researches are related only with trend of fund mobilization. So, this study concerned with liquidity management, liquidity policies, strategies and contingency funding plans. Hence, the researcher has attempted to fulfill this research gap by taking reference to NABIL, NIBL, SCBNL and HBL. The data collected for this purpose are of latest from 2004/05 to 2010/11.

# CHAPTER THREE

# RESEARCH METHODOLOGY

Research methodology is a systematic activity to achieve truth or finding solution to a problem. It is a process of a systematic and in-depth study or research of any particular topic, subject or area of investigation backed by the collection, compilation, presentation and interpretation of relevant details or data. So the research methodology refers to the overall research process, which a researcher conducts during his study. The purpose of research is to discover answers to questions through the application of scientific procedures. The main aim of research is to find the truth which is hidden and which has not been discovered at yet. (Kothari, 2005:7)

This chapter contains the research design, variables, sample size, sample selecting procedure, data collection procedure, data processing tools and techniques etc.

## 3.1 Research Design

Research design is the plan, structure and strategy of investigation concerned so as to obtain answers to research questions and to control variance. A research design is purely and simply the framework or plan for a study that guides the collection and analysis of data. A true research design is basically concerned with various steps to collect the data for analysis and draw a relevant conclusion.

To achieve the objective of this study, descriptive and comparative analytical research design has been used. This study is based on past data of the banks. The research methodology is based on the secondary data. Historic and comparative research design is adopted along with trend analysis. To identify the qualitative factors affecting liquidity, descriptive research design is adopted.

**3.2 Populations and Sample**

The population refers to the organization of the same nature and its services and product in general. Thus, the total number of commercial banks constitutes the population of the data and the banks under study constitute the sample for the study.

Now there were 32 commercial banks in operation throughout the country. In this study four sample banks are taken into consideration, among those 32 commercial banks, sampling and convenience methods were used.

Out of 32 commercial banks, 26 banks are pure Nepalese investment based (Non-Joint venture) and 6 are joint venture with foreign banks. The numbers of non joint venture banks are greater than joint venture, due to the performance and to meet the objective of the study various banks are taken as sample namely NABIL, NIBL, SCBNL and HBL. The sample covers approximately 18% of the total population.

**3.2.1 Brief Introduction of Sample Banks**

**i. NABIL Bank Ltd.**

NABIL bank is the first joint venture bank having commenced its operation on 12 July 1984. Under the technical services agreement approved by NRB, the management of the bank has vested under a technical service agreement with Dubai Bank Limited, Dubai. Currently, NB International Ltd, Ireland is the foreign partner. NABIL provides a full range of commercial banking service through its outlets spread across the nation and reputed correspondent banks across the globe.

**ii. Nepal Investment Bank Ltd. (NIBL)**

Nepal Investment Bank Ltd. (NIBL), previously Nepal Indosuez Bank Ltd., was established in 1986 as a joint venture between Nepalese and French partners. The French partner (holding 50% of the capital of NIBL)

was Credit Agricole Indosuez, a subsidiary of one the largest banking group in the world.

### iii. Standard Chartered Bank Nepal Ltd. (SCBNL)

Standard Chartered Bank Nepal Limited has been in operation in Nepal since 1987 when it was initially registered as a joint-venture operation. Today the Bank is an integral part of Standard Chartered Group who has 75% ownership in the company with 25% shares owned by the Nepalese public. The Bank enjoys the status of the largest international bank currently operating in Nepal.

### iv. Himalayan Bank Limited (HBL)

Himalayan Bank Limited is the fourth Joint-venture bank of Nepal established in 1992 under the Commercial Bank Act 2031 with the objective of providing modern banking facilities and granting loan to agriculture, commerce and industry. The bank is established by the distinguished business personalities of Nepal in partnership with Habib Bank Limited, one of the largest commercial bank of Pakistan. It is the first commercial bank of Nepal with maximum shareholding by the Nepalese private sector. Besides commercial activities, the Bank also offers industrial and merchant banking

### 3.3 Variables

A variable is a symbol to which numerals or values are assigned. So, the variables can take on values. This research intends to identify the factor that fosters the liquidity of commercial banks. Thus liquidity is known as dependent variable, which is affected by many other variables. The entire factor that affects the liquidity of commercial banks is security problem, investment opportunity and other rules and regulations relating liquidity management, etc. are the independent variables.

### 3.4 Sources and Nature of data

The study based on secondary data. Secondary data are collected from official publication of the commercial banks. In addition to above, supplementary data and information are collected from relevant institutions and authorities such as Nepal Rastra Bank, Securities Board of Nepal, Nepal Stock Exchange and their prospective publications and also from journals, websites, unpublished thesis reports, newspapers etc. Secondary data are used to analyze the historical trend in liquidity management.

### 3.5 Data Collection Techniques

The research consists of secondary data. To collect the secondary data, published materials are viewed in various sports. Books by different authors, unpublished thesis reports, journals, magazines, internet websites, AGM reports of commercial banks, bulletins published by NRB are the major sources of secondary data. Most of the data are obtained by visiting campus library, SEBO/N and Nepal Rastra Bank.

### 3.6 Data Analysis Tools

Financial and statistical tools are used to analyze the data. Averages (mean), Standard Deviation, Coefficient of Variation, Trend Analysis and Financial ratios are used in the study. Results are listed and tabulated under various headings. The results are compared with the corresponding results of the past in order to interpret them in a meaningful way. A brief description of the tools is given below.

### 3.6.1 Financial Tools

Financial tools also are the instruments to analyze the collected data from different sources. In this study, the following financial tool has been used to analyze the data.

## A) Financial Ratio Analysis

Financial Ration Analysis is a tool, through which economic and financial position of the organization can be fully to X-rayed. It is the indicated quotient of two mathematical expressions and the relationship between two or more things. Therefore to find out the liquidity position of the sampled commercial banks, the following ratios are examined:

### i) Current Ratio

Current ratio measures the organization's ability to meet its obligations. Current ratio is one of the most widely used measures of liquidity. It measures the degree to which current assets cover current liabilities. A higher ratio indicates greater assurance of ability to pay current liability. A low ratio indicates that the bank may not be able to meet short-term obligations. A high ratio indicates excessive current assets leading to under utilization of the bank's resources. Whether a current ratio is high or low is difficult to determine. For this the financial analyst has to consider the banks past ratios or the ratios of similar banks.

$$Current\ Assets\ to\ Current\ Liabilities = \frac{Current\ Assets}{Current\ Liabilitie\ s} \times 100$$

### ii) Cash and Bank to Current Deposit Ratio

This ratio is designed to measure the bank's ability to meet the immediate obligations. Cash and bank balance is said to be the first line of defense of every bank. This ratio shows the banks liquidity capacity in the basis of cash and bank balance that is the most liquid assets. High ratio indicates the bank's ability to meet the daily cash requirements of their customer deposits and vice versa. This ratio is obtained by dividing cash and bank balance by current deposit i.e.,

$$Cash\ and\ Bank\ Balance\ to\ Current\ Deposit\ Ratio = \frac{Cash\ and\ Bank\ Balance}{Current\ Deposit} \times 100$$

### iii) Liquid Funds to Total Deposit Ratio

This ratio is designed to see what portion of the total deposits accepted by commercial banks is kept as liquid funds. This ratio is calculated by dividing total liquid fund by total deposit and formula is:

Liquid Funds to Total Deposit Ratio = $\frac{Total\ Liquid\ Funds}{Total\ Deposit}$ x 100

### iv) Short-Term Investment to Total Deposit Ratio

This ratio is designed to analyze the liquidity position of commercial banks. It shows the portion of total deposits in short-term investment. Higher ratio indicates the better liquidity position whereas lower ratio is the symptom of liquidity risks which may arise in the future. It is computed by using the formula as under:

Short-term Investment to Total Deposit Ratio = $\frac{Short\text{-}term\ Investment}{Total\ Deposit}$ x 100

### v) Current Deposit to Total Deposit Ratio.

This ratio measures the portion of current deposit on total deposit. It clarifies what percentage of the total deposits is collected from current deposit. It is computed by dividing current deposit by total deposit and formula is;

Current Deposit to Total Deposit Ratio = $\frac{Current\ Deposits}{Total\ Deposits}$ x 100

### vi) Balance with NRB to Total Deposit Ratio.

Nepal Rastra Bank (NRB), the central bank, is the regulatory body of all the commercial banks. In order to enable to smooth functioning of the commercial banks, NRB has compelled them to hold a certain percentage of their total deposit as a reserve. This is particularly done in order to maintain the strength of commercial banks regarding the liquidity position. This ratio is calculated by using the following formula:

Balance with NRB to Total Deposit Ratio = $\frac{Balance\ with\ NRB}{Total\ Deposits}$ x 100

**vii) Cash in Vault to Total Deposit Ratio**

This ratio is designed to manage the liquidity position of the bank. NRB has determined that the ratio of cash in vault to total deposit is 3% in average. Thus it is the standard measuring tool. This ratio is calculated by the following formula:

$$\text{Cash in Vault to Total Deposit Ratio} = \frac{\text{Cash in Vault}}{\text{Total Deposits}} \times 100$$

**viii) Cash Reserve Ratio (CRR)**

Commercial banks are directed by Nepal Rastra Bank, the central bank, to maintain certain percentage of their deposits liabilities with NRB in own account in order to enable them to maintain the sound liquidity position. Cash reserve ratio (CRR) describes whether the commercial banks have methodology the liquidity requirement as prescribed by NRB or not. In 2003, NRB issued notice in monetary policy and prescribed CRR rate as 6% of total deposit It was revised to 5% in the year 2004. Later it was increased to 5.5% but in the year 2011 the CRR was changed to 5% of the total deposit. Since 2003, NRB has withdrawn the other reserve ratio for liquidity purpose like statutory liquidity ratio. Presently, commercial banks have to maintain 5% of their total deposits in NRB and own in hand. It is computed by dividing cash reserve of commercial banks by total deposit and the formula is:

$$\text{Cash Reserve Ratio (CRR)} = \frac{\text{Cash in Reserve}}{\text{Total Deposits}} \times 100$$

**ix) Cash in Vault to Current Deposit Ratio.**

This ratio is designed to measure the portion of cash in vault on current deposit. This ratio presents the cash position in vault as compare to current deposits, which shows the liquidity risk position of banks. This ratio is computed as follows:

$$\text{Cash in Vault to Current Deposit Ratio} = \frac{\text{Cash in Vault}}{\text{Current Deposits}} \times 100$$

**x) Total Investment to Total Deposit Ratio.**

This ratio is used to find out the ratio of total investment on total deposits. Following formula can complete the ratio:

Total Investment to Total Deposit Ratio = $\dfrac{\text{Total Investment}}{\text{Total Deposits}} \times 100$

**xi) Loans and Advances to Total Deposit Ratio**

Loans and advances is the major area of fund mobilization of commercial banks. Loans and advances is the first type of application of funds, which is more risky as compared to other type of investment. This ratio measures the bank's ability to utilize the depositor's funds to earn profit by providing loans and advances. This ratio is computed by dividing loans and advances by total deposits. We have,

Loans and Advances to Total Deposit Ratio = $\dfrac{\text{Loans and Advances}}{\text{Total Deposit}} \times 100$

**xii) Loans and Advances to Saving Deposit Ratio**

Loans and advances to saving deposit ratio reflect how much the banks are successful in mobilizing their saving deposit in loans and advances for the profit generating purpose. It is computed by dividing loans and advances by saving deposits.

Loans and Advances to Saving Deposit Ratio = $\dfrac{\text{Loans and Advances}}{\text{Saving Deposit}} \times 100$

**xiii) Investment on Government Securities to Total Deposit Ratio.**

The ratio shows the percentage of investment on government securities on total deposit. It presents that how much funds are invested on government securities of total deposit of commercial banks. This ratio is computed by using the following formula:

Inv. on Gov. Sec. to Total Deposit Ratio = $\dfrac{\text{Inv. on Gov. Securities}}{\text{Total Deposits}} \times 100$

### 3.6.2 Statistical Tools

Statistical tools are the measures or the instruments to analyze the collected data from different sources. In statistics, there are numerous statistical tools to analyze data of various natures. Following statistical tools has been used to analyze the data.

### i) Average (Mean)

An average is a single value related from a group of values to represent them in someway, a value, which is supposed to stand for the whole group of which it is part, as typical of all the values in the group. There are various types of averages, Arithmetic Mean (A.M., simple and weighted), median, mode, geometric mean, harmonic mean, are the major types of averages. The most popular and widely used measures representing the entire data by one value are the A.M. The value of the A.M is obtained by adding together all the items and by dividing this total by the number of items.

Mathematically,

$$\overline{X} = \frac{\sum X}{n}$$

Where,

$\overline{X}$ = Arithmetic Mean

$\sum X$ = Sum of all the values of the variable X

n = Number of observations

### ii) Standard Deviation

The standard deviation ($\sigma$) measures the absolute dispersion. The greater the standard deviation, greater will be the magnitude of the deviation of the values from their mean. A standard deviation means a high degree of uniformity of the observations as well as homogeneity of a series and vice versa.

Standard Deviation ($\sigma$) = $\sqrt{\dfrac{\sum (X - \overline{X})^2}{N-1}}$

## iii) Coefficient of Variation

The standard derivation is absolute measures of dispersion: whereas the coefficient of variation (CV) is a relative measure. To compare the variability between two or more series, CV is more appropriate statistical tool.

$$\text{Coefficient of Variation (CV)} = \frac{\sigma}{X} \times 100$$

## iv) Coefficient of Correlation

Correlation analysis helps us in determining the degree of relationship between two or more variables – it does not tell us anything about cause and effect relationship. Analysis of correlation helped to get coefficient of determinant. Coefficient of determinant measures the degree of relationship between two variables. Coefficient of determinant was obtained by squaring the value of correlation coefficient. Significance of relationship was also obtained by using the static of probable error. Following information presents the calculation technique of correlation coefficient that was used in the study.

Karl Pearson's correlation was used for the analysis. The value of correlation coefficient (r) was measured between ± 1 in order to interpret the results. The following computation method was adopted to obtain the value of correlation coefficient.

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (\sum X)^2}\sqrt{N\sum Y^2 - (\sum Y)^2}}$$

Where,

r = Value of Correlation Coefficient

N = No. of observation

$\sum XY$ = Total population of items in two series

$\sum X$ = Total of X series

$\sum Y$ = Total of Y series

$\sum X^2$ = Total of the square of items in X series

$\sum y^2$ = Total of the square of items in Y series

## v) Probable Error

Similarly, the probable error of the coefficient of correlation helps in test of significance of its value. With the help of probable error it is possible to determine the reliability of the value of the coefficient in so far as it depends on the condition of random sampling. The probable error of the coefficient of correlation is obtained as follows:

$$PE = 0.6745 \times \frac{1 - r^2}{\sqrt{N}}$$

Where,

r = Value of correlation coefficient

N = Number of pairs observation

## Test of Significance

- If the value of r < P.E, there is no evidence of correlation, i.e., the value of r is not at all significant.

- If r > 6 P.E, then r is highly significant.

In other cases, nothing can be concluded.

## vi) Trend Analysis:

Trend analysis is a significant tool of horizontal financial analysis. It is a dynamic method to indicate the charges in terms of financial statement. Trend analysis helps to identify the controllable items of given period and future forecast can be made for ongoing concern. It is one of the useful tools in making a comparative study of the financial statement of the number of years. It makes easy to identify the changes in an item or in a group of items over a period of time and to draw the conclusion regarding the changes there on.

Under this topic, trend of different ratios are forecasted for next five years. The projections are based on the following assumption.

1. The banks will remain in the present position.
2. The economy will remain in the present stage.

3. NRB will not change its guidelines to commercial banks.

4. The forecast will be true only when the limitation of least square method is carried out.

**Least Square Method:**

This is one of the most commonly used methods to describe the trend. This is the mathematical method.

The straight line trend between the dependent variable 'y' and independent variable 'x' (i.e., time) is responding by equation $Y_c = a + bx$

Where,

$Y_c$ = estimated value of 'y' for any given value of independent variable X.

a = y – intercept of value of 'y' when x = 0 [i.e., $a = \dfrac{\sum Y}{n}$ ]

b = slope of the trend line or amount of change in 'y' per unit change in 'x'

[i.e., $a = \dfrac{\sum XY}{\sum X^2}$ ]

# CHAPTER FOUR

# PRESENTATION AND ANALYSIS OF DATA

Keeping in view the objectives stated in chapter one, the available data and information in liquidity management of sample commercial banks i.e. NABIL, NIBL, SCBNL, HBL are presented and analyzed in the present chapter. Here, the study presents the collected data for various purpose of analysis. The data are analyzed by using financial and statistical tools to get the values of different variables. The analyzed data and results are presented clearly and simultaneously by using tables and graphs.

## 4.1 Financial Ratio Analysis

Financial ratio analysis is a tool through which economic and financial position of organization can be fully X-rayed. It is the indicated quotient of two mathematical expressions and the relationship between two or more things. Therefore, to find out the liquidity position of the sample commercial banks, the following ratios are examined.

## 4.1.1 Liquidity Ratio

## 4.1.1.1 Current Ratio

Current ratio is one of the most widely used measures of liquidity. It measures the degree to which current assets cover current liabilities. A higher ratio indicates greater assurance of ability to pay current liability. A low ratio indicates that the bank may not be able to meet short-term obligations. A high ratio indicates excessive current assets leading to under utilization of the bank's resources. Whether a current ratio is high or low is difficult to determine. For this the financial analyst has to consider the banks past ratios or the ratios of similar banks.

The current assets include cash and bank balance, cheques in hand, balance with NRB, money at call and short notice, investment in government securities,

bills purchased and discounted, loans and advances and other current assets. Similarly, current liability includes borrowing from other banks, deposits, bills payable and other current liabilities.

**Table  4.1**

**Current Ratio**

| Years | Banks | | | |
|---|---|---|---|---|
| | NABIL | NIBL | SCBNL | HBL |
| 2005 | 1.06 | 1.09 | 1.05 | 1.02 |
| 2006 | 1.06 | 1.08 | 1.04 | 1.02 |
| 2007 | 1.00 | 1.08 | 0.87 | 1.03 |
| 2008 | 1.07 | 0.91 | 0.88 | 1.03 |
| 2009 | 1.11 | 0.89 | 0.99 | 1.05 |
| 2010 | 0.98 | 0.92 | 1.01 | 1.03 |
| 2011 | 0.92 | 0.90 | 0.89 | 0.84 |
| **Mean** | **1.03** | **0.98** | **0.96** | **1.00** |
| **SD** | **0.06** | **0.09** | **0.07** | **0.07** |
| **C.V** | **0.06** | **0.09** | **0.08** | **0.07** |

*Source: Appendix –I*

Above table shows the current ratio of all the four banks under study. The current ratio is determined by dividing current assets by current liabilities. The standard current ratio is said to be 2:1, which shows that there is adequate liquid funds to meet its obligation.

The ratio of NABIL has been fluctuating upward upto the year 2008. In the year 2009 & 2010, it is in decreasing trend. The current ratio of NIBL is in decreasing trend. Likewise the current ratio of SCBNL is fluctuating in decreasing trend year after year.

**Figure 4.1**

**Current Ratio**
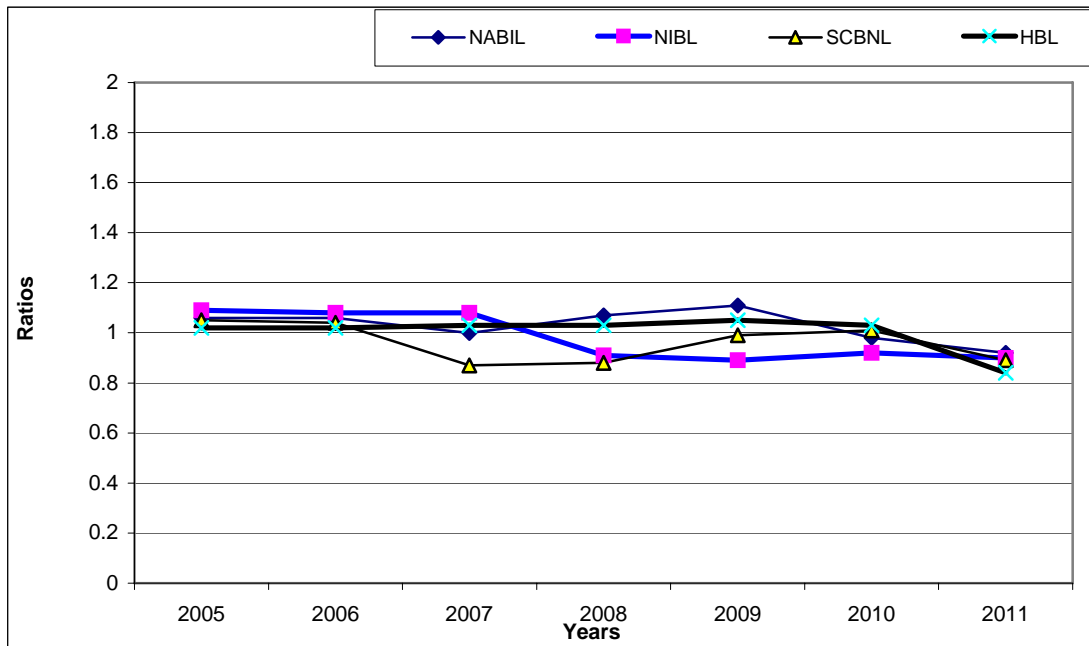


*Source: Table No. 4.1*

The average current ratios of NIBL, SCBNL & HBL are below one. It indicates that these banks have fewer current assets than current liabilities or these banks have lower level of liquid assets or they cannot meet the short-term obligations in time.

**4.1.1.2 Cash and Bank Balances to Current Deposit Ratio**

Cash and bank balance is said to be the first line of defense of every bank. This ratio shows the banks liquidity capacity in the basis of cash and bank balance that is the most liquid assets. High ratio indicates the bank's ability to meet the daily cash requirements of their customer deposits and vice versa.

**Table 4.2**

**Comparative analysis of Cash & Bank Balance to Current Deposit Ratio**

| Years | Banks | | | |
|---|---|---|---|---|
| | **NABIL** | **NIBL** | **SCBNL** | **HBL** |
| **2005** | 12.19 | 6.901 | 5.056 | 8.294 |
| **2006** | 7.20 | 9.792 | 5.763 | 6.954 |
| **2007** | 12.56 | 8.165 | 7.208 | 18.814 |
| **2008** | 6.84 | 20.878 | 5.391 | 11.418 |
| **2009** | 12.08 | 24.688 | 6.065 | 7.057 |
| **2010** | 6.07 | 24.62 | 4.841 | 5.779 |
| **2011** | 8.96 | 34.486 | 6.365 | 7.690 |
| **Mean** | **9.42** | **18.50** | **5.81** | **9.43** |
| **SD** | **2.61** | **9.67** | **0.76** | **4.16** |
| **C.V** | **0.28** | **0.52** | **0.13** | **0.44** |

*Source: Appendix –II*

Above table shows the cash and bank balance to current deposit ratios of four banks. From the above table, it is revealed that cash and bank balance to current deposit ratio of NIBL is the highest among other banks.

In the year 2007, NABIL has the highest ratio (i.e. 12.19%) than other banks whereas in the year 2010, it has the lowest ratio of 6.07%. The cash and bank balances to current deposit ratio of NABIL have fluctuated between 6.07% and 12.56%).

Similarly, the cash and bank balance to current deposit ratio of NIBL is in increasing trend. Among all the other banks, NIBL has the highest ratio in average than all other banks. It has the highest ratio (i.e. 34.486 %) in 2011 and the lowest ratio is (6.901%) in the year 2005.

Likewise, among all other banks, SCBNL has the lowest cash and bank balance to current deposit ratio in average. This ratio has fluctuated from year to year. HBL has second highest ratio in average than other banks. The trend of this

ratio is fluctuating. The highest ratio is 18.814% in the year 2007 and the lowest is 5.779% in 2010.

**Figure 4.2**

**Cash and Bank Balance to Current Deposit Ratio**
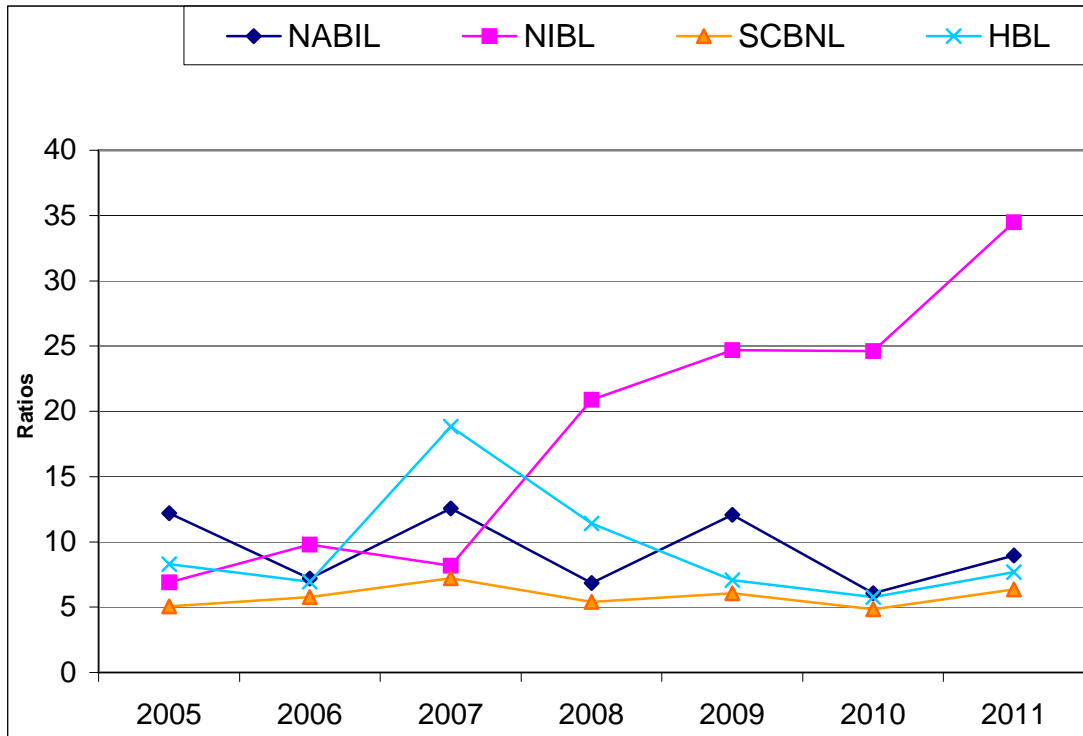


*Source: Table No. 4.2*

During the study period, HBL has come after NIBL for high liquidity position. As compare to other banks average ratio of SCBNL is too low i.e. only 5.81% that may arise a liquidity crisis to the bank

### 4.1.1.3 Liquid Fund to Total Deposit Ratio

The deposit constitutes the major part of the bank's liability. Flow of this liability is always uncertain in the bank's liquidity management. Hence, the ratio of liquid fund to total deposits indicates the banks strength to meet uncertain outflow of deposit.

**Table 4.3**

**Comparative analysis of Liquid Funds to Total Deposit Ratio**

| Years | Banks | | | |
|---|---|---|---|---|
| | **NABIL** | **NIBL** | **SCBNL** | **HBL** |
| **2005** | 43.36 | 51.42 | 64.17 | 38.68 |
| **2006** | 39.68 | 10.50 | 52.41 | 40.84 |
| **2007** | 32.53 | 45.49 | 18.25 | 41.19 |
| **2008** | 30.97 | 11.69 | 16.90 | 39.43 |
| **2009** | 27.78 | 10.38 | 20.04 | 37.84 |
| **2010** | 9.22 | 9.40 | 17.43 | 32.92 |
| **2011** | 12.22 | 12.44 | 14.11 | 10.12 |
| **Mean** | **27.97** | **21.62** | **29.04** | **34.43** |
| **SD** | **11.97** | **17.07** | **18.83** | **10.24** |
| **C.V.** | **0.43** | **0.79** | **0.65** | **0.30** |

*Source: Appendix –III*

Above table shows the liquid funds to Total deposit ratio of NABIL, NIBL, SCBNL and HBL respectively. The ratio of NABIL and SCBNL is in decreasing trend and the average value is 27.97% and 29.04 % respectively. Likewise, the ratio of NIBL and HBL is fluctuating in decreasing trend. The liquid fund to total deposit ratio of HBL is the highest (i.e. 34.43%) among others and it is more liquid among others. It implies that the ratio of HBL is consistent as its S.D is 10.24 and C.V is 0.30. The highest ratio of NIBL is 51.42% and the lowest ratio is 9.40% and the average ratio is 21.62%. It implies that the ratio of liquid fund to total deposit is quite lower as compared to others. The ratio of SCBNL is in decreasing trend and the average ratio is 29.04%. It reveals that the capacity of SCBNL to meet immediate obligation is good. Similarly, the average ratio of NABIL is 27.97% and the value of C.V is 0.43, which shows the consistency of ratio during the study period.

**Figure 4.3**
**Liquid Funds to Total Deposit Ratio**
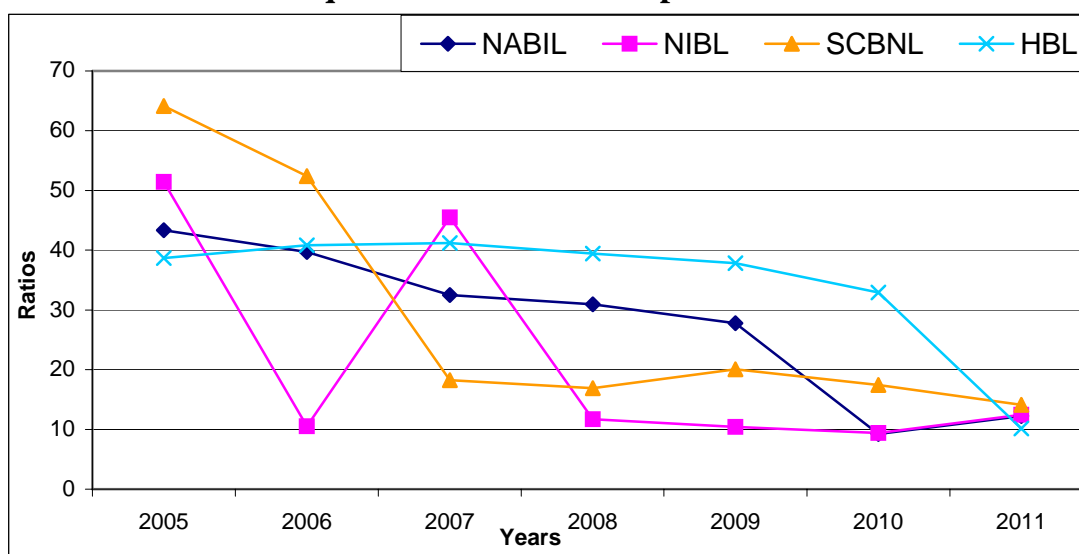


*Source: Table No. 4.3*

### 4.1.1.4 Short Term Investment to Total Deposit Ratio:

This ratio shows the portion of short-term investment in the total deposit. This ratio is useful in analyzing the liquidity position of commercial banks. Higher ratio indicates the better liquidity position of commercial banks whereas the lower ratio means the bank may be in the liquidity crisis in future. It is computed by dividing the short-term investment by total deposit.

**Table 4.4**
**Comparative analysis of Short Term Investment to Total Deposit Ratio**

| Years | Banks | | | |
|---|---|---|---|---|
| | **NABIL** | **NIBL** | **SCBNL** | **HBL** |
| **2005** | 9.65 | 0.00 | 26.57 | 15.67 |
| **2006** | 17.25 | 7.05 | 31.18 | 12.63 |
| **2007** | 26.81 | 5.37 | 36.53 | 13.92 |
| **2008** | 27.26 | 5.05 | 35.84 | 18.95 |
| **2009** | 26.05 | 17.09 | 37.56 | 12.22 |
| **2010** | 19.38 | 13.67 | 37.24 | 22.03 |
| **2011** | 12.26 | 13.33 | 37.50 | 19.44 |
| **Mean** | **19.81** | **8.79** | **34.63** | **16.41** |
| **SD** | **6.66** | **5.60** | **3.89** | **3.50** |
| **C.V.** | **0.34** | **0.64** | **0.11** | **0.21** |

*Source: Appendix –IV*

From the above table, it is clear that the short-term investment to total deposit ratio of NABIL is 19.81% in average. The highest ratio is 27.26% in average in the year 2008 and the lowest ratio is 9.65% in the year 2005. The short-term investment to total deposit ratio of NIBL is 8.79% in average. This ratio is the lowest among all the other banks. Likewise, the highest ratio of SCBNL is 37.56% in the year 2009 and among all other banks SCBNL has the highest ratio i.e 34.63% in average which implies that SCBNL has utilized 34.63% of total deposit in short term investment and enjoyed two benefits as liquidity & profitability. Similarly HBL has short-term investment to total deposit ratio of 16.41% in average.

**Figure 4.4**

**Short Term Investment to Total Deposit Ratio**
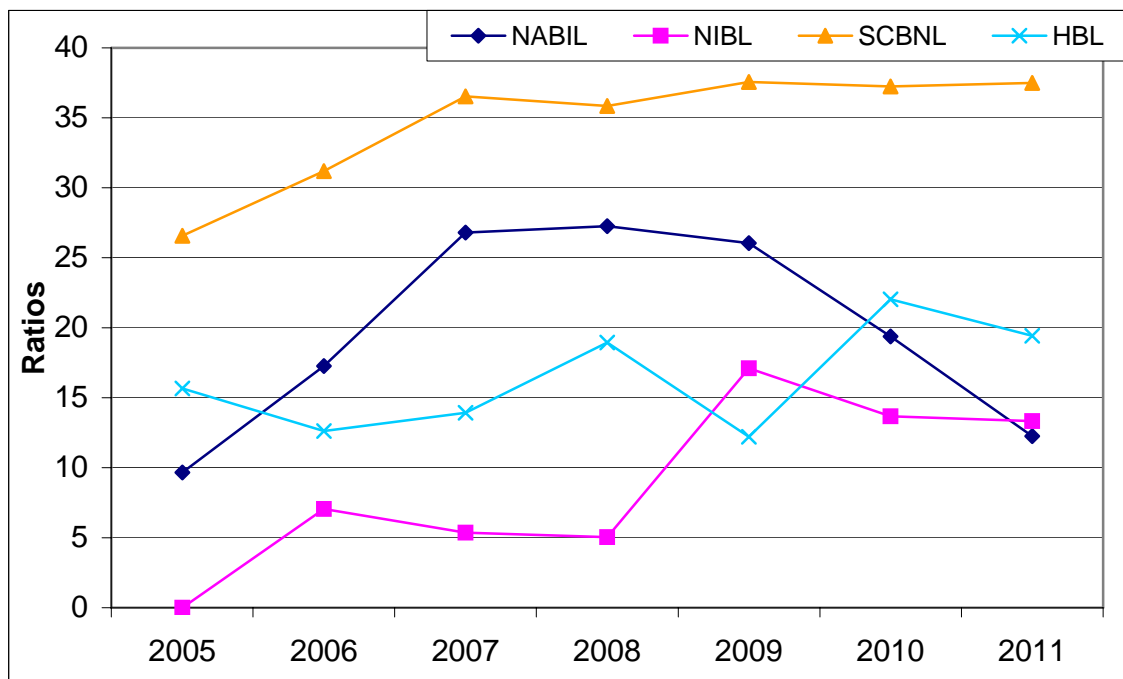


*Source: Table No. 4.4*

While comparing the ratios of all the banks, it can be concluded that the liquidity position of SCBNL is strong, NABIL & HBL are moderate and NIBL is in poor position. It can be seen more clearly from the following chart.

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### 4.1.1.5 Current Deposit to Total Deposit Ratio

This ratio measures the portion of current deposit on total deposit. It clarifies how much percentage of the total deposit is collected from current deposit. It is computed by dividing current deposit by Total deposit and the formula is:

**Table 4.5**

**Comparative Analysis of Current Deposit to Total Deposit Ratio**

| Years | Banks | | | |
|---|---|---|---|---|
| | **NABIL** | **NIBL** | **SCBNL** | **HBL** |
| **2005** | 22.968 | 19.484 | 19.235 | 12.585 |
| **2006** | 18.670 | 18.068 | 21.253 | 13.136 |
| **2007** | 17.716 | 18.863 | 24.050 | 14.266 |
| **2008** | 22.511 | 12.357 | 30.757 | 17.627 |
| **2009** | 19.059 | 13.882 | 27.488 | 19.125 |
| **2010** | 19.494 | 11.106 | 22.520 | 20.188 |
| **2011** | 15.264 | 9.011 | 20.311 | 18.875 |
| **Mean** | **19.38** | **14.68** | **23.66** | **16.54** |
| **SD** | **2.47** | **3.83** | **3.83** | **2.90** |
| **C.V.** | **0.13** | **0.26** | **0.16** | **0.18** |

*Source: Appendix –V*

From the above table, it is clear that current deposit to total deposit ratio of NABIL, SCBNL & HBL is in fluctuating trend whereas the current deposit to total deposit ratio of NIBL is in decreasing trend. During the study period, the average ratio of current deposit to total deposit of NABIL is 19.38%. The average ratio of NIBL is lowest among all others i.e.14.68% which means that out of total deposit, 19.38% comes from current deposit. Likewise, SCBNL has the highest average ratio of current deposit to total deposit i.e. 23.66%. Similarly, the current deposit to total deposit ratio of HBL is 16.54% in average. With the help of the following figure, it can be seen more clearly.

**Figure 4.5**
**Current Deposit to Total Deposit Ratio**
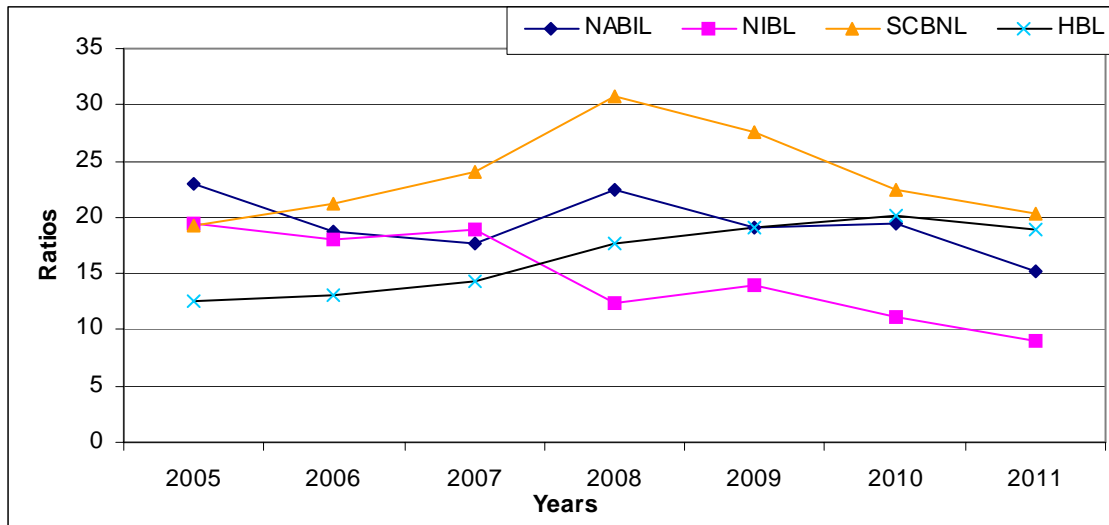


*Source: Table No. 4.5*

### 4.1.1.6 Balance with NRB to Total Deposit Ratio

Nepal Rastra Bank, the central bank, is the regulatory body of all commercial banks. In order to enable the smooth functioning of the commercial banks, NRB has compelled them to hold a certain percentage of their total deposit as a reserve. This is particularly done in order to maintain the strength of commercial banks regarding the liquidity position.

**Table 4.6**

**Comparative Analysis of Balance with NRB to Total Deposit Ratio**

| Years | Banks | | | |
|---|---|---|---|---|
| | **NABIL** | **NIBL** | **SCBNL** | **HBL** |
| **2005** | 4.173 | 5.878 | 5.172 | 4.653 |
| **2006** | 3.221 | 4.988 | 4.274 | 6.093 |
| **2007** | 2.383 | 3.983 | 2.335 | 3.740 |
| **2008** | 6.644 | 5.685 | 6.084 | 5.380 |
| **2009** | 4.301 | 4.561 | 7.250 | 7.135 |
| **2010** | 0.736 | 5.473 | 3.578 | 5.686 |
| **2011** | 1.646 | 8.063 | 3.253 | 4.131 |
| **Mean** | **3.30** | **5.52** | **4.56** | **5.26** |
| **SD** | **1.82** | **1.21** | **1.59** | **1.09** |
| **C.V.** | **0.55** | **0.22** | **0.35** | **0.21** |

*Source: Appendix –VI*

From the above table it is clear that the ratios of the banks are fluctuating. The highest ratio of balance with NRB to total deposit of NABIL is 6.644% in 2008 and the lowest ratio is 0.736% in 2010. The average ratio is 3.30% which implies that out of total deposit NABIL has maintained 3.30% fund in the NRB as reserve.

The average ratio of balance with NRB to total deposit of NIBL is 5.52% which is the highest among others comparatively. It depicts the strong capacity to liquidity reserve of NIBL. Likewise, the highest ratio of SCBNL is 7.250% in 2009 and the lowest ratio is 2.335% in 2007. The average ratio is 4.56% which implies that 4.56% of total deposit is with NRB. The average ratio of HBL is 5.26% during the study period.

**Figure 4.6**

**Balance with NRB to Total Deposit Ratio**
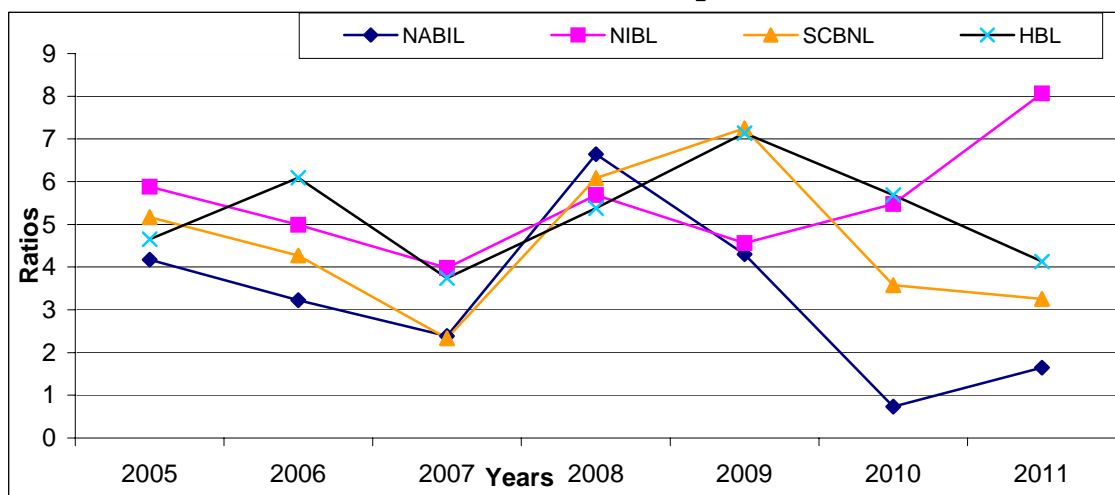


*Source: Table No. 4.6*

As NRB has determined the ratio of balance with NRB to Total Deposit is 7%, it will be the measurement tool of each bank's ratio. Here all the banks are below the standard. The ratio of NABIL, NIBL, SCBNL & HBL are less than 7%.

**4.1.1.7 Cash in Vault to Total Deposit Ratio:**

This ratio is designed to manage the liquidity position of commercial banks. NRB has determined that the ratio of cash in vault to total deposit is 3% in average. Thus it is the standard measuring tool of this ratio.

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**Table 4.7**

**Comparative Analysis of Cash in Vault to Total Deposit Ratio**

| Years | Banks | | | |
|---|---|---|---|---|
| | NABIL | NIBL | SCBNL | HBL |
| **2005** | 1.40 | 0.94 | 0.87 | 0.83 |
| **2006** | 1.15 | 1.48 | 1.10 | 0.75 |
| **2007** | 1.86 | 1.22 | 1.41 | 2.42 |
| **2008** | 1.17 | 2.25 | 0.82 | 1.67 |
| **2009** | 1.87 | 2.46 | 0.73 | 1.20 |
| **2010** | 0.91 | 2.46 | 0.84 | 1.16 |
| **2011** | 1.14 | 2.86 | 1.06 | 1.00 |
| **Mean** | **1.36** | **1.95** | **0.98** | **1.29** |
| **SD** | **0.35** | **0.68** | **0.22** | **0.54** |
| **C.V.** | **0.26** | **0.35** | **0.22** | **0.42** |

*Source: Appendix –VII*

From the above table it is revealed that all three banks except SCBNL has this ratio less than 1%. From this table it can be seen that cash in vault to total deposit ratio of all the banks are in fluctuating trend and the ratios of each bank are nearly less than 2%, which implies that the banks have maintained as possible as low level of cash in vault. With the help of following figure it can be seen more clearly.

**Figure 4.7**
**Cash in Vault to Total Deposit Ratio**
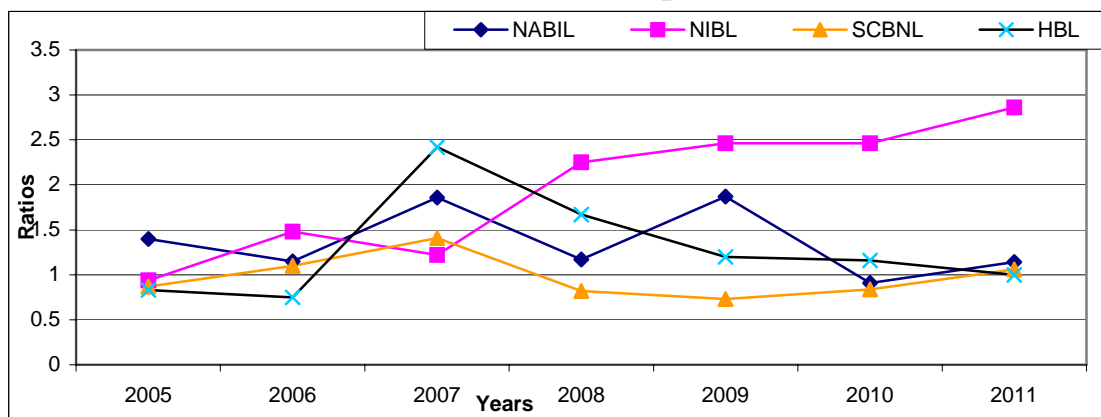


*Source: Table No. 4.7*

### 4.1.1.8 Cash Reserve Ratio (CRR):

Commercial banks are directed by the Nepal central bank, the central bank to maintain certain percentage of their deposits liabilities with NRB in own account in order to enable them to maintain the sound liquidity position. Cash reserve ratio (CRR) describes whether the commercial banks have methodology the liquidity requirement as prescribed by NRB or not. In 2003, NRB prescribed CRR rate as 6% of total deposit. It was revised to 5% in 2004. Later it was increased to 5.5% but in 2011 the CRR is revised to 5%. We have,

**Table 4.8**

**Comparative Analysis of Cash Reserve Ratio**

| Years | Banks | | | |
|-------|-------|------|-------|------|
|       | NABIL | NIBL | SCBNL | HBL |
| 2005 | 5.70 | 6.98 | 6.18 | 5.61 |
| 2006 | 4.54 | 6.67 | 5.49 | 6.94 |
| 2007 | 4.45 | 5.46 | 3.96 | 6.23 |
| 2008 | 8.06 | 8.22 | 7.14 | 7.20 |
| 2009 | 6.34 | 12.82 | 8.14 | 8.34 |
| 2010 | 1.74 | 8.10 | 4.59 | 6.84 |
| 2011 | 2.87 | 11.03 | 4.46 | 5.29 |
| **Mean** | **4.81** | **8.47** | **5.71** | **6.64** |
| **SD** | **1.96676** | **2.39780** | **1.41774** | **0.95700** |
| **C.V.** | **0.4086** | **0.2832** | **0.2483** | **0.1442** |

*Source: Appendix –VIII*

From the above table, it is clear that the Cash reserve ratio of all four banks is in fluctuating trend. The average CRR of all three banks except NABIL is more than the standard set by NRB i.e. 5%. This shows that the three banks have tied up their funds in excess deposit in NRB, which ultimately affects the profitability negatively.

Figure 4.8
**Cash Reserve Ratio**
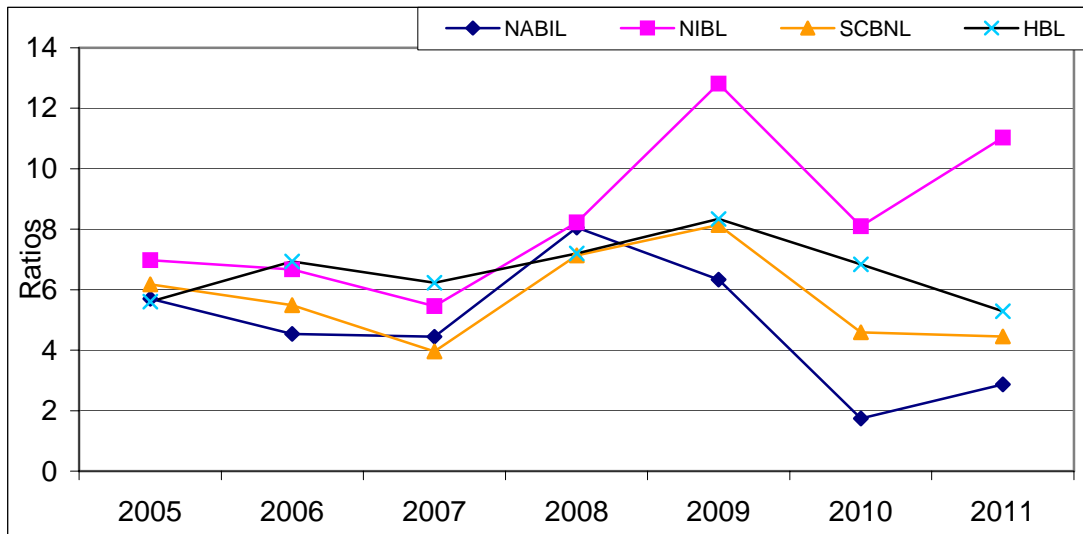


*Source: Table No. 4.8*

In average all the banks are in strong liquidity position. Furthermore, the CVs of all the banks reveals the better consistency to ratios during the study period. With the help of the following figure it can be seen more clearly.

### 4.1.1.9 Cash in Vault to Current Deposit Ratio

This ratio is designed to measure the portion of cash in vault on current deposit. This ratio presents the cash position in vault as compare to current deposit that shows the liquidity position of banks.

**Table 4.9**
**Comparative Analysis of Cash in Vault to Current Deposit Ratio**

| Years | Banks | | | |
|-------|-------|------|-------|------|
| | **NABIL** | **NIBL** | **SCBNL** | **HBL** |
| **2005** | 6.09 | 4.82 | 4.53 | 6.56 |
| **2006** | 6.16 | 8.18 | 5.18 | 5.69 |
| **2007** | 10.48 | 6.45 | 5.88 | 16.97 |
| **2008** | 5.21 | 18.24 | 2.66 | 9.45 |
| **2009** | 9.80 | 17.72 | 2.65 | 6.30 |
| **2010** | 4.66 | 22.13 | 3.72 | 5.73 |
| **2011** | 7.45 | 31.78 | 5.20 | 5.27 |
| **Mean** | **7.12** | **15.62** | **4.26** | **8.00** |
| **SD** | **2.08** | **9.03** | **1.19** | **3.88** |
| **C.V.** | **0.29** | **0.58** | **0.28** | **0.49** |

*Source: Appendix –IX*

From the table 4.9, it is revealed the facts that cash in vault to current deposit ratio of all banks are in fluctuating trend. The average ratio of NIBL is 15.62% and it is seen that the ratio is in increasing trend during the study period. The highest ratio of NIBL is 31.78% in the year 2011 and the lowest ratio is 4.82% in the year 2005. The CV 0.58 depicts the inconsistency of ratios to average ratio 15.62%. The ratio of SCBNL is 4.26% and this is the lowest ratio among the sample banks. The average ratios of cash in vault to current deposit of rest of the banks namely NABIL and HBL are in moderate position i.e., 7.12% and 8.00% respectively. As compared with among four sample banks the liquidity position of NIBL is strong which depicts the capacity of prompt payment to current depositors. The liquidity position of SCBNL is too low i.e., 4.26%, which might arise a liquidity risk to the bank. With the help of the following figure, it can be seen more clearly.

**Figure 4.9**

**Cash in Vault to Current Deposit Ratio**
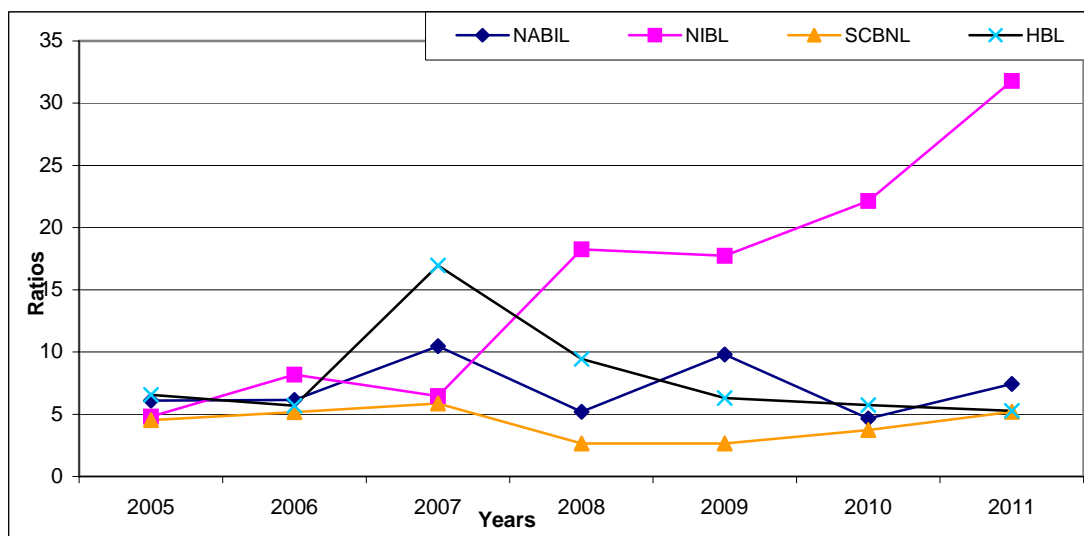


*Source: Table No. 4.9*

## 4.1.2 Turnover Ratio

## 4.1.2.1 Total Investment to Total Deposit Ratio

Commercial bank mobilizes its deposits by investing its fund in different securities issued by government and other financial or non-financial

companies. This ratio measures the extent to which the banks are able to mobilize their deposit on investment in various securities and vice versa.

**Table 4.10**

**Comparative Analysis of Total Investment to Total Deposit Ratio**

| Years | Banks | | | |
|---|---|---|---|---|
| | **NABIL** | **NIBL** | **SCBNL** | **HBL** |
| **2005** | 9.79 | 0.43 | 26.66 | 15.74 |
| **2006** | 17.38 | 7.35 | 31.25 | 12.69 |
| **2007** | 33.84 | 6.28 | 58.58 | 14.11 |
| **2008** | 27.44 | 22.03 | 55.22 | 19.11 |
| **2009** | 26.22 | 35.64 | 53.85 | 12.65 |
| **2010** | 29.84 | 28.58 | 50.17 | 22.19 |
| **2011** | 31.91 | 29.97 | 55.75 | 41.16 |
| **Mean** | **25.21** | **18.61** | **47.35** | **19.66** |
| **SD** | **7.98** | **12.76** | **11.93** | **9.36** |
| **C.V.** | **0.32** | **0.69** | **0.25** | **0.48** |

*Source: Appendix –X*

From the above table, it is revealed that NABIL has invested 25.21% of total deposit in average during the study period. The highest ratio of total investment to total deposit is 33.84% in the year 2007 and the lowest ratio is 9.79% in the year 2005. In aggregate the ratio is gradually heading upward. Likewise, NIBL has invested only 18.61% of the total deposit. The highest ratio is 35.64% in the year 2009 and the lowest ratio is 0.43% in the year 2005. Among all the other banks SCBNL has invested more i.e. 47.35% of total deposit. The highest ratio is 58.58% and the lowest ratio is 26.66%. HBL has invested only 19.66% of total deposit, which is not satisfactory at all. The highest ratio is 41.16% in the year 2011 and the lowest ratio is 12.65% in the year 2009. With the help of the following figure it can be seen more clearly.

**Figure 4.10**

**Total Investment to Total Deposit Ratio**
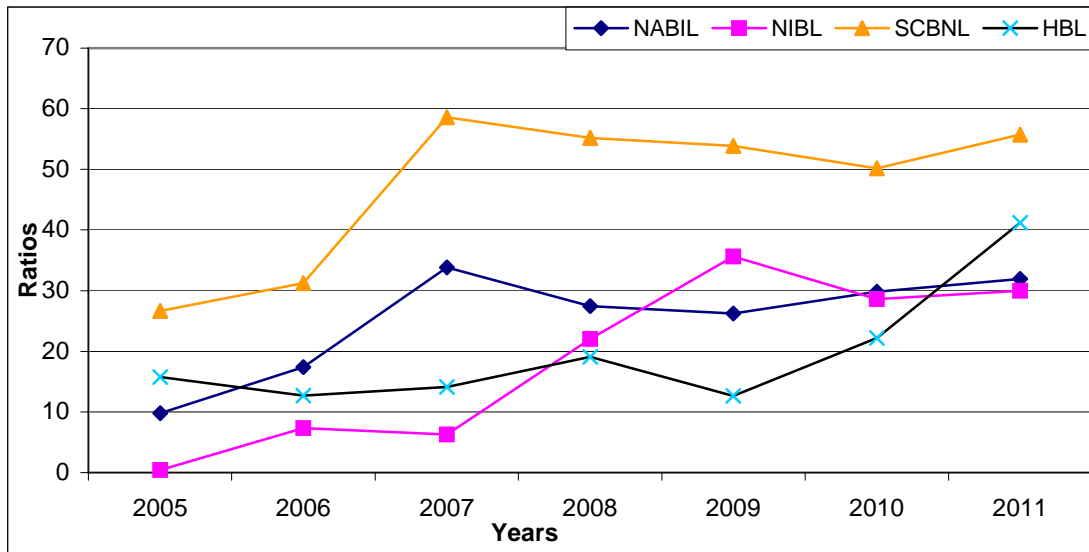


*Source: Table No.4.10*

**4.1.2.2 Loans and Advances to Total Deposit Ratio:**

Loans and advances is the major area of fund mobilization of commercial banks. Loans and advances is the first type of application of funds, which is more risky as compared to other type of investment. This ratio measures the bank's ability to utilize the depositor's funds to earn profit by providing loans and advances. This ratio is computed by dividing loans and advances by total deposits.

In this study, loans and advances refer to total of loan, advances, cash, credit, local and foreign bill purchased and discounted and total deposit refer to all kinds of deposits.

Generally, a high ratio reflects a higher efficiency to utilize depositor's fund. But much ratio may be the problem from liquidity point of view.

**Table 4.11**

**Comparative Analysis of Loans & Advances to Total Deposit Ratio**

| Years | Banks | | | |
|-------|-------|------|-------|-----|
|       | NABIL | NIBL | SCBNL | HBL |
| 2005 | 57.305 | 69.451 | 39.450 | 52.712 |
| 2006 | 53.271 | 57.124 | 38.393 | 52.101 |
| 2007 | 47.677 | 65.050 | 36.550 | 52.021 |
| 2008 | 61.527 | 75.090 | 32.421 | 52.727 |
| 2009 | 62.205 | 62.276 | 31.801 | 57.474 |
| 2010 | 75.945 | 72.221 | 42.463 | 53.340 |
| 2011 | 67.298 | 68.721 | 38.633 | 58.648 |
| Mean | 60.75 | 67.13 | 37.10 | 54.15 |
| SD | 8.58 | 5.67 | 3.56 | 2.53 |
| C.V. | 0.14 | 0.08 | 0.10 | 0.05 |

*Source: Appendix –XI*

Above table shows the loans and advances to Total deposit ratio of all four banks comparatively. From the above table it is clear that NABIL has the highest ratio of 75.95% in the year 2010 and lowest ratio is 47.68% in the year 2007 and it has the ratio of 60.75% in average. It reflects a higher efficiency to utilize depositor's fund. Likewise, NIBL has the loans and advances to total deposit ratio of 67.13% in average, which is comparatively higher than other banks under study. Similarly, SCBNL and HBL have the ratio of 37.10% and 54.15% in average. SCBNL has the lowest ratio as compared to other banks under study. With the help of the following figure it can be seen more clearly.

**Figure 4.11**

**Loan & Advances to Total Deposit Ratio**
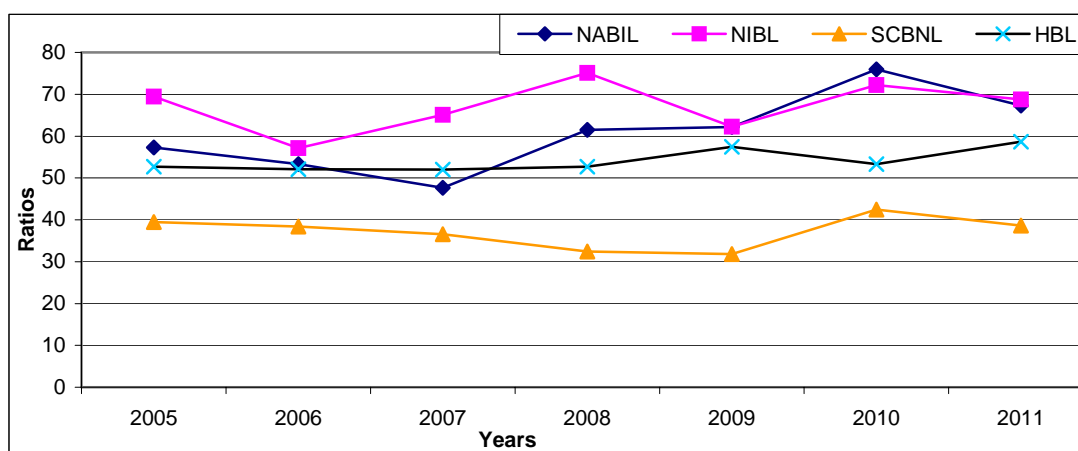


*Source: Table No. 4.11*

### 4.1.2.3 Loans and advances to saving Deposit Ratio:

Loans and advances to saving deposit ratio reflect how much the banks are successful in mobilizing their saving deposit in loans and advances for the profit generating purpose. It is computed by dividing loans and advances by saving deposits. Generally, high ratio reveals higher efficiency in utilizing the assets. But it should be noted that too high ratio might not be better from liquidity point of view.

**Table 4.12**
**Comparative Analysis of Loans & Advances to Saving Deposit Ratio**

| Years | Banks | | | |
|---|---|---|---|---|
| | **NABIL** | **NIBL** | **SCBNL** | **HBL** |
| **2005** | 176.46 | 207.65 | 74.74 | 108.46 |
| **2006** | 171.60 | 193.02 | 70.49 | 100.14 |
| **2007** | 149.89 | 212.71 | 61.30 | 106.27 |
| **2008** | 157.86 | 244.43 | 57.19 | 102.15 |
| **2009** | 146.31 | 148.11 | 52.69 | 111.62 |
| **2010** | 157.66 | 153.58 | 63.05 | 103.05 |
| **2011** | 166.55 | 176.95 | 64.24 | 112.13 |
| **Mean** | **160.90** | **190.92** | **63.39** | **106.26** |
| **SD** | **10.30** | **31.72** | **6.94** | **4.35** |
| **C.V.** | **0.06** | **0.17** | **0.11** | **0.04** |

*Source: Appendix –XII*

Above table shows the loans and advances to saving deposit ratio of NABIL, NIBL, SCBNL and HBL comparatively. In the study period NABIL has the ratio of 160.9% in average and NIBL has 190.20% in average that is the highest among other banks under study. Similarly SCBNL has the ratio of 63.39% in average, which is the lowest ratio among others. Likewise, HBL has the ratio of 106.26% in average.

**Figure 4.12**

**Loan and Advance to Saving Deposit Ratio**



*Source: Table No. 4.12*

High ratio reveals higher efficiency in utilizing the assets. But it should be noted that too high ratio might not be better from liquidity point of view.

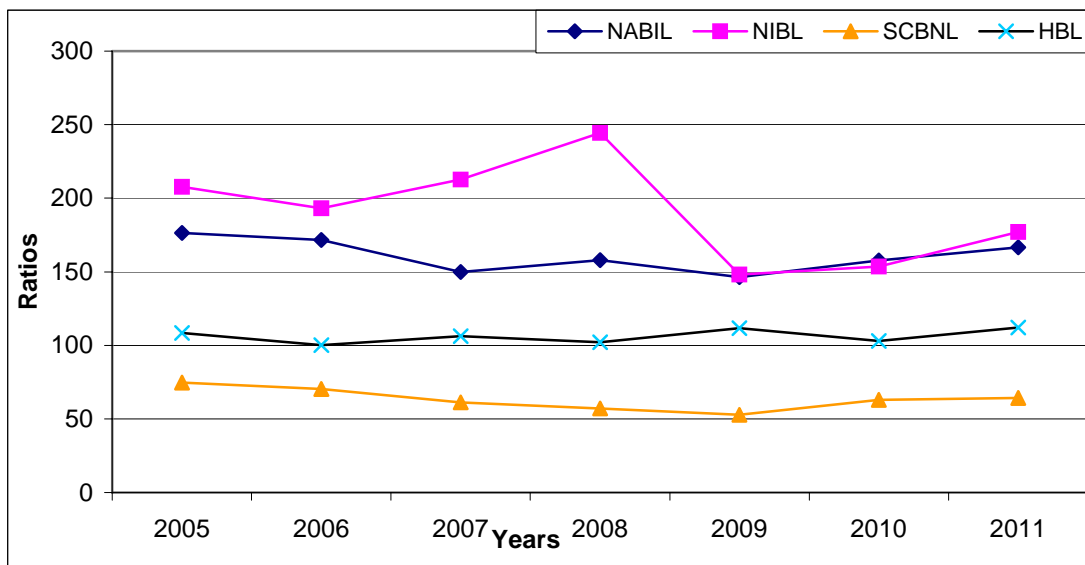### 4.1.2.4 Investment on Government Securities to Total Deposit Ratio

This ratio shows the percentage of Investment on government securities on total deposit. It presents that how much funds are invested on government securities of total deposit of commercial banks.

**Table 4.13**

**Comparative Analysis of Investment on Gov. Sec. to Total Deposit Ratio**

| Years | Banks | | | |
|---|---|---|---|---|
| | **NABIL** | **NIBL** | **SCBNL** | **HBL** |
| **2005** | 9.65 | 0 | 26.57 | 15.67 |
| **2006** | 17.25 | 7.05 | 31.18 | 12.63 |
| **2007** | 26.81 | 5.38 | 36.53 | 13.92 |
| **2008** | 27.26 | 5.05 | 35.84 | 18.95 |
| **2009** | 26.05 | 17.09 | 37.56 | 12.22 |
| **2010** | 16.55 | 13.67 | 37.24 | 22.03 |
| **2011** | 11.88 | 13.33 | 37.50 | 17.3 |
| **Mean** | **19.35** | **8.80** | **34.63** | **16.10** |
| **SD** | **6.82** | **5.60** | **3.88** | **3.31** |
| **C.V.** | **0.35** | **0.64** | **0.11** | **0.21** |

*Source: Appendix –XIII*

From the above table, it is revealed the facts that the investment on government securities to total deposit ratio of all banks are fluctuating in increasing trend, which shows that the banks are concentrating their funds to investment on government securities. The ratio of SCBNL is the highest among the other banks i.e., 34.63%. NABIL and HBL are in moderate i.e., 19.35% and 16.10% respectively. It is depicted that SCBNL has used its 34.63% of total deposit in investment on government securities, which is secure and non risky. By this SCBNL can gain more profitability as compared to others. As its CV is 0.11, it is consistent compared to other banks. In comparison to all banks the ratios of NIBL are inconsistent to its average ratio 8.80%. The CV 0.64 implies that the ratio of NIBL is volatile during the study period, which may arise the liquidity risk to the bank. With the help of the following figure, it can be seen more clearly.

**Figure 4.13**

**Investment on Government Security to Total Deposit Ratio**
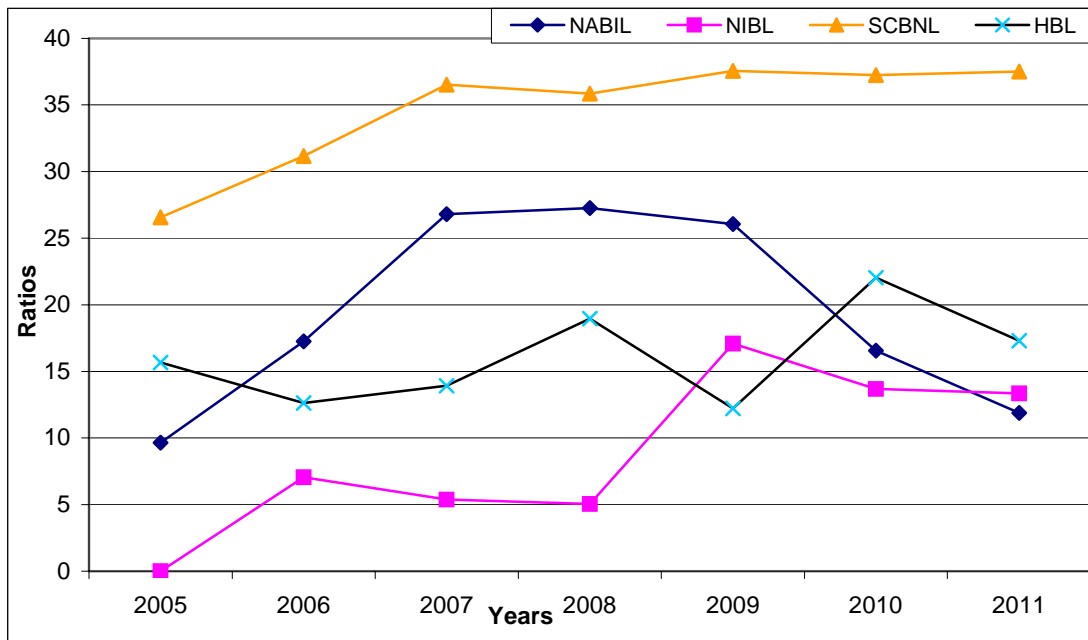


*Source: Table No. 4.13*

## 4.2 Statistical Analysis

Under this, some statistical tools such as Trend Analysis, Coefficient of correlation analysis are analyzed to achieve the objectives of the study. They are as follows.

## 4.2.1 Trend Analysis

Trend analysis has been a very useful and commonly applied statistical tool to forecast the future events in quantitative terms. On the basis of tendencies in the dependent variables in the past periods, the future trend is predicted. This method of forecasting the future trend is based on the assumptions that the past tendencies of the variables are repeated in the future. Trend analysis has been adapted to measures the trend behaviors of these banks. This method is widely used in practices. The straight line trend of a series of data is represented by the following formula.

**Yc = a +bx**

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Here Y is used to designate the trend values to distinguish them from the actual Y values, a is the Y intercept or the computed trend figure of the Y variable when X=0, b represents the slope of the trend line of the amount of change in Y variable that is associated with a change of one unit in X variables in time series analysis represents times.

### 4.2.1.1 Trend Analysis of CBB to Current Deposit Ratio

Here the trend value of cash and bank balances to current deposit ratio of NABIL, NIBL, SCBNL and HBL is calculated for seven years and projected the trend value for the next five years.

The following table describes the trend values of cash and bank balances to current deposit ratio of sampled banks for twelve years.

**Table 4.14**

**Comparative trend analysis of Cash and Bank Balance to Current Deposit Ratio**

| Years | Banks | | | |
|---|---|---|---|---|
| | **NABIL** | **NIBL** | **SCBNL** | **HBL** |
| **2005** | 10.74 | 4.70 | 5.71 | 11.14 |
| **2006** | 10.30 | 9.30 | 5.74 | 10.57 |
| **2007** | 9.86 | 13.90 | 5.78 | 10.00 |
| **2008** | 9.42 | 18.50 | 5.81 | 9.43 |
| **2009** | 8.98 | 23.10 | 5.84 | 8.86 |
| **2010** | 8.54 | 27.70 | 5.88 | 8.29 |
| **2011** | 8.10 | 32.30 | 5.91 | 7.72 |
| **2012** | 7.66 | 36.90 | 5.95 | 7.15 |
| **2013** | 7.22 | 41.51 | 5.98 | 6.58 |
| **2014** | 6.78 | 46.11 | 6.01 | 6.01 |
| **2015** | 6.34 | 50.71 | 6.05 | 5.44 |
| **2016** | 5.90 | 55.31 | 6.08 | 4.97 |
| **Mean (a)** | **9.42** | **18.5** | **5.81** | **9.43** |
| **Rate of change (b)** | **-0.44** | **4.601** | **0.034** | **-0.57** |
| **Trend Equation (y)** | **9.42-0.44x** | **18.50+4.60x** | **5.81+0.034x** | **9.43-0.57x** |

*Source: Appendix XIV and Excel Software*

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The above table shows the trend analysis of Cash and Bank balances to Current Deposit ratio of four sample banks. From the table above, it is clear that the trend line of cash and bank balances to current deposit ratio of NABIL and HBL is in decreasing trend. Whereas, the trend of the ratio of NIBL is heading positively upward rapidly. Likewise the trend of cash and bank balances to current deposit ratio of SCBNL is also increasing slowly year by year.

The trend line of cash and bank balances to current deposit ratio of four banks is presented below:

**Figure 4.14**

**Comparative trend analysis of Cash & Bank Balance to Current Deposit Ratio**
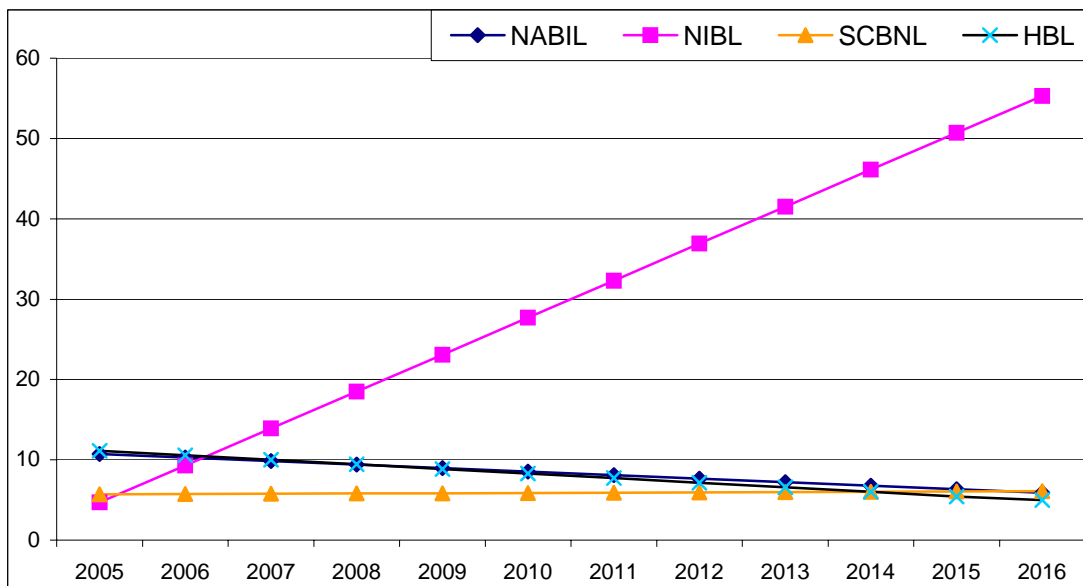


*Source: Table No. 4.14*

**4.2.1.2 Trend Analysis of Liquid Funds to Total Deposit Ratio**

Here the trend value of liquid funds to total deposit ratio of NABIL, NIBL, SCBNL and HBL is calculated for seven years and projected the trend value for the next five years.

The following table describes the trend values of liquid funds to total deposit ratio of sampled banks for twelve years.

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Table 4.15

**Comparative Trend Analysis of Liquid Funds to Total Deposit Ratio**

| Years | Banks | | | |
|---|---|---|---|---|
| | **NABIL** | **NIBL** | **SCBNL** | **HBL** |
| **2005** | 45.01 | 38.15 | 52.44 | 45.68 |
| **2006** | 39.33 | 32.64 | 44.64 | 41.93 |
| **2007** | 33.65 | 27.13 | 36.84 | 38.18 |
| **2008** | 27.97 | 21.62 | 29.04 | 34.43 |
| **2009** | 22.29 | 16.11 | 21.24 | 30.68 |
| **2010** | 16.61 | 10.60 | 13.44 | 26.93 |
| **2011** | 10.93 | 5.09 | 5.64 | 23.18 |
| **2012** | 5.25 | -0.42 | -2.16 | 19.43 |
| **2013** | -0.43 | -5.93 | -9.96 | 15.68 |
| **2014** | -6.11 | -11.44 | -17.76 | 11.93 |
| **2015** | -11.79 | -16.95 | -25.56 | 8.18 |
| **2016** | -17.47 | -22.46 | -33.36 | 4.43 |
| **Mean (a)** | **27.97** | **21.62** | **29.04** | **34.43** |
| **Rate of change (b)** | **-5.68** | **-5.51** | **-7.8** | **-3.75** |
| **Trend Equation (y)** | **27.97-5.68x** | **21.62-5.51x** | **29.04-7.80x** | **34.43-3.75x** |

*Source: Appendix XIV and Excel Software*

The above table shows the comparative trend analysis of liquid funds to total deposit ratio of five sampled banks. From the table, it is clear that the trend of liquid fund to total deposit ratio of NABIL is decreasing year after year. From the year 2013, it is decreasing negatively. Likewise, the trend of this ratio of all other three banks is also decreasing rapidly year after year.

**Figure 4.15**

**Comparative Trend Analysis of Liquid Funds to Total Deposit Ratio**
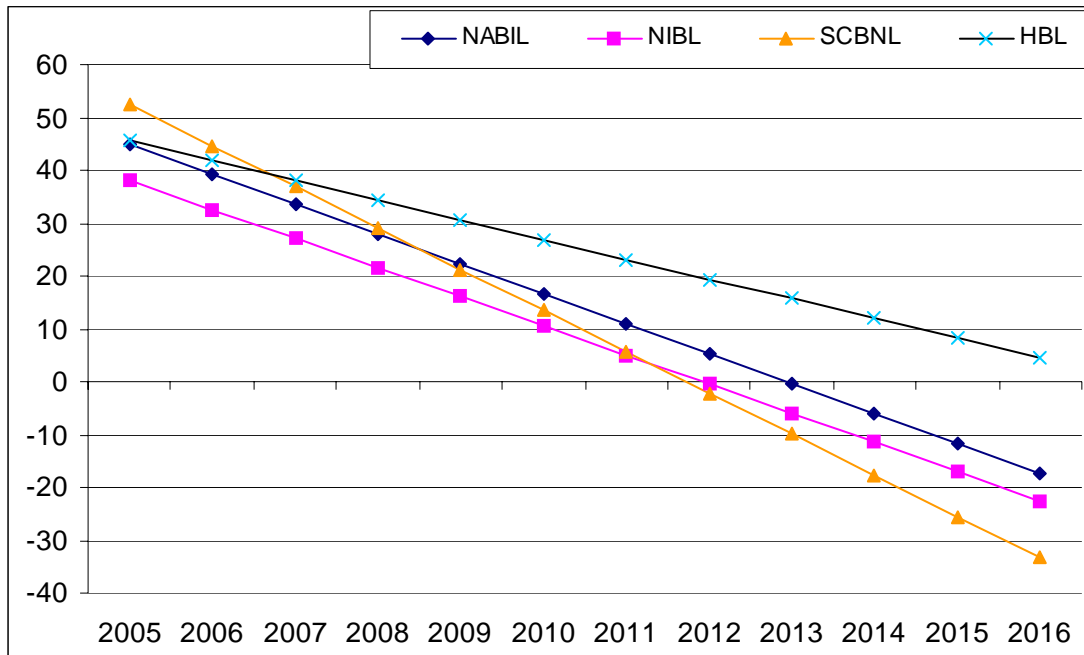


*Source: Table No. 4.15*

### 4.2.1.3 Trend analysis of Current Deposit to Total Deposit Ratio

Here the trend analysis of current deposit to total deposit ratio has been analyzed comparatively under seven years study period and projected the trend value for next five years. The following table represents the trend values of current deposit to total deposit ratio of four banks for twelve years.

**Table 4.16**
**Trend analysis of Current Deposit to Total Deposit Ratio**

| Years | NABIL | NIBL | SCBNL | HBL |
|---|---|---|---|---|
| **2005** | 21.57 | 20.08 | 22.67 | 12.50 |
| **2006** | 20.84 | 18.28 | 23.00 | 13.85 |
| **2007** | 20.11 | 16.48 | 23.33 | 15.20 |
| **2008** | 19.38 | 14.68 | 23.66 | 16.55 |
| **2009** | 18.65 | 12.88 | 23.99 | 17.90 |
| **2010** | 17.92 | 11.08 | 24.32 | 19.25 |
| **2011** | 17.19 | 9.28 | 24.65 | 20.60 |
| **2012** | 16.46 | 7.48 | 24.98 | 21.95 |
| **2013** | 15.73 | 5.68 | 25.31 | 23.30 |
| **2014** | 15.00 | 3.88 | 25.64 | 24.65 |
| **2015** | 14.27 | 2.08 | 25.97 | 26.00 |
| **2016** | 13.54 | 0.28 | 26.30 | 27.35 |
| **Mean (a)** | **19.38** | **14.68** | **23.66** | **16.55** |
| **Rate of change (b)** | **-0.73** | **-1.8** | **0.33** | **1.35** |
| **Trend Equation (y)** | **19.38-0.73x** | **14.68-1.80x** | **23.66+0.33x** | **16.55+1.35x** |

*Source: Appendix XIV and Excel Software*

From the above table, it can be seen that the trend value of current deposit to total deposit ratio of NABIL and NIBL is decreasing slightly year after year whereas the trend of SCBNL and HBL is increasing. Trend line of current deposit to total deposit ratio of sampled banks are shown below.

**Figure 4.16**
**Comparative Trend Analysis of Current Deposit to Total Deposit Ratio**
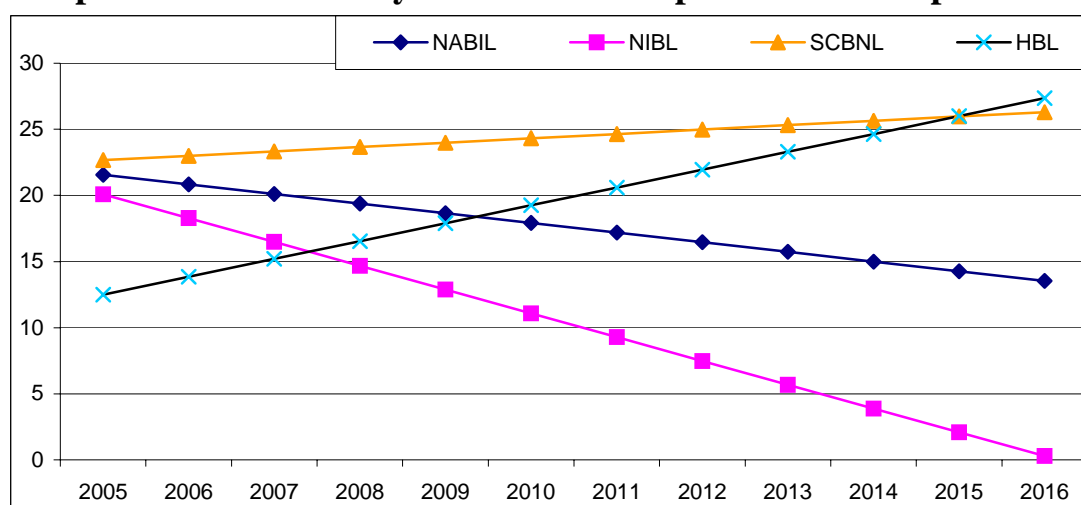


*Source: Table No. 4.16*

**4.2.1.4 Trend analysis of Investment on Government Security to Total Deposit Ratio**

Here under this topic, the trend analysis of investment on government securities to total deposit ratio of four banks is calculated under seven years study period. Following table represents the trend values of Investment on government securities to total deposit ratio of four banks for twelve years.

**Table 4.17**

**Comparative trend analysis of Investment on Government Security to Total Deposit Ratio**

| Years | NABIL | NIBL | SCBNL | HBL |
|-------|-------|------|-------|-----|
| **2005** | 18.87 | 1.84 | 39.55 | 13.73 |
| **2006** | 19.03 | 4.16 | 37.91 | 14.52 |
| **2007** | 19.19 | 6.48 | 36.27 | 15.31 |
| **2008** | 19.35 | 8.80 | 34.63 | 16.10 |
| **2009** | 19.51 | 11.12 | 32.99 | 16.89 |
| **2010** | 19.67 | 13.44 | 31.35 | 17.68 |
| **2011** | 19.83 | 15.76 | 29.71 | 18.47 |
| **2012** | 19.99 | 18.08 | 28.07 | 19.26 |
| **2013** | 20.15 | 20.40 | 26.43 | 20.05 |
| **2014** | 20.31 | 22.72 | 24.79 | 20.84 |
| **2015** | 20.47 | 25.04 | 23.15 | 21.63 |
| **2016** | 20.63 | 27.36 | 21.51 | 22.42 |
| **Mean (a)** | **19.35** | **8.8** | **34.63** | **16.1** |
| **Rate of change (b)** | **0.16** | **2.32** | **-1.64** | **0.79** |
| **Trend Equation (y)** | **19.35+0.16x** | **8.80+2.32x** | **34.63-1.64x** | **16.10-0.79x** |

*Source: Appendix XIV and Excel Software*

From the table, it is clear that the trend value of investment on government securities to total deposit ratio of NABIL is in increasing trend but it is increasing slowly year after year. The trend value of NIBL is increasing rapidly. In the year 2005 it is 1.84 whereas in the year 2016 the trend value is

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27.36. Similarly, the trend value of investment on government securities to total deposit ratio of HBL is increasing slowly year after year. Whereas, the trend value of SCBNL is in decreasing trend.

Trend line of investment on government securities to total deposit ratio of sampled banks are shown below.

**Figure 4.17**

**Comparative trend analysis of Investment on Government Security to Total Deposit Ratio**
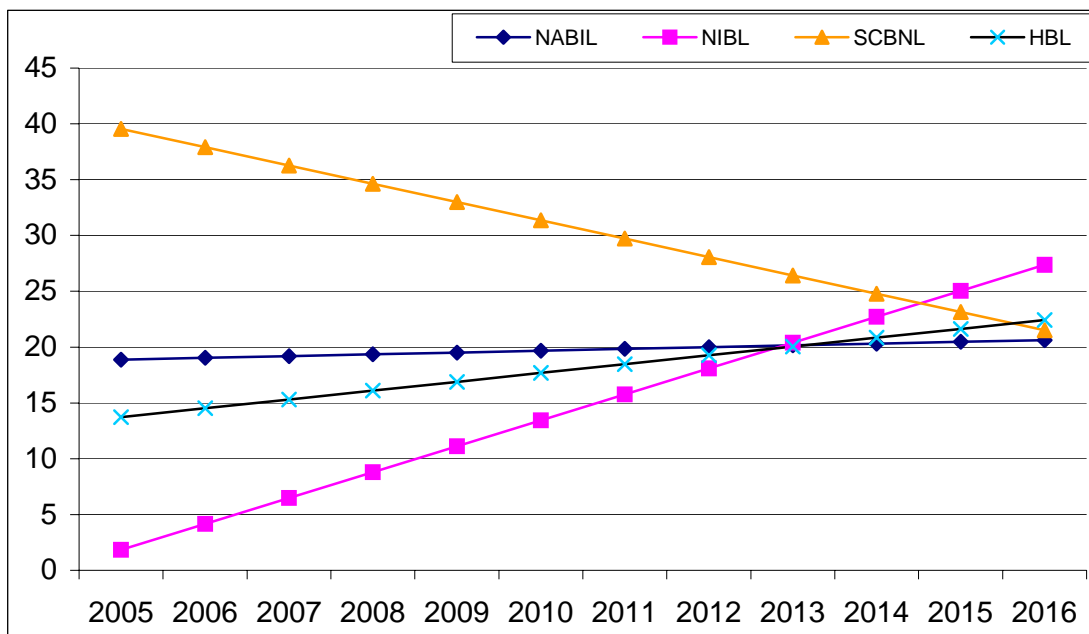


*Source: Table 4.17*

## 4.2.1.5 Trend Analysis of Cash in Vault to Current Deposit Ratio

Here in this topic the trend value of cash in vault to current deposit ratio of four banks NABIL, NIBL, HBL & SCBNL is comparatively analyzed under seven years study period and projected the trend value for next five years.

# Table 4.18

## Comparative Trend analysis of Cash in Vault to Current Deposit Ratio

| Years | Banks | | | |
|---|---|---|---|---|
| | NABIL | NIBL | SCBNL | HBL |
| 2005 | 7.08 | 2.75 | 4.71 | 9.56 |
| 2006 | 7.09 | 7.04 | 4.56 | 9.04 |
| 2007 | 7.11 | 11.33 | 4.41 | 8.52 |
| 2008 | 7.12 | 15.62 | 4.26 | 8.00 |
| 2009 | 7.13 | 19.91 | 4.11 | 7.48 |
| 2010 | 7.15 | 24.20 | 3.96 | 6.96 |
| 2011 | 7.16 | 28.49 | 3.81 | 6.44 |
| 2012 | 7.18 | 32.78 | 3.66 | 5.92 |
| 2013 | 7.19 | 37.07 | 3.51 | 5.40 |
| 2014 | 7.20 | 41.36 | 3.36 | 4.88 |
| 2015 | 7.22 | 45.65 | 3.21 | 4.36 |
| 2016 | 7.23 | 49.94 | 3.06 | 3.84 |
| Mean (a) | 7.12 | 15.62 | 4.26 | 8.00 |
| Rate of Change(b) | 0.014 | 4.29 | -0.15 | -0.52 |
| Trend Equation(y) | 7.12+0.014x | 15.62+4.29x | 4.26-0.15x | 8.00-0.52x |

*Source: Appendix XIV and Excel Software*

From the above table, it is clear that the trend value of cash in vault to total deposit ratio of NABIL and NIBL is in increasing trend. Whereas the trend value of other two banks are in decreasing trend. The trend value of NABIL is increasing slowly but the trend value of NIBL is increasing rapidly.

The following chart can make clearer about the trend line of cash in vault to total deposit ratio.

**Figure 4.18**

**Comparative Trend analysis of Cash in Vault to Current Deposit Ratio**
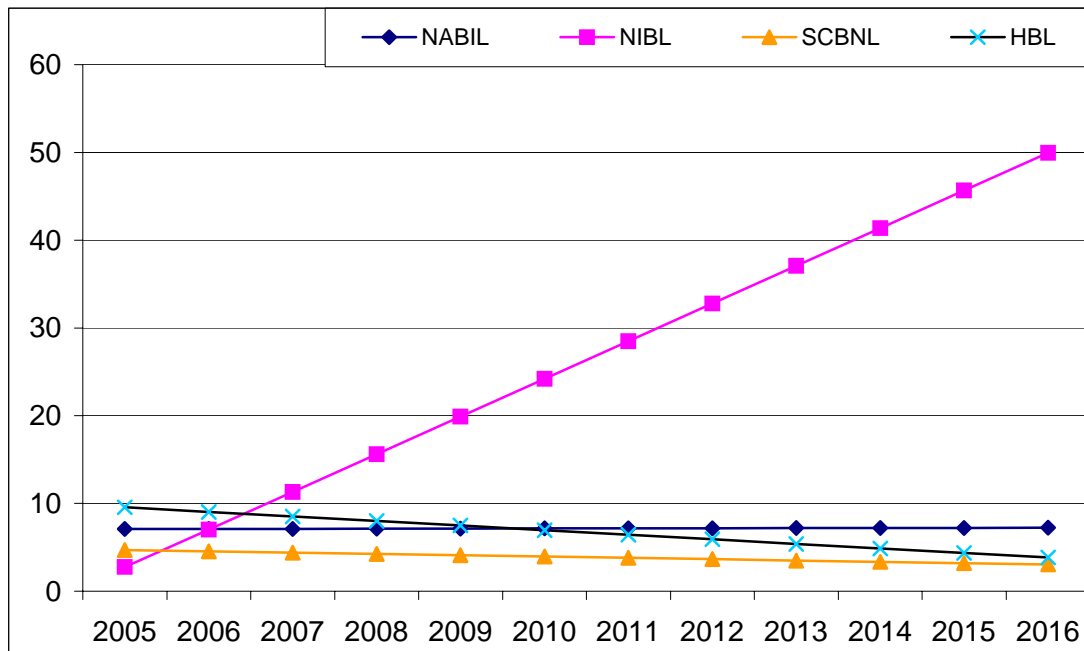


*Source: Table No. 4.18*

**4.2.2 Coefficient of Correlation analysis between Liquid Assets and Net Profit**

The theoretical relationship between these two variables should be adverse as higher liquid assets (sum of cash in hand, bank balance, money at call, inv. in gov. sec. and current assets) implies lower profitability. Thus to show the relationship between these variables, Karl Pearson's coefficient of correlation (r) is determined. Also to test the significance of the calculated correlation coefficient the probable error (P.E) is also calculated and shown below.

The calculations are done from Statistical Tool of Microsoft Excel and fitted the table below.

**Interpretation of Correlation Coefficient:**

- It always lies between +1 and −1.

- When $r = +1$, there is perfect positive correlation.

- When $r = -1$, there is perfect negative correlation.

- When $r = 0$, there is no correlation.

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- When *r* lies between 0.7 and 0.999, (-0.7 to –0.999) there is a high degree of positive (or negative) correlation.

- When *r* lies between 0.5 and 0.699, there is moderate degree of correlation.

- When *r* is less than 0.5, there is a low degree of correlation.

Here,

*r* = Correlation Coefficient.

P.E = Probable Error.

N = Number of Observations.

**Probable Error:**

- If the value of *r* < P.E, there is no evidence of correlation, i.e., the value of *r* is not at all significant.

- If r > 6 P.E, then *r* is highly significant.

- In other cases, nothing can be concluded.

**Table 4.19**

**Coefficient of Correlation between Liquid Assets and Net Profit of NABIL**

| FY | Liquid Assets (X) | Net Profit (Y) | XY | X² | Y² |
|---|---|---|---|---|---|
| **2005** | 8560.9 | 329.1 | 5227588.95 | 252317340.25 | 108306.81 |
| **2006** | 10997 | 291.4 | 5663242.44 | 377703677.16 | 84913.96 |
| **2007** | 11235.8 | 271.6 | 5041982.40 | 344622096.00 | 73766.56 |
| **2008** | 9983.8 | 680.4 | 12418388.64 | 333120902.56 | 462944.16 |
| **2009** | 9440.2 | 635.1 | 11565107.49 | 331600458.01 | 403352.01 |
| **2010** | 4954 | 816.5 | 13090128.00 | 257025024.00 | 666672.25 |
| **2011** | 6659.8 | 979.2 | 19271439.36 | 387333888.64 | 958832.64 |
| | **61,831.5** | **4,003.30** | **72,277,877.28** | **2,283,723,386.62** | **2,758,788.39** |

*(Refer Appendix XV for more details)*

r =      **-0.76**

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From the above table, it is found that coefficient of correlation between liquid assets and net profit of Nabil Bank Ltd. is -0.76, which shows an insignificant relationship between these two variables. It can be concluded that there is a very low degree of negative correlation between liquid and profit.

**Table 4.20**

**Coefficient of Correlation between Liquid Assets and Net Profit NIBL**

| FY | Liquid Assets (X) | Net Profit (Y) | XY | $X^2$ | $Y^2$ |
|---|---|---|---|---|---|
| **2005** | 2095.7 | 72.6 | 302524.20 | 17363889.00 | 5270.76 |
| **2006** | 3089.5 | 56.4 | 311373.12 | 30479232.64 | 3180.96 |
| **2007** | 2634.5 | 57.11 | 305549.92 | 28624640.04 | 3261.5521 |
| **2008** | 1807.9 | 116.81 | 906106.85 | 60172600.41 | 13644.5761 |
| **2009** | 4103.7 | 152.81 | 1741101.86 | 129820957.21 | 23350.8961 |
| **2010** | 3681.2 | 232.15 | 3244574.83 | 195334166.44 | 53893.6225 |
| **2011** | 5309.7 | 350.53 | 6420552.85 | 335501498.89 | 122871.288 |
| | **22,722.2** | **1,038.41** | **13,231,783.63** | **797,296,984.63** | **225,473.65** |

*(Refer Appendix XV for more details)*

**r = 0.82**

The data reveals the fact that coefficient of correlation between liquid and profit of Nepal Investment Bank Ltd. is 0.82 and is greater than 6P.E, which shows a highly significant relationship between these two variables. It can be concluded that there is a very high degree of correlation between liquid and profit.

**Table 4.21**

**Coefficient of Correlation between Liquid Assets and Net Profit SCBNL**

| FY | Liquid Assets (X) | Net Profit (Y) | XY | X² | Y² |
|---|---|---|---|---|---|
| **2005** | 13387.4 | 392.6 | 7202207.74 | 336535356.01 | 154134.76 |
| **2006** | 15482.8 | 430.8 | 9222092.52 | 458255367.61 | 185588.64 |
| **2007** | 10396.5 | 479.2 | 7755564.48 | 261934803.36 | 229632.64 |
| **2008** | 12593.5 | 469.9 | 8775006.58 | 348725745.64 | 220806.01 |
| **2009** | 14317.4 | 556.7 | 11716864.90 | 442976209.00 | 309914.89 |
| **2010** | 11329.5 | 537.9 | 10512448.65 | 381948392.25 | 289336.41 |
| **2011** | 12993.8 | 662.2 | 14501385.36 | 479557441.44 | 438508.84 |
| | **90,500.9** | **3,529.30** | **69,685,570.23** | **2,709,933,315.31** | **1,827,922.19** |

*(Refer Appendix XV for more details)*

**r = -0.15**

The calculated data reveals that coefficient of correlation between liquid assets and net profit of Standard Chartered Bank Ltd. is -0.15, which shows a negative correlation between these two variables.

**Table 4.22**

**Coefficient of Correlation between Liquid Assets and Net Profit HBL**

| FY | Liquid Assets (X) | Net Profit (Y) | XY | X² | Y² |
|---|---|---|---|---|---|
| 2005 | 9347.9 | 199.4 | 3344157.34 | 281269795.21 | 39760.36 |
| 2006 | 11741.4 | 277.0 | 5794369.10 | 437575274.89 | 76729.00 |
| 2007 | 11673.1 | 235.0 | 5016451.00 | 455677331.56 | 55225.00 |
| 2008 | 13612.7 | 212.1 | 5236091.49 | 609443031.61 | 44986.41 |
| 2009 | 13572.9 | 263.1 | 7012825.26 | 710467701.16 | 69221.61 |
| 2010 | 14678.7 | 308.3 | 8608876.71 | 779733021.69 | 95048.89 |
| 2011 | 8872 | 457.5 | 11157510.00 | 594774544.00 | 209306.25 |
| | **83,498.7** | **1,952.40** | **46,170,280.90** | **3,868,940,700.12** | **590,277.52** |

*(Refer Appendix XV for more details)*

**r = -0.33**

From the above table, it is found that coefficient of correlation between liquid assets and net profit of Himalayan Bank Ltd. is -0.33, which shows an insignificant relationship between these two variables. It can be concluded that there is a negative correlation between liquid and profit.

**Table 4.23**

**Correlation Coefficient of Liquid assets & Net Profit**

| Commercial Banks | r | P.E | 6 P.E. | n | Remarks |
|---|---|---|---|---|---|
| Nabil Bank | -0.72 | 0.52 | 0.145 | 7 | Insignificant |
| Nepal Investment Bank | 0.82 | 0.67 | 0.098 | 7 | Highly Significant |
| Standard Chartered Bank | -0.15 | 0.02 | 0.295 | 7 | Insignificant |
| Himalayan Bank | -0.33 | 0.11 | 0.269 | 7 | Insignificant |

Coefficient of correlation (r) between total annual liquid assets and annual net profit measures the degree of relationship between these two variables. As we know that there is an inverse relationship between the liquid and profit i.e., if liquidity increases, the profitability decreases and vice-versa. So, the basic purpose of computing coefficient of correlation between these two variables (i.e., liquid assets and net profit) is to find out whether excess or less holding of liquidity affects the profitability or not.

From the above, it is found that coefficient of correlation between liquidity and profitability of Nabil Bank Ltd. is -0.72, which shows an insignificant relationship between these two variables.  Similarly, while calculating the coefficient of correlation of Standard Chartered and Himalayan Bank, we found similar relationship that we have drawn above of Nabil bank Ltd. except Nepal Investment Bank Ltd.

Here, Nepal Investment Bank is the only bank that has given due importance to the liquidity factor. That is why it is highly correlated i.e., 0.82 and is greater than 6P.E, which shows the relationship between the total liquidity and profitability of Investment Bank Ltd. is highly significant. Here the number of observations that we have considered is small so that might be the case of this result also. And we can see better results in the future when the number of observations will rise.

## 4.3 Major Findings of the Study

During the study, all the secondary data has been analyzed by using financial as well as statistical tools. This topic focused on the major findings from the secondary data analysis, which are derived from the analysis of liquidity management of four commercial banks named NABIL, NIBL, SCBNL and HBL with comparatively applying seven years data from 2005 to 2011. The major findings of the study drawn from the analysis of secondary data of sampled banks are given below.

i.   The study has revealed that all the banks are capable of discharging current liability by current assets but are not up to the standard mark.

ii.  During the study period, HBL has come after NIBL for high liquidity position. As compare to other banks average ratio of SCBNL is too low i.e. only 5.81% that may arise a liquidity crisis to the bank.

iii. It implies that the ratio of HBL is consistent as its S.D is 10.24 and C.V is 0.30. The ratio of SCBNL is in decreasing trend and the average ratio is 29.04%. It reveals that the capacity of SCBNL to meet immediate obligation is good.

iv.  From the above analysis, we can say that SCBNL has utilized most of its deposit in short-term investment and NABIL & HBL have moderately used its deposit but NIBL has utilized it very few.

v.   Current deposit to total deposit ratio of NABIL and NIBL is decreasing slightly year after year whereas, the trend of SCBNL and HBL is

increasing. The current deposit to total deposit of SCBNL is the highest which means that SCBNL is efficiently collecting its deposits from current depositors.

vi.  As NRB has determined the ratio of balance with NRB to Total Deposit is 7%, it will be the measurement tool of each bank's ratio. Here all the four banks (NABIL, NIBL, SCBNL & HBL) are below the standard. The ratio of NABIL, NIBL, SCBNL & HBL are less than 7%. It means that they have not maintained sufficient reserves in bank for liquidity provisions.

vii.  NRB has determined that the ratio of cash in vault to total deposit is 3% in average. Thus it is the standard measuring tool of this ratio. Here all the three banks except SCBNL has this ratio less than 1%. Cash in vault to total deposit ratio of all the banks are in fluctuating trend and the ratios of each bank are nearly less than 2%, which implies that the banks have maintained as possible as low level of cash in vault.

viii.  Cash reserve ratio (CRR) describes whether the commercial banks have met the liquidity requirement as prescribed by NRB or not. In 2011, NRB prescribed CRR rate as 5% of total deposit. The average CRR of all three banks except NABIL is more than the standard set by NRB i.e. 5%. This shows that the three banks have tied up their funds in excess deposit in NRB. In average all the banks are in strong liquidity position.

ix.  Since the cash in vault to current deposit ratio of NIBL is high, NABIL and HBL is moderate and SCBNL is too low. This implies that the liquidity position of NIBL is high and sufficient to meet the obligation immediately. NABIL and HBL are in moderate and SCBNL is in poor liquidity position.

x.  Total investment to total deposit ratio measures the proportion of deposit that is used to increase the income of the banks in total deposit. SCBNL has deployed the highest proportion of its total deposits in earning activities and this ratio is significantly above than the ratio of other three

banks. NIBL & HBL performance in investing activities has not increased proportionately as compare to the deposit increment.

xi.    Loans and advances to total deposits ratio has measured the proportion of total deposit that is used to generate income of the banks as loans and advances. NIBL has deployed the highest proportion of its total deposit as loans and advances. This indicates that NIBL is significantly better than others in fund mobilizing activities.

xii.   Most of the banks are increasing their fund to government securities. The comparative analysis revealed the facts that most of the reservations are in decreasing trend and investment ratio are in increasing trend, which means there is inverse relationship between reserve and investment ratios.

xiii.  The trend of cash and bank balances of NABIL and HBL are in decreasing trend whereas the trend of this ratio of NIBL is increasing rapidly year after year. Thus the trend line of NIBL is heading upward rapidly and there is minor increment of this ratio in each year in case of SCBNL. Thus it is depicted that NIBL & SCBNL are more successful in maintaining liquid assets. Whereas the liquid position of NABIL & HBL is not good.

xiv.   Liquid funds to total deposit ratio of all the banks are in decreasing trend. Most of the deposits of NABIL & HBL remained as liquid funds whereas NIBL & SCBNL are reducing the liquid funds more rapidly.

xv.    The trend value of current deposit to total deposit of NABIL & NIBL is decreasing. Whereas, the trend value of SCBNL & HBL are in increasing trend. From this it can be depicted that the portion of current deposit is high in case of NABIL & NIBL and low in SCBNL & HBL.

xvi.   The trend value of investment on government securities to Total deposit ratio is in increasing trend in all the banks except SCBNL. In case of SCBNL the trend value is decreasing slightly but though the ratio is in

decreasing trend it can be seen that the greater portion of total deposit is invested on government securities in all the years. In average, SCBNL is the most efficient to invest on government securities as compared to other whereas NIBL seems to be less efficient than other.

xvii. The trends of cash in vault to current deposit ratio of NABIL & NIBL are increasing. Likewise, the trends of other two banks are decreasing. Thus it is indicated that NIBL is in better liquidity position as compared to others.

xviii. The correlation coefficient between total liquidity and profitability of NABIL, SCBNL and HBL has positive relationship but gave us insignificant and inconclusive results. This results shows that these commercial banks have not paid attention much to the liquidity management.

xix. Correlation of Nepal Investment Bank Ltd. is positive and highly significant and highly correlated. This is the only bank that has given due importance to liquidity factor.

# CHAPTER FIVE

## SUMMARY, CONCLUSION AND RECOMMENDATIONS

In this chapter, Summary and Conclusion of the research as well as Recommendations are presented separately. After summarizing and concluding the research, recommendations are suggested for the effective liquidity management of Nepalese commercial banks. The researcher has tried to give suggestions and recommendations to the concerned groups; commercial banks, Nepal Rastra Bank, banking professionals, government and further researcher based on this research.

### 5.1 Summary

Basically the entire research work has focused on the comparative study on liquidity management on Nepalese commercial banks. For the study, four commercial banks (i.e., NABIL, NIBL, SCBNL and HBL) were taken as sample and analyzed their liquidity management practice by taking seven years secondary data from 2005 to 2011. The objective of the study is to find out and analyze liquidity management practice in Nepalese commercial banks. To fulfill the main objectives, following specific objectives were formulated.

To assess the liquidity position of selected commercial banks. To identify the factors affecting liquidity position and its management. To examine the relationship between liquidity and profitability. To analyze the problem of liquidity management in Nepalese commercial banks. To provide suggestions and recommendations on the basis of major findings. To fulfill the research objectives, the study is divided into five chapters.

In the first chapter, brief introduction of liquidity management, focus of the study, significance of the study, statement of problem, research objectives, brief introduction of the sample banks, limitation of the study and research scheme are included.

In the second chapter, theoretical review has been made. Different theories, policies, rules and regulations about liquidity management are reviewed. During the study, different books, journals, previous studies, websites, reports are viewed and visited to different professionals to know the liquidity management. During the literature review, it was found that there are a few researches that have been made on this topic.

Research design, population and sample and analysis tools are included in the third chapter. The data are collected from secondary source for the study. The secondary data are colleted from annual papers of sample banks, SEBO/N, and Nepal Rastra Bank. After collecting the data from different source, it has been analyzed by using financial and statistical tools and techniques.

An attempts have been made to fulfill the objectives of the research work in chapter four. In this chapter all the secondary data are compiled, processed and tabulated as per the necessary figures; diagrams are also used to present it clearly.

In the chapter five, the summary, conclusion and recommendations are included. The summary of the study, conclusion drawn from the study are presented and necessary suggestions are given to the concern authorities, sample banks as well as Nepalese commercial banks, Nepal Rastra Bank and government for the betterment of liquidity management.

This study suffers from different limitations; it considers four banks for the sample of total commercial banks in Nepal. Time and resources are the constraints of the study. Therefore, the study may not be generalized in all cases and accuracy depends upon the data collected and provided by the organizations and respondents.

**5.2 Conclusion**

From the analysis of data, following conclusion has been drawn out.

All sample banks have same kind of ratios. NIBL and SCBNL have more current liabilities than current assets.

NIBL has utilized the highest proportion of its total deposits into loans and advances. This shows that NIBL is significantly better than others in fund mobilizing activities. But it may be risky from liquidity point of view. SCBNL has low ratio among others, which shows that a very low amount of total deposits are deployed into loans and advances. From the study of secondary data, it is found that most of the banks are increasing their fund to invest in government securities and term loan. Reserve balance and investment have inverse relationship. So, by the analysis, it is also found that, most of the banks are reducing their fund on reserve. Liquidity management practice is still in developing phase. Most of the banks have maintained liquid fund to fulfill the statutory provision only. Since NRB has to treat to commercial banks to maintain liquidity, it is seen that the commercial banks are found less sincere to liquidity management.

Commercial banks have maintained liquidity measuring tools like liquidity profile analysis and GAP analysis by force, not voluntarily. From this condition it is revealed that the commercial banks are not taking it easily and positively but they are feeling it as a burden.

It should be taken positively and implemented compulsorily by commercial banks for the betterment of liquidity management, banks creditability and safety for depositor's amount. Rules and regulations are the guidelines of things to do or not to do. So, its effects can be seen after the implementations. In order to manage the liquidity effectively, the existing regulation should be effectively put in practice.

## 5.3 Recommendations

On the basis of analysis and findings of the study, following suggestions and recommendations are made which may be referred to overcome weakness and inefficiency to liquidity management and for taking corrective action for the concern authorities, professionals, government, NRB and other researchers.

1. Current deposit to total deposit ratio should be reduced, and attempt should be made to increase other deposits rather than current deposit. Otherwise, due to drawing of current deposit, the bank may fall into liquidity risk.

2. Liquidity position is in increasing trend. It may turn into the cause of inflation, low profitability and inefficiency of Nepalese commercial banks. So, to overcome from these problems, new investment opportunities should be searched. Home loan, education loan, development loan, consortium financing, loan to foreign employment, loan to research work and over night loan etc. shall be the examples of new opportunities.

3. An effort should be made on human resource development on the risk analysis management and liquidity management.

4. An effort should made on the development of market for the liquidity generating assets like; T-bills, Options and Bank CDs etc.

5. Satisfied employees are the backbone of the banks. So, necessary steps should be forwarded to develop satisfied and obedient employees, which may reduce the problems of bank defaulters and corruptions.

6. Regular monitoring and evaluation should be made for the effective liquidity management.

7. As a central bank, NRB has a duty to regulate the commercial banks. So, those commercial banks that do not send the data in time should be made alert; the received data should be analyzed and stored for future reference.

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