CHAPTER – I
INTRODUCTION

1.1 Background of the Study

Businesses face ever increasing pressure on costs and growing financing requirements as a result of intensified competition in globalized markets. Many of them are therefore considering ways of making themselves more efficient. In identifying possible options it is important not to focus exclusively on income and expense items, but also to take the balance sheet into account. Improvements to the existing capital structure can free up valuable resources and bring increased efficiency. Active working capital management is an extremely effective way to increase enterprise value. Optimizing working capital results in a rapid release of liquid resources and contributes to an improvement in free cash flow and to a permanent reduction in inventory and capital costs.

Working capital management is an important aspect of organization. Every business organization needs various types of assets to carryout their operation. Some assets are required to meet long term requirement, which are fixed assets, and some are required to meet day to day expenses and to pay the current liabilities, which are termed as current assets. Working capital is related to the management of current assets. Among available option, proper management of working capital is the best possible options to improve their operational viability. Working capital is crucial aspect if financial management practices in banking industry.

Working capital management is concerned with the problems arise in attempting to manage the current assets, the current liabilities and the inter relationship that exist between them. The term current assets refers to those assets which in ordinary course of business can be, or, will be, turned in to cash within one year without undergoing a diminution in value and without disrupting the operation of the firm. The major current assets are cash, marketable securities, account receivable and inventory. Current liabilities are those liabilities which intended at there inception to be paid in ordinary course of business, within a year, out of the current assets or earnings of the

concern. The basic current liabilities are account payable, bill payable, bank over-draft, and outstanding expenses.

The goal of working capital management is to manage the firm's current assets and current liabilities in such way that the satisfactory level of working capital is mentioned. The current assets should be large enough to cover its current liabilities in order to ensure a reasonable margin of the safety.

1.2 Statement of the Problem

Under and over allocation of working of working capital is harmful to an enterprise to achieve its primary objectives. Therefore, maintaining optimal level of working capital is the crux as it is strongly related to the trade off between risk and return. However, if is difficult to point out as to how much working capital need by a particular business organization. An organization, which is not willing to take more financial risks, can go for more short-term liquidity. The more of short-term liquidity means more of current liabilities imply less short-term financing heading. So it is very essential to analyze and find out problems and its solutions to make efficient use of funds for minimizing the risk of loss to attain profit objective. Inadequate investment in working capital threatens the solvency of enterprise as well as affects its growth. On the other hand, excessive investment in working capital yields nothing. Therefore, working capital should be determined in such a way that total cost i.e. cost of liquidity and cost of non-liquidity is minimum.

Working capital management of banks is more difficult than that of manufacturing and non-manufacturing business organizations. Commercial banks are great monetary institutions, which are playing important role to general welfare of the economy. The responsibility of commercial banks is more then any other financial institutions. They must be ready to pay on demand without warning or notice, a good share of their liabilities. Banks collected funds from different types of deposits for providing loan and advance to different sector. To get higher return, banks must try to increase funds from deposits as well as their investment. The first motive of banking business is to borrow public saving and lend to needy people. But commercial banks always face the problem for utilizing more deposits as investment of loans increase the cash

balance on bank, which require paying its large among of liabilities on its depositors demand without notice. But large amount of idle cash balance also decrease profitability of banks.

Following are the major problems that have been identified for the purpose of this study.

a. To what extent the internal capital and external capital have been used to finance the total assets?

b. To what extent the short the debt and long term debt have been used?

c. What working capital policy is adopted by the bank?

d. Has the bank sufficient liquidity to ensure the security of deposit holders?

e. What is the relationship of net profit with the debt capital and working capital?

1.3 Objective of the study

The main objective of this study is to examine of the management of working capital in commercial banks. The specific objectives of this study are as fallows:

a. To examine debt and equity financing situation of the bank.

b. To evaluate the working capital financing policy adopted by the bank.

c. To analyze the liquidity maintained and the efficiency in equity management to generate profit of the bank.

d. To show the relationship of net profit with the working capital, and debt of the bank.

1.4 Significance of the Study

The study is concerned to the theoretical explanation and practical application of working capital management of commercial banks. The study might be valuable for researcher, scholars, students, in relation to working capital management. Typically, this study will be important for;

a. It can be helpful for financial manager of sample commercial banks to correct and formulate proper working capital policy.

b. It will be also helpful for other same nature commercial banks to determine and manage working capital.

c. It will be useful for Nepal Rastra Bank to formulate appropriate economic policy for the banking sector.

d. This study is helpful to carry out further research in this field.

e. It will be helpful for new financial manager or new executive to take decision on efficient working capital management and its component strategically.

f. This study helps to know concern parties and general interest public.

1.5 Limitations of the Study

The major limitations of the study are as follows;

a. The study is limited to four banks and thus may not truly reflect the whole population.

b. The study is concentrated to working capital management and thus may not cover the other financial aspects.

c. The validity of the secondary data depends totally on the annual report of the concerned banks and that of primary data relies totally on the responses obtained through questionnaire.

d. The study covers only five year periods, i.e. from the fiscal year 2005/06 to 2009/010.

1.6 Chapter Scheme

The entire study has been organized into five main chapters as:

Chapter – I: Introduction

The first chapter deals with background of the study, a brief review of sample banks, statement of problem, objective of the study, significance of the study and limitations of the study.

Chapter – II: Review of Literature

The second chapter deals with conceptual framework including the fundamental concept of and tools of working capital management. It also includes the brief review of previous research work.

Chapter – III: Research Methodology

The third chapter deals with the research methodology which has been followed to achieve the purposes of the study. It consists of research design, population and sample, nature and sources of data, and tools to be used.

Chapter – IV: Data Presentation and Analysis

The fourth chapter deals with presentation and analysis of data. It gives a clear picture of how the collected data has been presented on the study and how it has been analyzed.

Chapter – V: Summary, Conclusion and Recommendations

And at last, the fifth chapter shows the summary of whole study, conclusion drawn and recommendations given. This ends the study paper.

Besides these chapters, **Bibliography** and **Appendix** are included in this research paper.

CHAPTER - II
REVIEW OF LITERATURE

Under this section of the study, the conceptual review related to the working capital management, the review of journal and articles, and the review of thesis have been presented.

2.1 Conceptual Review

2.1.1 Working Capital

"In simple words working capital is the excess of current Assets over current liabilities. Working capital has ordinarily been defined as the excess of current assets over current liabilities. Working capital is the heart of the business. If it is weak, business cannot proper and survives. Cash is the lifeline of company. If this lifeline deteriorates so does the companies ability to fund operation, reinvest do meet capital requirements and payment. Understanding Company's cash flow health is essential to making investment decision. A good way to judge a company's cash flow prospects is to look at its working capital management. The company must have adequate working capital as much as needed by the company. It should neither be excessive or nor inadequate" *(Hampton and Wagner; 1989: 34).*

"Excessive working capital cuisse for idle funds lying with the firm without earning any profit, where as inadequate working capital shows the company doesn't have sufficient funds for financing its daily needs working capital management involves study of the relationship between firm's current assets and current liabilities. The goal of working capital management is to ensure that a firm is able to continue its operation. And that is has sufficient ability to satisfy both maturing short term debt and upcoming operational expenses. The better a company managers its working capital, the less the company needs to borrow. Even companies with cash surpluses need to manage working capital to ensure those surpluses are invested in ways that will generate suitable returns for investors" *(Khan and Jain; 1999:15).*

2.1.2 Types of Working Capital

On the basis of the concept and the time, the working capital has been categorized in four main types;

Types of Working Capital

On the basis of concept

Gross Working Capital · Net Working Capital

On the basis of time

Permanent Working Capital · Temporary Working Capital
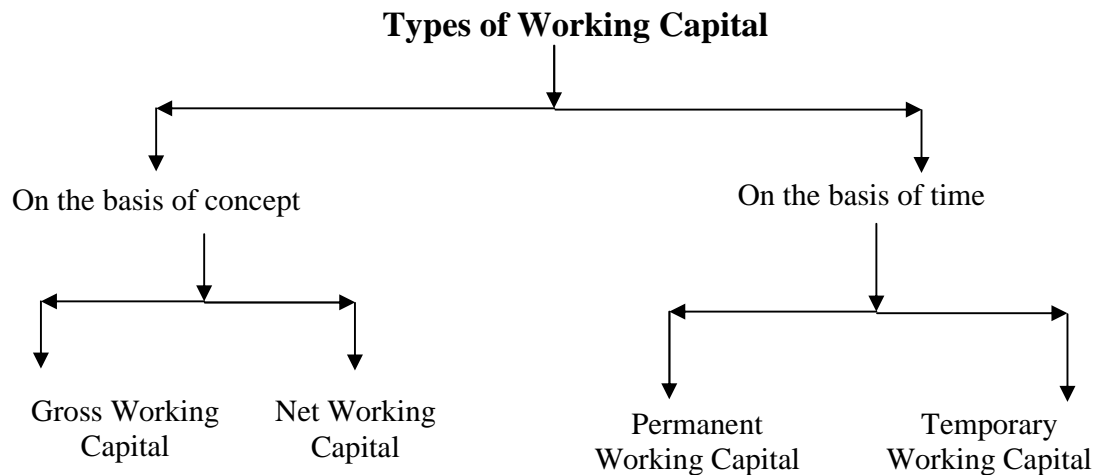
2.1.2.1 Gross Working Capital

"This thought says that total investment in current assets is the working capital of the company. This concept does not consider current liabilities at all. Reasons given for the concept are:

- When we consider fixed capital as the amount invested in fixed assets. Then the amount invested in current assets should be considered as working capital.
- Current asset whatever my be the sources of acquisition, are used in activities related to day to day operations and their forms keep on changing. Therefore they should be considered as working capital" *(Kulkarni; 1990: 374).*

*Gross Working capital = Total Current Assets

2.1.2.2 Net Working Capital

"It is narrow concept of working capital and according to this, current assets minus current liabilities forms working capital. The excess of current assets over current liabilities is called as working capital. This concept lays emphasis on qualitative aspect which indicates the liquidity position of the concern/enterprise" *(Pandey; 1999: 814-815).*

*Net Working Capital = Current assets – Current Liabilities

2.1.2.3 Fixed or Permanent Working Capital

"The volume of investment in current assets changes over a period of time. But always there is minimum level of current assets that must be kept in order to carry on the business. This is the irreducible minimum amount needed for maintaining the operating cycle. It is the investment in current assets which is permanently locked up in the business, and therefore known as permanent working capital" (*Weston, Besley and Brigham; 1996: 333*).

2.1.2.4 Variable or Temporary Working Capital

"It is the volume of working capital which is needed over and above the fixed working capital in order to meet the unforced market changes and contingencies. In other words any amount over and about the permanent level of working capital is variable or fluctuating working capital. This type of working capital is generally financed from short term sources of finance such as bank credit because this amount is not permanently required and is usually paid back during off season or after the contingency" *(Smith; 1974: 5).*

2.1.3 Determinants of Working Capital

Working capital requirements of a concern depends on a number of factors, each of which should be considered carefully for determining the proper amount of working capital. It may be however be added that these factors affect differently to the different units and these keeps varying from time to time. In general, the determinants of working capital which are as under:

a. Nature of Business

"Need for working capital is highly depends on what type of business, the firm in. there are trading firms, which needs to invest a lot in stocks, ills receivables, liquid cash etc. public utilities like railways, electricity, etc., need much less inventories and cash. Manufacturing concerns stands in between these two extends. Working capital requirement for manufacturing concerns depends on various factors like the products, technologies, marketing policies" *(Petersen; 2006: 41).*

b. Production Policies

"Production policies of the organizations effects working capital requirements very highly. Seasonal industries, which produces only in specific season requires more working capital. Some industries which produces round the year but sale mainly done in some special seasons are also need to keep more working capital" *(Petersen; 2006: 42).*

c. Size of Business

Size of business is another factor to determines the need for working capital

d. Length of Operating Cycle

"Operating cycle of the firm also influence the working capital. Longer the orating cycle, the higher will be the working capital requirement of the organization" *(Pinkowitz and Williamson; 2005: 62).*

e. Credit Policy

"Companies follow liberal credit policy needs to keep more working capital with them. Efficiency of debt collecting machinery is also relevant in this matter. Credit availability form suppliers also effects the company's working capital requirements. A company doesn't enjoy a liberal credit from its suppliers will have to keep more working capital" *(Pinkowitz and Williamson; 2005: 63).*

f. Business Fluctuation

"Cyclical changes in the economy also influence the level of working capital. During boom period, the tendency of management is to pile up inventories of raw materials and finished goods to avail the advantage of rising prove. This creates demand for more capital. Similarly during depression when the prices and demand for manufactured goods. Constantly reduce the industrial and trading activities show a downward termed. Hence the demand for working capital is low" *(Nunn; 1981: 113).*

g. Current Asset Policies

"The quantum of working capital of a company is significantly determined by its current assets policies. A company with conservative assets policy may operate with

relatively high level of working capital than its sales volume. A company pursuing an aggressive amount assets policy operates with a relatively lower level of working capital" *(Nunn; 1981: 115).*

h. Fluctuations of Supply and Seasonal Variations

"Some companies need to keep large amount of working capital due to their irregular sales and intermittent supply. Similarly companies using bulky materials also maintain large reserves' of raw material inventories. This increases the need of working capital. Some companies manufacture and sell goods only during certain seasons. Working capital requirements of such industries will be higher during certain season of such industries period" *(Morck, Shleifer, and Vishny; 1988: 52).*

i. Other Factors

Effective co-ordination between production and distribution can reduce the need for working capital. Transportation and communication means. If developed helps to reduce the working capital requirement.

2.1.4 Sources of Working Capital

The company should meet its working capital needs through both long term and short term funds. It will be appropriate to meet at least 2/3 of the permanent working capital equipments form long term sources, whereas the variables working capital should be financed from short term sources. The working capital financing mix should be designed in such a way that the overall cost of working capital is the lowest, and the funds are available on time and for the period they are really required. The company can choose to finance its current assets by:

A) Long Term Sources of Permanent Working Capital

It includes equity and preference shares, retained earning, debentures and other long term debts from public deposits and financial institution. The long term working capital needs should meet through long term means of financing. Financing through long term means provides stability, reduces risk or payment and increases liquidity of the business concern. Various types of long term sources of working capital are summarized as follow:

a. Issue of Shares

"It is the primary and most important sources of regular or permanent working capital. Issuing equity shares as it does not create and burden on the income of the concern. Nor the concern is obliged to refund capital should preferably raise permanent working capital. Issue of preference shares is also a source of creating working capital" *(Masulis, Wang and Xie; 2006: 72).*

b. Retained Earnings

"Retain earning accumulated profits are a permanent sources of regular working capital. It is regular and cheapest. It creates not charge on future profits of the enterprises" *(Masulis, Wang and Xie; 2006: 72).*

c. Issue of Debentures

"It crates a fixed charge on future earnings of the company. Company is obliged to pay interest. Management should make wise choice in procuring funds by issue of debentures" *(Masulis, Wang and Xie; 2006: 74).*

d. Long Term Debt

"Company can raise fund from accepting public deposits, debts from Financial Institution like banks, corporations etc. the cost is higher than the other financial tools" *(Masulis, Wang and Xie; 2006: 74).*

B) Short Term Sources of Temporary Working Capital

Temporary working capital is required to meet the day to day business expenditures. The variable working capital would finance from short term sources of funds. And only the period needed. It has the benefits of, low cost and establishes closer relationships with banker. Some sources of temporary working capital are given below

a. Commercial Bank

"A commercial bank constitutes a significant source for short term or temporary working capital. This will be in the form of short term loans, cash credit, and overdraft and though discounting the bills of exchanges" *(Kim and Chung; 1990: 41).*

b. Public Deposits

"Most of the companies in recent years depend on these sources to meet their short term working capital requirements ranging for six month to three years" *(Kim and Chung; 1990: 41).*

c. Various Credits

"Trade credit, business credit papers and customer credit are other sources of short term working capital. Credit from suppliers, advances from customers, bills of exchanges, promissory notes, etc. helps to raise temporary working capital" *(Kim and Chung; 1990: 42).*

d. Reserves and Other Funds

"Various funds of the company like depreciation fund. Provision for tax and other provisions kept with the company can be used as temporary working capital" *(Kim and Chung; 1990: 42).*

C) Sources of Additional Working Capital

"Sources of additional working capital include the following

-) Existing cash reserves
-) Profits (when you secure it as cash)
-) Payables (credit from suppliers)
-) New equity or loans from shareholder
-) Bank overdrafts line of credit
-) Long term loans

If you have insufficient working capital and try to increase sales, you can easily over stretch the financial resources of the business, this is called overtrading" *(Harford, Mansi and Maxwell; 2004: 201).*

2.1.5 Technique for Assessment of Working Capital Requirement

a. Estimation of Component of Working Capital Method

"Since working capital is the excess of current assets over current liabilities, an assessment of the working capital requirements can be made by estimating the amounts of different constituents of working capital e.g., inventories, accounts receivable, cash, accounts payable, etc." *(Harford, Mansi and Maxwell; 2004: 210).*

b. Percent of Sales Approach

"This is a traditional and simple method of estimating working capital requirements. According to this method, on the basis of past experience between sales and working capital requirements, a ratio can be determined for estimating the working capital requirements in future" *(Deloof; 2003: 63).*

c. Operating Cycle Approach

"According to this approach, the requirements of working capital depend upon the operating cycle of the business. The operating cycle begins with the acquisition of raw materials and ends with the collection of receivables

It may be broadly classified into the following four stages viz.
- Raw materials and stores storage stage.
- Work-in-progress stage.
- Finished goods inventory stage.
- Receivables collection stage.

The duration of the operating cycle for the purpose of estimating working capital requirements is equivalent to the sum of the durations of each of these stages less the credit period allowed by the suppliers of the firm.

Symbolically the duration of the working capital cycle can be put as follows: -

$$O = R + W + F + D - C$$

Where,

O = Duration of operating cycle;

R = Raw materials and stores storage period;

W = Work-in-progress period;

F = Finished stock storage period;

D = Debtors collection period;

C = Creditors payment period.

After computing the period of one operating cycle, the total number of operating cycles that can be computed during a year can be computed by dividing 365 days with number of operating days in a cycle. The total expenditure in the year when year when divided by the number of operating cycles in a year will give the average amount of the working capital requirement" *(Deloof; 2003: 65-67).*

2.1.6 Working Capital Ratios

"Working capital ratios indicate the ability of the business concern in meeting its current obligation as well as its efficiency in managing the currents assets for generation of the sales. The ratios are applied to evaluate the efficiency with which the firm manages and utilizes its current assets. The following three categories of ratios are used for efficient management of working capital:

(1) Efficiency Ratios:

- ʃ Working capital to sales ratios = Sales / Working capital
- ʃ Inventory turnover ratio = sales / Inventory
- ʃ Current Assets turnover ratio = sales / Current Assets

(2) Liquidity Ratios:

- ʃ Current ratio = Current Assets / Current Liability
- ʃ Quick ratio = Current assets – Inventory/ Current liability – Bank overdraft
- ʃ Absolute liquid ratio = Absolute liquid Assets / Current Liability

(3) Structural Health Ratios:

- ʃ Current Assets to Total Net Assets = Total Net Assets / Current Assets
- ʃ Debtor turnover ratio = Credit Sales / Debtors
- ʃ Debtor collection periods = Debtors X 365 / Credit sales
- ʃ Bad debts to sales = Bad Debts / Sales
- ʃ Creditors Payment Periods = Creditors X 365 / Credit Purchase"

  (Deloof; 2003: 72-73)

2.1.7 The Concept of Zero Working Capital

"In today's world of intense global competition, working capital management is receiving increasing attention form managers striving for peak efficiency the goal of many leading companies today, is zero working capital. Proponent of the zero working capital concept claims that a movement toward this goal not only generates cash but also speeds up production and helps business make more timely deliveries and operate more efficiently. The concept has its own definition of working capital: inventories+ receivables- payables. The rational here is (i) that inventories and receivables are the keys to making sales, but (II) that inventories can be financed by suppliers through account payables.

Companies use about 20% of working capital for each sale. So, on average, working capital is turned over five times per year. Reducing working capital and thus increasing turnover has two major financial benefits. First every money freed up by reducing inventories or receivables, by increasing payables, results in a one time contribution to cash flow. Second, a movement toward zero working capital permanently raises a company's earnings.

The most important factor in moving toward zero working capital is increased speed. If the production process is fast enough, companies can produce items as they are ordered rather than having to forecast demand and build up large inventories that are managed by bureaucracies. The best companies delivery requirements. This system is known as demand flow or demand based management. And it builds on the just in time method of inventory control.

Clearly it is not possible for most firm to achieve zero working capital and infinitely efficient production. Still, a focus on minimizing receivables and inventories while maximizing payables will help a firm lower its investment in working capital and achieve financial and production economies" *(Garcia-Teruel and Martinez-Solano; 2007: 88-90).*

2.1.8 Working Capital Management

"Working capital management is significant in financial management due to the fact that it plays a vital role in keeping the wheel of business enterprises running. Working capital management is concerned with short term financial decision. Shortage of funds

for working capital has caused many businesses to fail and in many cases, as retarded their growth. Lack of efficient and effective utilization of working capital leads to low rate of return on capital employed or even compels to sustain losses. The lead for skill working capital management has thus become greater in recent years. A firm invests a part of its permanent capital in fixed asset and keeping part of it for working capital i.e. for meeting a day to day requirement. The management of working capital is no less important than the management of long term financial investment. Sufficient liquidity is necessary and must be achieve and maintain to provided funds and pay of the obligation as they arises or mature" *(Garcia-Teruel and Martinez-Solano; 2007: 101-102).*

Each organization is faced with its own limits on the production capacity and technologies it can employ; there are fixed as well as variable costs associated with production goods. In other words, the markets in which real firm operated are not perfectly competitive. These real world facts introduce problems and require the necessity of working capital.

"Working capital management is the functional area of finance that covers all the current accounts of the firm. It is concerned with management of the level of individual current assets as well as the management of total working capital. Working capital management involves the relationship between a firm's short-term assets and its short-term liabilities. The goal of working capital management is to ensure that a firm is able to continue its operations and that it has sufficient ability to satisfy both maturing short-term debt and upcoming operational expenses. The management of working capital involves managing inventories, accounts receivable and payable, and cash" *(Garcia-Teruel and Martinez-Solano; 2007: 104).*

The unpredictable and uncertain global market plays a vital role in working capital. Though the globalization of economy and free trading of products envisages the continuous availability of products but how much it's cost effective and quality based varies concern to concerns.

Working capital refers to the funds invested in current assets, i.e., investment in stocks, sundry debtors, cash and other current assets. Current assets are essential to

use fixed assets profitably. The term current assets refers to those assets which in the ordinary course of business can be converted into cash within one year without undergoing diminish in value and without disrupting the operations of the firm. The current assets are cash, marketable securities, accounts receivable and inventory. Current liabilities are those which are to be paid within a year out of the current assets or earnings of the concern. The current liabilities are accounts payable, bills payable, bank overdraft and outstanding expenses.

"The financial manager plays a vital role in management of working capital. The financial management of any business organization involves the three following vital functions:

) Management of Long Term Assets
) Management of Long Term Capital
) Management of Short Term Assets and Liabilities

In most of the organizations the first & second one which refers to Capital Budgeting and Capital Structure respectively will be maintained and cope up with organization growth. The third one which refers to Working Capital Management requires more skills for sustaining and steady growth rate for any organization.

The working capital management includes decisions

a. How much stock/inventory to be hold?
b. How much cash/bank balance should be maintained?
c. How much the firm should provide credit to its customers?
d. How much the firm should enjoy credit from its suppliers?
e. What should be the composition of current assets?
f. What should be the composition of current liabilities?" *(Garcia-Teruel and Martinez-Solano; 2007: 108-109).*

2.1.8.1 Impact of Inflation on Working Capital Management

One of the objectives of working capital management is to determine and maintain the optimum level of investment in current assets for increase of return on capital employed. While determination of working capital requirement, moderate inflation

rate can be ignored, but higher rate of inflation will be consider otherwise, wrong setting of working capital level will hamper the smooth flow of working and profitability of the concern. When the inflation rate is high, it will have its direct impact on the requirement of the working capital as explained below:

- Inflation will cause to show the turnover figure at higher level even if there is no increase in the quantity of the sales. The higher the sales means the higher levels of balanced in receivables

- Inflation will result in increase of raw materials prices and hike in payment of expenses and as a result, increase in balance of trade creditors and creditors for expenses.

- Increase in the value of closing stocks result in showing the higher profits but without its realization into cash causing the firm to pay higher tax, dividend and bonus. This will lead the firm in serious problem of funds shortage and firm may unable to meet its short term and long term obligations.

- Increase in investment in current assets means the increase in the requirement of working capital without corresponding increase in sales or profitability of the firm.

Keeping in view of the above, the finance manager should be very careful about the impact of the inflation in assessment of the working capital requirement and its management.

2.1.9 Working Capital Component

2.1.9.1 Cash Management

It is the duty of the finance manager to provide adequate cash to all segments of the organization. He also has to ensure that no funds are blocked in idle cash since this will involve cost in terms of interest to the business. A sound cash management scheme, therefore, maintains the balance between the twin objectives of liquidity and cost.

Objectives of Cash Management

There are two basic objectives of cash management:

- To meet the cash disbursement needs as per the payment schedule;

⟩ To minimize the amount locked up as cash balances.

1. Meeting Cash Disbursements

"The first basic objective of cash management is to meet the payments Schedule. In other words, the firm should have sufficient cash to meet the various requirements of the firm at different periods of times. The business has to make payment for purchase of raw materials, wages, taxes, purchases of plant, etc. The business activity may come to a grinding halt if the payment schedule is not maintained. Cash has, therefore, been aptly described as the oil to lubricate the ever-turning wheels of the business, without it the process grinds to a stop" *(Shin and Soenen; 1998: 33).*

2. Minimizing Funds Locked Up as Cash Balances

"The second basic objective of cash management is to minimize the amount locked up as cash balances. In the process of minimizing the cash balances, the finance manager is confronted with two conflicting aspects. A higher cash balance ensures proper payment with all its advantages. But this will result in a large balance of cash remaining idle. Low level of cash balance may result in failure of the firm to meet the payment schedule. The finance manager should, therefore, try to have an optimum amount of cash balance keeping the above facts in view" *(Shin and Soenen; 1998: 34).*

2.1.9.2 Inventory Management

"Inventory management covers a large number of issues including fixation of minimum and maximum levels; determining the size of the inventory to be carried; deciding about the issue price policy; setting up receipt and inspection procedure; determining the economic order quantity; providing proper storage facilities, keeping check on obsolescence and setting up effective information system with regard to the inventories.

The objective of inventory management is, therefore, to determine and maintain the optimum level of investment in inventories, which help in achieving the following objectives:

a. Ensuring a continuous supply of materials to production department facilitating uninterrupted production.

b. Maintaining sufficient stock of raw material in periods of short supply.

c. Maintaining sufficient stock of finished goods for smooth sales operations.

d. Minimizing the carrying costs.

e. Keeping investment in inventories at the optimum level" *(Shin and Soenen; 1998: 42-44).*

Techniques of Inventory Management

Effective inventory requires an effective control over inventories. Inventory control refers to a system which ensures supply of required quantity and quality of inventories at the required time and the same time prevent unnecessary investment in inventories.

1. Determination of Economic Order Quantity

Determination of the quantity for which the order should be placed is one of the important problems concerned with efficient inventory management. Economic Order Quantity refers to the size of the order, which gives maximum economy in purchasing any item of raw material or finished product. It is fixed mainly taking into account the ordering cost and the inventory carrying costs.

$$Q = \sqrt{\frac{2\,U \times P}{S}}$$

Where,

Q = Economic Ordering Quantity

U = Quantity (units) purchased in a year (month)

P = Cost of placing an order

S = Annual (monthly) cost of storage of one unit.

2. Determination of Optimum Production Quantity

The EOQ model can be extended to production runs to determine the optimum production quantity. The two costs involved in this process are:

(i)   Set up costs;

(ii)   Inventory carrying cost.

The set up cost is of the nature of fixed cost and is to be incurred at the time of commencement of each production run. Larger the size of the production run, lower will be the set-up cost per unit. However, the carrying cost will increase with increase in the size of the production run. The optimum production size is at that level where the total of the set-up cost and the inventory carrying cost is the minimum. In other words, at this level the two costs will be equal.

The formula for EOQ can also be used for determining the optimum production quantity as given below:

$$Q = \sqrt{\frac{2U \times P}{S}}$$

Where

E = Optimum production quantity

U = Annual (monthly) output

P = Set-up cost for each production run

S = Cost of carrying inventory per annum (per month)

2.1.9.3 Receivables Management

"Accounts receivables (also properly termed as receivables) constitute a significant portion of the total currents assets of the business next after inventories. They are a direct consequence of "trade credit" which has become an essential marketing tool in modern business.

When a firm sells goods for cash, payments are received immediately and, therefore, no receivables are credited. However, when a firm sells goods or services on credit, the payments are postponed to future dates and receivables are created. Usually, the credit sales are made on open account, which means that, no, formal acknowledgements of debt obligations are taken from the buyers. The only documents evidencing the same are a purchase order, shipping invoice or even a billing statement. The policy of open account sales facilities business transactions and reduces to a great extent the paper work required in connection with credit sales" *(Shin and Soenen; 1998: 52-55).*

Factors Affecting the Size of Receivables

The size of the receivable is determined by a number of factors.

Some of the important factors are as follows:

(1) Level of Sales

This is the most important factor in determining the size of accounts receivable. Generally in the same industry, a firm having a large volume of sales will be having a larger level of receivables as compared to a firm with a small volume of sales. Sales level can also be used for forecasting change in accounts receivable.

(2) Credited Policies

The term credit policy refers to those decision variables that influence the amount of trade credit, i.e., the investment in receivables. These variables include the quantity of trade accounts to be accepted, the length of the credit period to be extended, the cash discount to be given and any special terms to be offered depending upon particular circumstances of the firm and the customer. A firm's credit policy, as a matter of fact, determines the amount of risk the firm is willing to undertake in its sales activities. If a firm has a lenient or a relatively liberal credit policy, it will experience a higher level of receivables as compared to a firm with a more rigid or stringent credit policy.

(3) Terms of Trade

The size of the receivables is also affected by terms of trade (or credit terms) offered by the firm. The two important components of the credit terms are:

(i) Credit Period

The term credit period refers to the time duration for which credit is extended to the customers. It is generally expressed in terms of "net days". For example, If a firm's credit terms are "net 15", it means the customers are expected to pay within 15 days from the date of credit sale.

(ii) Cash Discount

Most firms offer cash discount to their customers for encouraging them to pay their dues before the expiry of the credit period. The terms of the cash discounts indicate the rate of discount as well as the period for which the discount has been offered.

2.1.9.4 Payable Management

"Management of accounts payable is as much important as management of accounts receivable. There is a basic difference between the approaches to be adopted by the finance manager in the two cases. Whereas the underlying objective in case of accounts receivable is to maximize the acceleration of the collection process, the objective in case of accounts payable is to slow down the payments process as much as possible. But it should be noted that the delay in payment of accounts payable may result in saving of some interest costs but it can prove very costly to the firm in the form of loss credit in the market. The finance manager has, therefore, to ensure that the payments after obtaining the best credit terms possible" *(Shin and Soenen; 1998: 65-66).*

2.2 Review of Related Studies

Kieschnick, LaPlante and Moussawi (2008), in their article, "*Working Capital Management, Agency Costs, and Firm Value",* have stated that working capital management is important to firm value. The data on a panel of U.S. corporations from 1990 through 2004 reveals that the value of an additional dollar invested in net operating working capital is worthless than a dollar held in cash. This result demonstrates how important it is to manage working capital efficiently.

Secondly, on average an additional dollar invested in net operating working capital at the mean level of such investment reduces firm value, which is consistent with industry surveys suggesting that some firms over-invest in net operating working capital. Thirdly, the reduction in the value of this investment is primarily driven by its financing. Fourthly, the value of a dollar invested in net operating working capital declines as the firm's employs more anti-takeover provisions. Fifthly, the value of a dollar invested in net operating working capital is nonlinear in insider shareholdings. By examining the valuation of this same investment in single class and dual class

firms, the nonlinearity is likely explained by the divergence between cash flow and voting rights.

Hill, Kelly and Highfield (2009), in their article, *"Net Operating Working Capital Behavior: A First Look",* have stated that firms adopt working capital policies to address market imperfections over the operating cycle, and so incur costs and accrue benefits that affect cash flow and ultimately shareholder wealth.

In sample firms, the average WCR represents $296 million in untapped cash. The empirical models relate WCR to operating conditions and financing ability. Concerning the operating conditions variables, the results indicate that increases in sales growth and sales volatility cause firms to manage operating working capital more aggressively.

The results also show that working capital behavior is influenced by financing capabilities. Specifically, WCR is directly related to operating cash flow and size and is inversely related to the market-to-book ratio and financial distress. A weak negative correlation exists between WCR and market share; however, the result is not robust. Together, these outcomes suggest that firms with weaker internal financing ability, limited capital market access, and greater costs of external financing will more aggressively use payables in relation to receivables and inventory. Finally, the interaction between lagged sales growth and industry concentration reduces firms' net investment in operating working capital.

Afza and Nazir (2009), in their article, *"Is it Better to be Aggressive or Conservative in Managing Working Capital?"* have investigated the relative relationship between the aggressive/conservative working capital policies for 208 public limited companies listed at Karachi Stock Exchange for a period of 2003-2008. The impact of aggressive/conservative working capital investment and financing policies has been examined through cross-sectional regression models between working capital policies and profitability as well as risk of the firms. The study found negative relationship between the profitability measures of firms and degree of aggressiveness of working capital investment and financing policies. The firms yield negative returns if they follow an aggressive working capital policy. These results are further validated by

examining the impact of aggressive working capital policies on market measures of profitability. Moreover, there is no significant relationship between the aggressiveness\conservativeness of working capital policies of firms and their operating and financial risk.

Elizalde (2009), in his article, *"Working Capital Management in Latin America: The Receivables Opportunity"*, has stated that much more than in the U.S. or Europe, collections in Latin America creates a serious working capital issue for many corporations. Payment terms are often not honored, and corporations that are not paid in a timely way frequently need funding and credit to continue to build and deliver goods. The nature of the receivables issue varies somewhat from country to country, but in general Latin America is plagued by unreliable mail systems and serious problems in reconciliation.

Although the mail systems in Mexico and Argentina have been privatized, most mail systems across the region are slow and unreliable. Courier services are expensive and not always available as an alternative. In the Caribbean isles, for example, invoices and payments might take weeks to get where they are supposed to, and sometimes invoices disappear altogether into some kind of commercial paper invoice Bermuda triangle where they are lost forever. In Latin America, Days Sales Outstanding (DSO) is not easy to contain. In terms of reconciliation, most invoices itemize many goods and services and payers, when they have a problem with one item, tend to delay payment for the entire invoice. Collectors are typically unaware of disputes until invoices are past due. In addition, remittances might include rebates, credit notes, early payment discounting, and partial payments, increasing the complexity of the reconciliation process. Since the number of disputes on invoices is very high, and the reconciliation challenge complex, companies must employ a large number of people to reconcile their inflows with the invoices issued.

Raheman and Nasr (2010), in their article, *"Working Capital Management and Profitability- A Case of Pakistani Firms"*, have stated that most of the Pakistani firms have large amounts of cash invested in working capital. It can therefore be expected that the way in which working capital is managed will have a significant impact on profitability of those firms. However, there is significant negative relationship

between net operating profitability and the average collection period, inventory turnover in days, average payment period and cash conversion cycle for a sample of Pakistani firms listed on Karachi Stock Exchange. These results suggest that managers can create value for their shareholders by reducing the number of days accounts receivable and inventories to a reasonable minimum. The negative relationship between accounts payable and profitability is consistent with the view that less profitable firms wait longer to pay their bills.

These results can be further strengthened if the firms manage their working capital in more efficient ways. Management of working capital means management of current assets and current liabilities, and financing these current assets. If these firms properly manage their cash, accounts receivables and inventories in a proper way, this will ultimately increase profitability of these companies. There is much to be done about working capital in Pakistan in future.

2.3 Review of Thesis

Joshi (2007), in her thesis titled, A Comparative Study of Working Capital Management of Everest Bank Nepal Ltd. and Nepal SBI Bank Ltd., has the main objective to examine the working capital management in Everest Bank Nepal Ltd. and Nepal SBI Bank Ltd. Other specific objectives are:

a. To study the current assets and currest liabilities and their impact on liquidity and profitability.

b. To analyze the comparative study of working capital management of EBL and NSBL.

c. To analyze their liquidity, composition of working capital, assets utilization and profitability.

Subedi (2007), in his thesis, *"A Study of Working Capital Management with Respect to National Trading Limited and Salt Trading Corporation Limited"*, has the main objective to present overall picture of National Trading Limited and Salt Trading Limited in terms of working capital management. The other specific objectives are;

a. To evaluate the efficiency of the companies in managing working capital.

b. To measure the promptness of the companies in converting sales into cash.

c. To analyze the liquidity of STCL and NTL.

The major findings of the study are;

a. There is operating inefficiency in both the companies and overall return position of the companies is also not in favorable condition because of inefficient utilization of current assets, total assets and shareholders' wealth.

b. The outcome of cash conversion cycle of sample companies are not in satisfactory condition.

c. Liquidity position of Salt Trading Corporation Ltd shows satisfactory and favorable position by being successful in maintaining the standers but NTL been unable to meet standard. Both are following aggressive financing policy.

Kharel (2008), in his study, *"An Analysis of Working Capital Management of Nepal Insurance Company"*, has the main objective of analyzing the working capital management of Nepal Insurance Company. The specific objectives of the study are;

a. To analyze the size and structure of working capital and relation between in non-life insurance company with reference to NIC.

b. To analyze the relationship between operating income and different variables of working capital, to check the efficiency of working capital of NIC.

c. To analyze the working capital cash flow cycle or cash conversion cycle of NIC.

The major findings of the study are;

a. The higher percentage of current assets in total assets of Nepal Insurance Company denotes liquidity position of the company and lower risk of technical insolvency.

b. The company has adopted the conservative current assets policy. The size of net working capital is also in increasing trend.

c. The ratio of net working capital to operating income indicates less utilization of working capital where operating income is incomparably smaller than the net working capital.

d. The company has eliminated its external financing using internal fund. Nepal insurance company kept excess amount of working capital in comparison to net sales, which can not be considered as the sign of efficient management of working capital in the organization.

e. The profitability position is being unsatisfactory every year. The corporation has so far greater current assets than current liabilities in all years of observation that clarifies the better liquidity position. Cash is pilling up lying unproductively.

Duwadi (2008), in her thesis, *"Comparative Analysis of Working Capital Management of Bank of Kathmandu Ltd. and Nabil Bank Ltd.* the main objective cited are as follows:

a. To analyze the liquidity position, composition of the working capital, assets utilization and profitability positions of Bank of Kathmandu and Nabil Bank Ltd.
b. To analyze the comparative study of working capital management between Bank of Kathmandu Ltd. and Nabil Bank Ltd.

The major findings of the study are;
The researcher has concluded that Nabil Bank Ltd. is in more competitive position than BOKL.

Devkota (2009), in his thesis, *"Working Capital Management of Manufacturing Companies Listed in NEPSE"*, has the main objective to find out the working capital financing policy adopted by listed Nepalese manufacturing companies. The specific objectives of the study are;

a. To analyze the current assets and current liabilities policies.
b. To examine the effects of working capital on profitability.
c. To trace out the problems faced by the companies in having sound working capital management.

The major findings of the study are;

a. The listed manufacturing companies have not truly considered the working capital management pragmatically in their operations.
b. There is procrastinating in cash conversion cycle. Further, the companies have extensively used long term debt to meet the cash requirement, which indicates the adoption of conservative policy.

c. The relationship between working capital and net profit is not statistically significant. The gross working capital of the companies is highly dominated by the inventory.

d. The return on equity is in irregular trend. It indicates that the companies are not efficient to increase the profit in same proportion in the increment in shareholders' equity.

e. The companies are accompanied with various hindrances like lower turnover, lower return, lower net working capital or poor liquidity position, lack of proper working capital policy, deteriorating financing situation, lack of appropriate credit and collection policy, improper inventory management, high operating cost of production etc.

Upreti (2010), in his thesis, *"Working Capital Management in Joint Venture Banks"*, has the main objective to examine the management of working capital of NABIL, HBL, SBI and EBL. The specific objectives of the study are;

a. To study the current assets and current liabilities and their impact on liquidity and profitability

b. To analyze the liquidity, assets utilization, long term solvency and profitability position of NABIL, HBL, SBI and EBL.

c. To predict the working capital ratios of NABIL, HBL, SBI and EBL in future.

The major findings of the study are;

a. The current asset covers 98.38%, 98.68%, 98.90% and 99.30% of the total assets of NABIL, HBL, EBL and SBI bank respectively in average. SBI bank has the highest ratio (99.30%) and NABIL bank has the lowest ratio (98.38%) compared with other banks.

b. Current assets of NABIL, HBL, EBL and SBI are 64.56 times, 80.01 times, 93.62 times and 151.55 times greater than the corresponding fixed assets respectively. SBI has the highest current assets to fixed assets ratio (151.55 times) and NABIL has the lowest ratio (64.56 times) in average.

c. In average, NABIL, HBL, EBL and SBI mobilized 64.33%, 52.75%, 73.58% and 73.01% of the total deposit in disbursing loan and advances respectively. Similarly, loan and advances is 3.74 times, 2.41 times, 2.15 times and 1.52 times greater than the fixed deposit collection of NABIL, HBL, EBL and SBI

respectively. Likewise, loan and advances is 1.47 times, 1.00 times, 1.57 times and 2.62 times greater than the savings deposit of NABIL, HBL, EBL and SBI respectively.

d. The prediction of current assets total assets ratio of NABIL, EBL and SBI indicated that the ratio continues to increase in the future years. Whereas, the prediction shows that ratio in HBL decreases in each forthcoming year. Similarly, the current assets to total assets of NABIL, EBL and SBI increases and that of HBL decreases in the coming years. However, the cash and bank balance to currents assets decreases in all the banks in each coming year. In contrast, the ROE of each bank will increase in the forthcoming years.

e. There exists highly positive relationship between loan and advances and total deposit, between loan and advances and net profit of each bank. However, the relationship between cash and bank balance and current liabilities of NABIL and HBL is negative and that of EBL and SBI is positive.

Basnet (2010), in his thesis, *"Management of Working Capital in Commercial Banks"*, has the main objective to analyze the working capital policy followed by BOK, EBL, KBL and LBL. The specific objectives of the study are;

a. To measure the working capital to total assets of BOK, MBL, KBL and LBL.
b. To evaluate the liquidity position of the banks by analyzing the current ratio.
c. To examine the mobilization of working capital in banks.

The major findings of the study are;

a. All the banks have followed aggressive working capital policy. The usage of debt capital, more specifically the short term debt, is higher than the equity capital.

b. The working capital represents 88.23%, 78.61%, 90.01% and 89.23% of the total assets of BOK, MBL, KBL and LBL. Thus, the total assets of KBL is most risky than that of others.

c. The current ratios of BOK, MBL, KBL and LBL are 1.10:1, 1.11:1, 1.07:1 and 1.11:1 respectively. There is no difference between current ratio and liquid ratio of respective bank, which clearly indicates that the there exist significantly less amount of inventory and prepaid expenses in each bank.

d. Cash and bank balance occupies 4.86%, 6.82%, 10.23% and 8.85% of the current assets of BOK, MBL, KBL and LBL bank respectively. Likewise, cash and bank balance holds 4.78%, 6.73%, 10.11% and 8.79% of the total assets of BOK, MBL, KBL and LBL bank respectively. Thus, KBL has the practice of keeping higher portion of cash and bank balance and BOK keeps less cash and bank balance.

e. In average, BOK, MBL, KBL and LBL mobilized 6.94%, 10.00%, 18.48% and 20.22% of the total deposit excluding fixed deposit in keeping cash and balance reserve respectively. LBI bank has the practice of keeping highest percentage (20.22%) and BOK keeps lowest percentage (6.94%) of total deposit as cash and bank balance.

S.K. Shrestha (2010), *Working Capital and Liquidity Management of Bank of Kathmandu Ltd.*, has the main objective to evaluate the working capital position and to throw tight on the importance of the proper management of working capital the bank. The specific objectives of the study are as follows:-

a. To indicate liquidity position in current assets.
b. To point out the condition of current liabilities and assets.
c. To analyze the need to control investment in working capital.
d. To make suggestion about removing any obstacle in making decision regarding management of working capital and to point out alternating solution for maximizing profit.

The major findings of the study are;

a. On the basis of the research, the researcher came to the conclusion that the interest was the major source of income. From the analysis of the financial position of the BOKL from the year 2061/062 to 2065/066 the collection of deposits and loan investment are increasing satisfactorily and there are also increasing in operating profit.

b. The CR of the bank over the five year is 1.07 times on an average. It indicates that the margin for safety for customers has been maintained satisfactorily. The average of the cash and bank balance to current assets ratio is 8.42 percent which indicates that cash and bank balance proportion with respect to the current assets is moderate. The average cash and bank balance to total deposit

ratio stands at 12.84 percent. It is not so satisfactory level over the study period. The saving deposit to total deposit ratio of bank over the five year period is 41.73 percent. This ratio of BOKL seems satisfactory level over the study period. Hence, in general the liquidity position of the bank is good enough to meet the short term obligation.

c. Large amount of loans and advances are given out of total deposits. The BOKL net fixed assets covers very low portion of long term debt. In other words large portion of long term debt is used in current assets of the bank. Long term debt to net worth ratio of the bank is in satisfactory condition. This ratio also implies that the proportion of outsiders claim in total capitalization is higher in BOKL.

d. The researcher found that the operating efficiency of the bank is in satisfactory condition. Interest earned in comparison to total assets is not fair enough. Net profit earned in comparison to total assets and total deposit is relatively low. The Bank has been earning 1.83 percent on its total assets during the study period. The researcher found that the EPS of the bank is quite good as its average stands at 46.38 percent.

Research Gap

All of the aforementioned studies have mainly concentrated on liquidity and profitability management, and thus have slightly gone astray from the working capital management. The present study recognizes this loophole, and specifies on the working capital management of the banks and thus ignores aught that is not related to working capital. Further, the previous studies reviewed do not accumulates the opinions regarding working capital, thus, the present study also embraces opinions of the personnel of the banks as well.

CHAPTER – III
RESEARCH METHODOLOGY

3.1 Research Design

Selection of appropriate research design is necessary to meet the study objectives of any research. Research design is a plan structure and strategy of investigation conceived so as to obtain answer to research questions and to control variances.

The study aims to portraying accurately on the working capital (or current assets and current liabilities) and its impact on overall financial position of sample banks. It is based on recent 5 years data from F/Y 2005/06 to F/Y 2009/10. The study has been conducted to assess the existing situation of working capital management of commercial banks and describe the situation and events occurring at present. The research design followed for this study is basically a historical, empirical and descriptive-cum-analytical.

3.2 Population and Sample

At present there are 31 commercial banks operating in Nepal. Among them Standard Chartered Bank Nepal Limited, NABIL Bank, Himalayan Bank Limited and Everest Bank Limited have been taken as a sample for the study. This sample banks are the pioneer leading bank in the context of deposit collection and loan disbursement. Financial statements of last five fiscal years from F/Y 2005/06 to F/Y 2009/10 have been taken as sample data for evaluating working capital management.

3.3 Sources of Data

This study is conducted on the basis of both primary and secondary data relating to working capital. The secondary data have been extracted mainly through the annual report of SCBNL, NABIL, HBL & EBL. Besides these, the annual report of Nepal Rastra Bank has also been equally reviewed. Further, the directives issued by NRB have also been taken as the secondary source of data. Similarly, various data and information are collected from the periodicals, economic journals, managerial magazine and other published and unpublished reports and documents from various

sources. Likewise, the primary data have been collected by distributing questionnaire to the employees and the shareholders of the sample banks.

3.4 Tools Used

Under this study, financial as well as statistical tools have been used to analyze the gathered data and information.

3.4.1 Financial Tools

In this research study various financial tools are employed for the analysis. The main focus will be on Ratio Analysis. Ratio analysis is the most important tools of the financial analysis, which help to ascertain the financial conditions of the organizations. Various ratios are employed and grouped for the analysis of composition of working capital, liquidity position, activity or turnover position, profitability position and capital structure or leverage position.

A) Total Assets Financing

The total asset of the bank is financed through outside and inside financing. The inside financing involves shareholder's equity whereas the outside financing involves both long term debt and short term debt. Higher the debt financing signals adoption of aggressive working capital policy and vice versa.

$$\text{Total Assets Financing (\%)} = \text{Equity Financing (\%)} + \text{Debt Financing (\%)}$$

B) Total Debt Composition

The total debt of the bank is composed of long term debt and short term debt. The short term debt is easy to obtain in comparison to long term debt. But, short term debt carries higher risk. Thus, higher use of short term debt to financing the working capital means the adoption of aggressive policy.

$$\text{Total Debt Composition (\%)} = \text{Long Term Debt (\%)} + \text{Short Term Debt (\%)}$$

C) Gross Working Capital

Generally gross working capital means current assets. Thus, higher the current asset indicates higher gross working capital and eventually higher net working capital as

well. Under this, the growth rate of gross working capital within the five year period is analyzed.

$$\text{Growth Rate of GWC} = \frac{\text{Difference in GWC}}{\text{Last Year GWC}} \times 100$$

D) Net Working Capital Growth

The net working capital is the difference between the current assets and the current liabilities. Lower the net working capital implies higher amount of short term financing and thus having aggressive policy and so on. The growth rate of net working capital is given by;

$$\text{Growth Rate of NWC} = \frac{\text{Difference in NWC}}{\text{Last Year NWC}} \times 100$$

E) Working Capital Financing Policy

This ratio measures the relationship between the short term debt capital and the current assets of the bank. In other word, this ratio evaluates what percentage of the working capital has been financed through the short term debt, and thus enlightens on the working capital policy adopted.

$$\text{Working Capital Financing Policy} = \frac{\text{Short Term Debt Capital}}{\text{Working Capital}} \times 100$$

F) Working Capital to Total Assets

This ratio measures the relationship between the working capital and total assets of the bank. This ratio is germane to the management for making policy in the types of finance to be adopted. This ratio also shows the representation of working capital in total assets of the bank.

$$\text{Working Capital to Total Assets} = \frac{\text{Working Capital}}{\text{Total Assets}} \times 100$$

G) Cash Reserve Ratio

To ensure the security of the deposit holders, each bank has to keep certain percentage of the total local deposit collection as cash balance in NRB, as per the provision of NRB. Currently such requirement is 5.5%. Thus, this ratio measures the liquidity to be maintained by the bank.

$$\text{Cash Reserve Ratio} = \frac{\text{Cash Balance at NRB}}{\text{Total Local Deposit}} \times 100$$

H) Return on Equity

This ratio measures the efficiency of the bank in optimally utilizing the shareholders' equity in generating profit. Higher the return on equity indicates that the bank has adopted aggressive working capital policy, and thus the bank is risk taker.

$$\text{Return on Equity} = \frac{\text{Net Profit after Tax}}{\text{Total Shareholder's Equity}} \times 100$$

3.4.2 Statistical Tools

The major statistical tools used for analyzing the data are as follows;

A) Arithmetic Mean or Average (qX)

An average is a single value that represents a group of values. It depicts the characteristic of the whole group. It is a representative of the entire mass of homogeneous data, its value lies somewhere in between the two extremes, i.e. the largest and the smallest items. It is obtained by dividing the sum of the quantities by the number of items. Thus,

$$\text{Mean } (\overline{X}) = \frac{\sum X}{N}$$

Where,

X = sum of the sizes of the items

N= number of items

B) Standard Deviation (S.D.)

It is the most usual measure of dispersion and it represents the square root of the variance of a group of numbers, i.e., the square root of the sum of the squared differences between a group of numbers and their arithmetic mean. Generally, it is denoted by small Greek letter ∃ (read as sigma) and is obtained as follows.

$$\text{S.D. } (\sigma) = \sqrt{\frac{\sum (X - \overline{X})^2}{N}}$$

Where,

N   = Number of items in the series.

∈X   = mean

X   = Variable

The standard deviation measures the absolute dispersion or variability of a distribution; the greater the amount of dispersion or variability the greater the standard derivation, for the greater will be the magnitude of the deviations of the values from their mean.

C) Coefficient of Variation

Karl Pearson developed this measurement to measure the relative dispersion. It is used in such problems where we want to compare the variability of two or more series. It is denoted by C.V. and is obtained by dividing the arithmetic mean to standard deviation. Thus,

$$C.V. = \frac{\sigma}{\bar{X}} \times 100$$

D) Coefficient of Correlation

The correlation analysis refers to the techniques used in measuring the closeness of the relationship between the variables. It helps us in determining the degree of relationship between to or more variables. It doesn't tell us anything about cause and effect relationship. It describes not only the magnitude of correlation but also its direction. The coefficient of correlation is a number, which indicates to what extent two things (variables) are related to what extent variations in one go with the variations in the other.

The value of coefficient of correlation as obtained shall always lie between ± 1, a value of -1 indicating a perfect negative relationship between the variables, of $+1$ a perfect positive relationship, and of no relationship when correlation coefficient is zero. The zero correlation coefficient means the variables are uncorrected. It is defined by Karl Pearson as:

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

E) Probable Error

The probable error denoted by P.E. is used to measure the reliability and test of significance of correlation coefficient. Significance of relationship has been tested by using the probable error (P.E.) and it is denoted by the following model:

$$\text{Probable Error (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}}$$

Where, r = the value of correlation coefficient

n = number of pairs of observations

if r < P.E., it is insignificant, i.e. there is no evidence of correlation

if r > 6 P.E., it is significant

if P.E. < r < 6 P.E., nothing can be concluded

F) Regression Analysis

Regression is a statistical method for investing relationships between the variables by the establishment of an approximate functional relationship between them. It is considered as a useful tool for determining the strength of relationship between two or more variables. The regression line of Y on X is given by;

$$Y = a + bx$$

G) Trend Analysis

A widely and most commonly used method to describe the trend is the method of least square. Let the trend line between the dependent variable y and the independent variable x (i.e. time) be represented by;

$$Y_c \quad = \quad a + bx \quad \dots\dots\dots\dots\dots\dots\dots \text{ (i)}$$

Where,

a = y intercept or value of y when x = 0

b = slope of the trend line or amount of change that comes in y of a unit change in x.

To find the value of x and y, the following equations should be solved;

$$y \quad = \quad na + b \ x \ \dots\dots\dots\dots\dots\dots.. \text{ (ii)}$$

$$xy \quad = \quad a \ x + b \ x^2 \ \dots\dots\dots\dots\dots\dots.\text{(iii)}$$

CHAPTER – IV

DATA PRESENTATION AND ANALYSIS

This part of the study has been divided into three sub parts. The first part presents secondary data analysis, the second part presents primary data analysis and the third part presents major findings of the analysis.

4.1 Secondary Data Analysis

In this section, the data from the annual report of SCBNL, NABIL, HBL and EBL have been extracted and tabulated to compute the relative ratios that are essential for evaluating the working capital management of the bank.

4.1.1 Total Assets Financing

The total asset of the bank is financed through the outside funding and internal funding. The internal funding involves shareholders' equity whereas outside funding involves both long term debt and short term debt. A good combination between these two funding is necessary for the optimal profit achievement. The financing of total assets of the selected banks is presented in the Table 4.1.

Table: 4.1

Total Assets Financing

(Unit in %)

FY	SCBNL		NABIL		HBL		EBL	
	Equity	Debt	Equity	Debt	Equity	Debt	Equity	Debt
2005/06	6.81	93.19	9.71	90.29	6.00	94.00	6.03	93.97
2006/07	7.40	92.60	7.55	92.45	6.40	93.60	5.61	94.39
2007/08	7.48	92.52	6.56	93.44	6.95	93.05	7.08	92.92
2008/09	7.62	92.38	7.14	92.86	7.93	92.07	5.97	94.03
2009/10	8.38	91.62	6.85	93.15	8.05	91.95	6.67	93.33
Mean%	7.54	92.46	7.56	92.44	7.07	92.93	6.27	93.73
S.D.	0.56	0.56	1.26	1.26	0.91	0.91	0.59	0.59
C.V.%	7.48	0.61	16.62	1.36	12.90	0.98	9.42	0.63

(Source: Appendix II)

The table 4.1 shows the method adopted by the banks to finance the total assets. The table reveals that each bank has given predilection to debt capital than equity capital while financing the total assets. Thus, the total assets of each bank can be considered

risky. Looking individually, the equity capital of SCBNL has followed increasing trend, and thus has ranged from 6.81% in the fiscal year 2005/06 to 8.38% in the fiscal year 2009/10. Similarly, the debt financing of the bank has ranged from 92.38% in the fiscal year 2008/9 to 93.19% in the fiscal year 2005/06. In average, SCBNL has financed the total assets by 7.54% inside fund and 92.46% outside fund. Also, the coefficient of variation in inside funding is 7.48% and that in outside funding is 0.61%. However, NABIL has practiced to deduct the internal fund and increase the outside fund, except in the fiscal year 2008/09, while financing the total assets. The equity financing in NABIL has ranged from 9.71% in the fiscal year 2005/06 to 6.56% in the fiscal year 2007/08 and debt financing has ranged from 90.29% to 93.44% in the same fiscal year respectively. In average, NABIL financed 7.56% of the total assets through equity capital and 92.44% of the total assets through debt capital. The coefficient of variation on equity financing is 16.62%, indicating quite uniformity, and debt financing is 1.36%, indicating high uniformity.

Similarly, the percentage of debt financing in total assets of HBL has decreased during the period and the percentage of equity financing has increased simultaneously. The equity financing to total assets of HBL has ranged from 6% in the fiscal year 2005/06 to 8.05% in the fiscal year 2009/010. Likewise, the debt financing to total assets has gradually decreased from 94% in the fiscal year 2005/06 to 91.95% in the fiscal year 2009/10. In average, HBL financed 7.05% of the total assets through equity capital and 92.93% of the total assets with debt capital. Alike in NABIL, the percentage of equity financing in EBL has decreased during the period and inversely the percentage of debt financing has increased except in the fiscal year 2008/09. The equity capital has ranged from 5.61% in the fiscal year 2006/07 to 7.08% in the fiscal year 2007/08, and debt capital has ranged from 94.39% to 92.92% in the same fiscal year. In average, the equity capital and debt capital have represented 6.27% and 93.73% of the total assets respectively.

Comparatively the debt capital representation is extensively higher than the equity capital in all the selected banks, and thus represents much risk in total assets of the banks. In addition it can be considered that the total assets of EBL and HBL is much riskier than that of SCBNL and HBL, since the debt capital representation in EBL and HBL is higher.

4.1.2 Total Debt Composition

The total debt composition shows the attitude of the bank in taking the risk. Higher amount of short term debt than long term debt states that the bank is risk taker, while the opposite states that the bank is risk averter. This ratio indicates on which debt capital is the bank focusing in financing the working capital.

Table: 4.2

Total Debt Composition

(Unit in %)

FY	SCBNL		NABIL		HBL		EBL	
	LTD	**STD**	**LTD**	**STD**	**LTD**	**STD**	**LTD**	**STD**
2005/06	0.00	100.00	0.11	99.89	1.82	98.18	2.00	98.00
2006/07	1.51	98.49	3.50	96.50	1.90	98.10	1.48	98.52
2007/08	0	100	4.61	95.39	2.80	97.20	1.19	98.81
2008/09	0.81	99.19	4.86	95.14	1.38	98.62	1.76	98.24
2009/10	0	100	0.72	99.28	1.27	98.73	1.82	98.18
Mean	**0.46**	**99.54**	**2.76**	**97.24**	**1.84**	**98.16**	**1.65**	**98.35**
S.D.	**0.68**	**0.68**	**2.21**	**2.21**	**0.60**	**0.60**	**0.32**	**0.32**
C.V.%	**146.94**	**0.69**	**80.14**	**2.28**	**32.93**	**0.62**	**19.29**	**0.32**

(Source: Appendix II)

The table 4.2 shows the financing policy of the banks through debt. The table depicts that all the banks have extensively used short term debt than long term debt. The use of long term debt does not cross 5% of the total debt capital.. Amongst the chosen banks SCBNL is has the least composition of long term debt ranging from 0% in lowest to 1.51% in highest. In average the long term covers only 0.49% of the total debt capital, however the coefficient of variation is 146.94% indicating high inconsistency. Similarly, the mobilization of long term debt in NABIL is quite higher than that of SCBNL and thus has ranged from 0.11% in the fiscal year 2005/06 to 4.86% in the fiscal year 2008/09. However it has dwindled to 0.72 percent in 2009/10. Simultaneously, the short term debt percentage has been in decreasing trend and thus has ranged from 99.89% in the fiscal year 2005/06 to 95.14% in the fiscal year 2008/09. In average, the short term debt and long term debt represent 2.76% and 97.24% of the total debt. Also, the variation in long term debt financing percentage is extensively higher than that of short term debt financing.

The long term debt financing percentage and short term debt financing percentage, however, in HBL are in fluctuating trend and thus the long term debt financing

percentage has ranged from 1.27% in the fiscal year 2009/10 to 2.80% in the fiscal year 2007/08. The short term debt financing percentage has ranged from 97.20% in the fiscal year 2007/08 to 98.73% in the fiscal year 2009/10. In average, the long term debt financing and short term debt financing have represented 1.84% and 98.16% of the total debt capital. Similarly, the long term debt capital percentage has followed decreasing trend and the short term debt capital percentage has followed increasing trend for the first four fiscal years in EBL. The short term debt capital and long term debt capital have represented 98.35% and 1.65% of the total debt capital in average.

Considering the composition of total debt capital, it can be assumed that the working capital of the banks is much riskier, since uses of higher short term debt demands repayment in every few month, which ultimately desires higher liquidity and thus can cause bankruptcy in case of low current assets. Further, the interest rates on short term debt fluctuate widely than in long term debt. Among the four banks, the working capital of SCBNL is much risky than that of other banks, on the basis of high use of short term debt capital percentage.

4.1.3 Gross Working Capital Status

Gross working capital means the current assets. The below table shows the gross working capital in different fiscal years, and growth percentage of gross working capital. Higher the gross working capital indicates higher liquidity.

Table: 4.3

Gross Working Capital Status

(Rs. in Millions)

| FY	SCBNL		NABIL		HBL		EBL	
	GWC	Growth	GWC	Growth	GWC	Growth	GWC	Growth
2005/06	25767.35	18.69	17064.08	2.16	29460.39	8.62	15959.28	37.60
2006/07	28596.69	10.98	27253.39	59.71	33519.14	13.78	21432.57	34.30
2007/08	33335.79	16.57	37132.76	36.25	36175.53	7.92	27149.34	26.67
2008/09	40066.57	20.19	43867.40	18.14	39330.13	8.72	36916.85	35.98
2009/10	40213.32	0.37	52150.24	18.88	42717.12	8.61	41382.76	12.10
Mean	33595.94	13.36	35493.57	27.03	36240.46	9.53	28568.16	29.33
S.D.	6557.55	8.06	13764.07	21.89	5120.36	2.39	10557.32	10.50
C.V.%	19.52	60.33	38.78	80.99	14.13	25.13	36.95	35.81

(Source: Appendix II)

The table 4.3 presents the gross working capital, i.e. current assets, situation of the bank. Clearly, the gross working capital of the banks has gradually increased during the periods. The gross working capital of SCBNL has increased from Rs. 25767.35 millions in the fiscal year 2005/06 to Rs. 40213.32 millions in the fiscal year 2009/010. In average, the bank has maintained Rs. 33595.94 millions working capital. And the coefficient of variation in the working capital is 19.52%, indicating quite inconsistency. Further the growth rate of working capital has varied from 0.37% in the fiscal year 2009/10 to 20.19% in the fiscal year 2008/09. In average, the growth rate of working capital is 11.36%. Likewise, the working capital of NABIL is lowest, Rs. 17064.08 millions, in the fiscal year 2005/06 and by the arrival of the fiscal year 2009/010, it has been raised to Rs. 52150.24 millions. In average, the working capital in NABIL is Rs. 35493.57 millions and the coefficient of variation is 38.78%, indicating high inconsistency. Similarly, the working capital of the bank has grown up by 2.16% in lowest in the fiscal year 2005/06 and by 59.71% in highest in the fiscal year 2006/07.

Similarly, the working capital of HBL has been increased from Rs. 29460.39 millions in the fiscal year 2005/06 to Rs. 42717.12 millions in the fiscal year 2009/010. In average the working capital of HBL is Rs. 36240.46 millions. Also, the growth rate of working capital has ranged from 8.62 % in the fiscal year 2005/06 to 13.78% in the fiscal year 2006/07. The average growth rate in gross working capital of bank is 9.53%, however, the inconsistency in growth rate is higher, i.e. 25.13%. Alike in other banks, the gross working capital of EBL has increased from Rs. 15959.28 millions in the fiscal year 2005/06 to Rs. 41382.76 millions in 2009/10. Consequently the growth rate in gross working capital of EBL has ranged from 12.10 % in the fiscal year 2009/10 to 37.60% in the fiscal year 2005/06. In average, the gross working capital of EBL is Rs. 28568.16 millions and the growth rate is 29.33%.

Summarizing the analysis, it can be concluded that the banks have paid attention to increase the gross working capital to have sound liquidity management. Among the four banks, HBL has highest gross working capital, however, EBL has left behind HBL in raising the gross working capital.

Figure: 4.1

Gross Working Capital Status
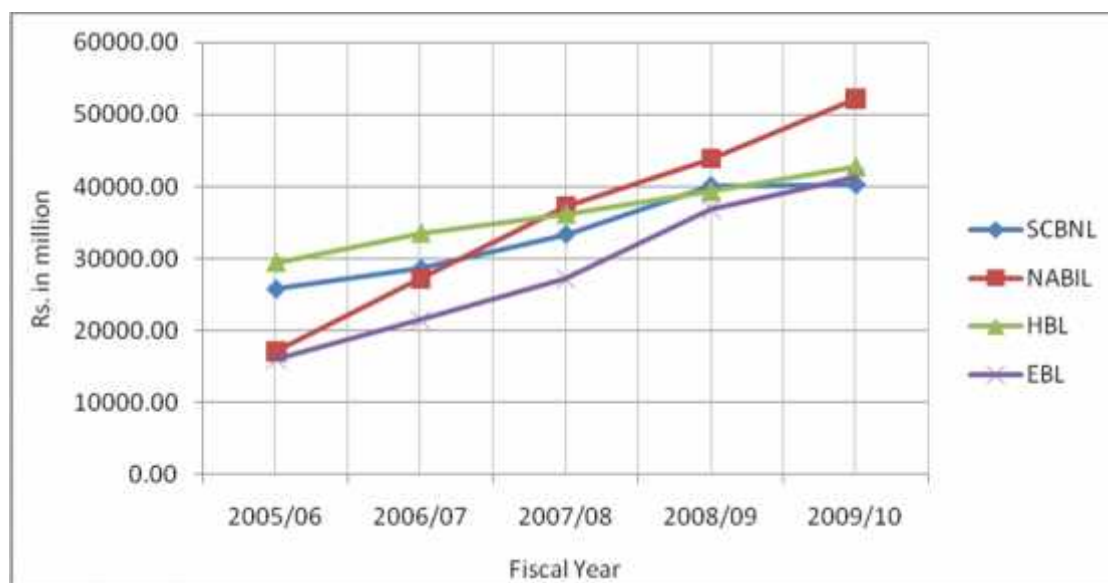
4.1.4 Net Working Capital Growth

Net working capital means the excess of current assets to current liabilities. Higher the current asset than short term debt demands higher amount of other capital, either long term debt capital or equity capital. The net working capital of the banks for the five fiscal year periods and the growth has been shown in the table below.

Table: 4.4

Net Working Capital Growth

(Rs. in Millions)

| FY	SCBNL		NABIL		HBL		EBL	
	NWC	Growth	NWC	Growth	NWC	Growth	NWC	Growth
2005/06	1754.14	14.01	1657.64	26.20	1766.18	0.81	962.81	-3.58
2006/07	2116.35	20.65	2057.05	24.10	2146.50	21.53	1201.52	24.79
2007/08	2492.55	17.78	2437.20	18.48	2512.99	17.07	1921.24	59.90
2008/09	3052.47	22.46	3130.24	28.44	3119.88	24.15	2203.63	14.70
2009/10	3369.71	10.39	3834.75	22.51	3439.21	10.24	2759.14	25.21
Mean	**2557.04**	**17.06**	**2623.38**	**23.94**	**2596.95**	**14.76**	**1809.66**	**24.20**
S.D.	**661.23**	**4.91**	**867.81**	**3.78**	**686.11**	**9.41**	**734.19**	**23.12**
C.V.%	**25.86**	**28.77**	**33.08**	**15.80**	**26.42**	**63.78**	**40.57**	**95.52**

(Source: Appendix II)

The table 4.4 shows the net working capital of the bank. It is clear that the net working capital of SCBNL is in increasing trend within the five year periods. The net working capital of such bank is lowest, i.e. Rs. 1754.14 millions, in the fiscal year

2005/06 and highest, i.e. Rs. 3369.71 millions, in the fiscal year 2009/10. In average, the net working capital of the bank is Rs. 2557.04 millions with 25.86% fluctuation, and has grown up by 10.39% in lowest in the fiscal year 2009/10 and by 22.46% in highest in the fiscal year 2008/09. In average the net working capital of the bank has been raised by 17.06%, but the fluctuation in such growth rate is 28.77%. Alike in SCBNL, the net working capital in NABIL is also in increasing trend and thus has increased from Rs. 1657.64 millions in the base year 2004/05 to Rs. 3834.75 millions in the final year 2009/010. Also, the growth rate of NWC has ranged from 18.48% in the fiscal year 2007/08 to 28.44% in the fiscal year 2008/09. In average, the NWC is Rs. 2623.38 millions and growth rate is 23.94% and the coefficient of variation in NWC is 33.08% and in growth rate is 15.80%, indicating inconsistency.

Although the current assets, gross working capital, and current liabilities of the HBL have increased during the periods, the net working capital has fluctuated during the periods. This indicates that increment in the gross working capital and the increment in short term debt have differed. The net working capital is lowest, Rs. 1766.18 millions, in the fiscal year 2005/06 and highest, Rs. 3439.21 millions, in the fiscal year 2009/10. In average, the net working capital of the bank is Rs. 2596.95 millions and the increment is 14.76% annually. However, the net working capital in EBL has increased by almost double within the five year periods and thus has reached to Rs. 2759.14 millions in the fiscal year 2009/010 from Rs. 962.81 millions in the fiscal year 2005/06. In average, the net working capital of EBL is Rs. 1809.66 millions and the growth rate in such capital is 24.20% in average.

The table clearly indicates that the banks have given more concentrations in increasing the current assets by greater amount than increasing the current liabilities. Thus it can be concluded that the banks are following aggressive working capital policy, since the short term debt has been extensively used to finance current assets. Although the net working capital of SCBNL is highest, the growth rate in net working capital of EBL is highest, from which it can be considered that EBL has paid greatest attention in increasing net working capital than other does.

Net Working Capital Growth
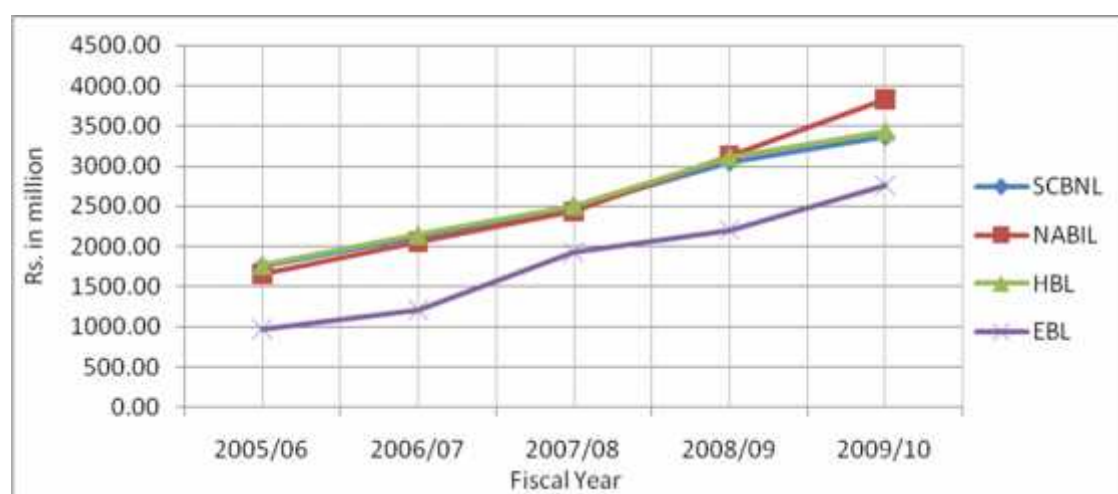
4.1.5 Working Capital Financing Policy

The observed banks used short term debt comparatively much higher than the long term debt to finance the total assets. This indicates that the short term debt financing is also extensively used to finance the working capital. The table below shows to what extent the short term debt has been used to finance working capital of the bank.

Table: 4.5

Working Capital Financing Policy

(Rs. in Millions)

| Bank	Fiscal Year					Mean	S.D.	C.V. %
	2005/06	2006/07	2007/08	2008/09	2009/010			
SCBNL								
STD	24,013.21	26,080.34	30,843.24	36,714.10	36,843.61			
WC	25,767.35	28,596.69	33,335.79	40,066.57	40,213.32			
Ratio	93.19	91.20	92.52	91.63	91.62	**92.03**	**0.81**	**0.88**
NABIL								
STD	15,389.38	24,313.77	33,095.56	38,755.85	51,769.58			
WC	17,064.08	27,253.39	37,132.76	43,867.40	52,150.24			
Ratio	90.19	89.21	89.13	88.35	99.27	**91.23**	**4.54**	**4.98**
HBL								
STD	27,189.59	30,776.67	32,719.36	35,710.25	38,777.92			
WC	29,460.39	33,519.14	36,175.53	39,330.13	42,717.12			
Ratio	92.29	91.82	90.45	90.80	90.78	**91.23**	**0.79**	**0.86**
EBL								
STD	14,696.48	19,931.06	24,928.11	34,101.22	37,919.02			
WC	15,959.28	21,432.57	27,149.34	36,916.85	41,382.76			
Ratio	92.09	92.99	91.82	92.37	91.63	**92.18**	**0.53**	**0.58**

(Source: Appendix II)

The above table depicts the working capital financing policy of the banks. The table shows that the banks use extensive amount of short term debt to finance the gross working capital. The financing of working capital in SCBNL through short term debt is in fluctuating trend, although it is higher, and thus has ranged from 91.20% in the fiscal year 2006/07 to 93.19% in the fiscal year 2005/06. In average, SCBNL has financed 92.03% of the working capital through short term debt and the coefficient of variation in such financing is only 0.81%, indicating consistency in the financing policy. Similarly, the short term debt to working capital of NABIL has been fluctuated during the periods, and thus is maximum, 99.27%, in 2009/10, and is lowest, 88.35%, in the 2008/09. In average, the short term debt has covered 91.23% of the total working capital of the bank, and the coefficient of variation in the ratio is only 4.98%.

Alike in SCBNL, the short term debt financing in working capital has fluctuate in HBL as well. In average, HBL has financed 91.23% of the total working capital through short term debt, and the coefficient of variation in such financing policy is only 0.86%, indicating consistency. The short term debt to working capital of bank is lowest 90.45%, in the fiscal year 2007/08 and highest 92.29%, in the fiscal year 2005/06. Likewise, the short term debt has covered 91.63% of the working capital in lowest in the fiscal year 2009/10, and 92.99% of the working capital in highest in the fiscal year 2006/07 of EBL. In average, EBL has financed 92.18% of the working capital through short term debt.

The coefficient of variation indicates high uniformity ratio in the policy. Further, the extensive use of short term financing indicates that the banks are risk taker and thus demand higher liquidity. Among the four banks, HBL can be considered as the higher risk taker bank, since the utilization of short term debt capital percentage on working capital is highest.

Figure: 4.3

Working Capital Financing Policy
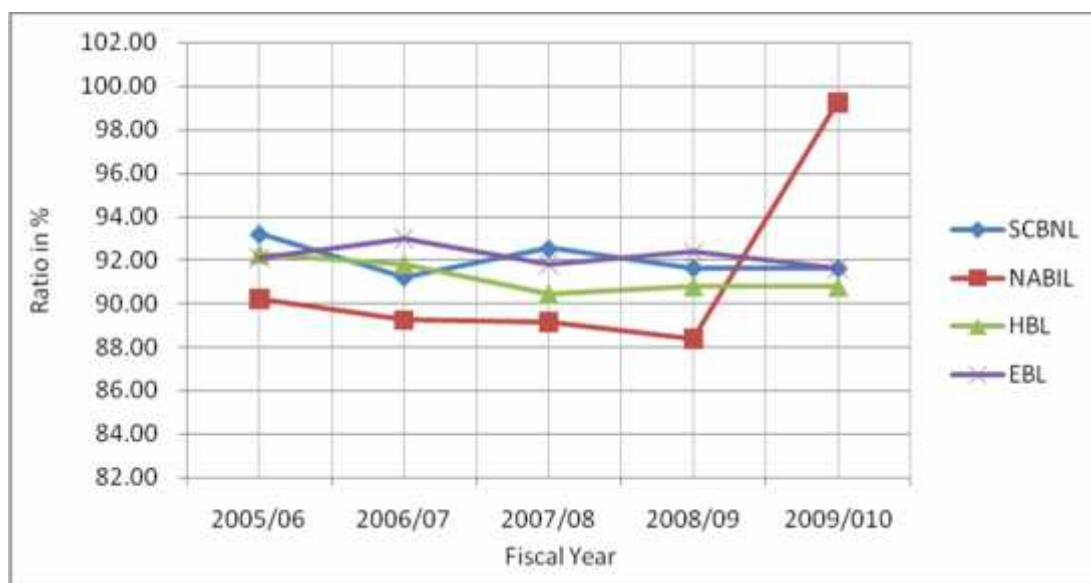
4.1.6 Working Capital to Total Assets

The working capital to total assets measures the relationship between these two variables. Higher the ratio indicates higher amount of working capital which ultimately requires higher amount of short term debt, which is easier than long term debt to obtain, and bears low interest amount.

Table: 4.6

Working Capital to Total Assets

(Rs. in Millions)

Bank	Fiscal Year					Mean	S.D.	C.V.
	2005/06	2006/07	2007/08	2008/09	2009/010			%
SCBNL								
WC	21710.27	25675.03	28471.10	33218.52	40450.18			
TA	21781.68	25776.33	28596.69	33335.79	40587.47			
Ratio	99.67	99.61	99.56	99.65	99.66	**99.63**	**0.04**	**0.04**
Growth	0.25	-0.07	-0.05	0.09	0.01			
NABIL								
WC	16702.84	22010.88	26966.50	36534.72	43206.40			
TA	17064.08	22329.97	27253.39	37132.76	43867.39			
Ratio	97.88	98.57	98.95	98.39	98.49	**98.46**	**0.34**	**0.35**
Growth	-0.10	0.70	0.38	-0.56	0.11			

|								
HBL								
WC	27122.34	28919.56	32945.08	35449.46	38368.12			
TA	27418.16	29460.39	33519.14	36175.53	39320.32			
Ratio	98.92	98.16	98.29	97.99	97.58	**98.19**	**0.44**	**0.45**
Growth	0.13	-0.77	0.13	-0.30	-0.42			
EBL								
WC	11598.45	15807.20	21262.47	26788.84	36489.68			
TA	11732.52	15959.29	21432.57	27149.35	36916.83			
Ratio	98.86	99.05	99.21	98.67	98.84	**98.93**	**0.18**	**0.19**
Growth	0.09	0.19	0.16	-0.54	0.17			

(Source: Appendix II)

The above table presents the ratio of working capital to total assets of the bank. The working capital to total capital of SCBNL has been in fluctuating trend. The ratio is 99.56% in lowest in the fiscal year 2007/08 and 99.67% in highest in the fiscal year 2005/06. In average, the working capital has covered 99.63% of the total assets of the bank and the coefficient of variation in such coverage is 0.04%, indicating uniformity. The uniformity in the ratio is also verified by the paltry increment in growth rate of the ratio, i.e. from -0.07% in the fiscal year 2006/07 to 0.09% in the fiscal year 2008/09. Likewise, the representation of total assets by working capital in NABIL has ranged from 97.88% in the fiscal year 2005/06 to 98.95% in the fiscal year 2007/08. In average, 98.46% of the total assets of the bank has been covered by working capital and the fluctuation in such coverage is only 0.35%. In addition, the growth in ratio has ranged from -0.56% in the fiscal year 2008/09 to 0.70% in the fiscal year 2006/07.

Similarly, the presence of working capital in total assets in HBL has also varied throughout the periods, and thus is maximum, 98.92%, in the fiscal year 2005/06 and minimum, 97.58%, in the fiscal year 2009/010. In average, 98.19% of the total assets of HBL is covered by working capital. Also, the working capital to total assets of EBL has ranged from 99.21% in the fiscal year 2005/06 to 98.67% in the fiscal year 2008/09. In average, the ratio is 98.93% and the variation in ratio is 0.19%, indicating high uniformity.

On the basis of working capital to total assets, it can be concluded that SCBNL has high liquidity, since the ratio is highest in SCBNL, and HBL has low liquidity. However, all the banks differ in paltry in the ratio.

Figure: 4.4

Working Capital to Total Assets
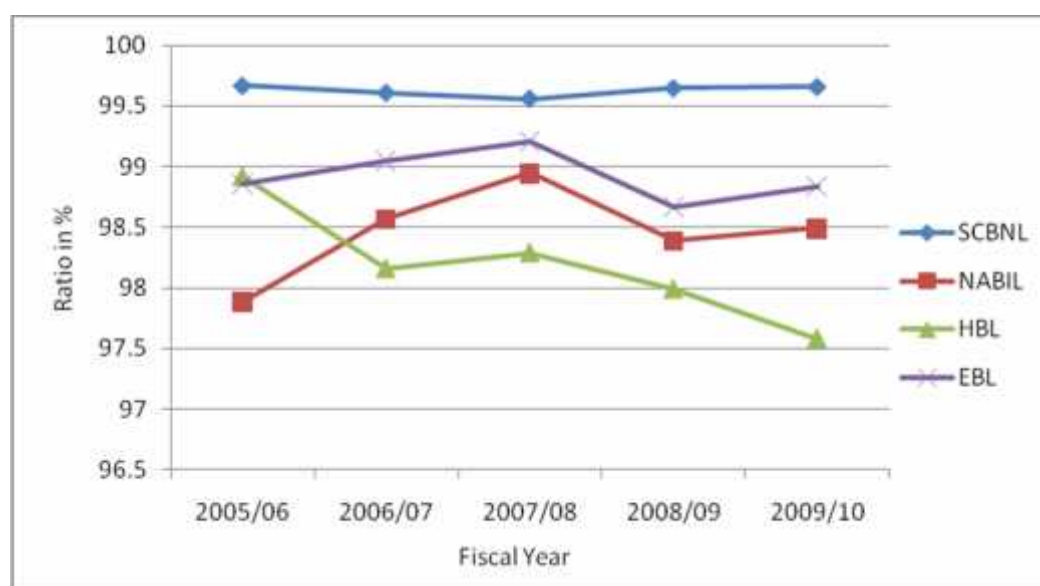
4.1.7 Cash Reserve Ratio

Sound working capital management means sound liquidity, which ensures the security of deposit holders. Cash reserve ratio is considered as the major tool for measuring the bank's liquidity. As per the NRB's directives commercial banks have to keep 5% of the local deposit as balance in NRB from fiscal year 2003/04 to fiscal year 2007/08, while such rate has been increased to 5.5% from the fiscal year 2008/09. To judge whether HBL has sound liquidity or not, the cash reserve ratio has been determined in the table below.

Table: 4.7

Cash Reserve Ratio

(Unit in %)

| FY	NRB Req.	SCBNL		NABIL		HBL		EBL	
		CRR	**Excess**	**CRR**	**Excess**	**CRR**	**Excess**	**CRR**	**Excess**
2005/06	5.00	6.86	1.86	3.26	-1.74	5.92	0.92	1.88	-3.12
2006/07	5.00	5.46	0.46	6	1	5.92	0.92	2.94	-2.06
2007/08	5.00	5.84	0.84	8.37	3.37	5.13	0.13	4.56	-0.44
2008/09	5.00	8.18	3.18	9.03	4.03	6.76	1.76	14.26	9.26
2009/010	5.50	6.74	1.24	3.02	-2.48	6.76	1.26	15.53	10.03
Mean		**6.62**		**5.94**		**6.10**		**7.83**	
S.D.		**1.06**		**2.79**		**0.68**		**6.53**	
C.V.%		**15.96**		**47.02**		**11.23**		**83.37**	

(Source: Appendix II)

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The above table measures the liquidity of the bank to ensure the security of the deposit holders. The table shows that the cash reserve ratio maintained by SCBNL is above the minimum standard set out by NRB in all the fiscal years. The CRR of SCBNL has followed decreasing trend for the first three years and then increasing trend in the last two years, and thus is maximum, 8.18%, in the fiscal year 2008/09 and is minimum, 5.46%, in the fiscal year 2006/07. In average, SCBNL has kept 6.62% CRR within the five year periods, and the coefficient of variation in such ratio is 15.96%. However, NABIL has not met the minimum standard of NRB in the first year and last year, which may be pernicious to security of deposit holders. The CRR maintained by NABIL has ranged from 3.02% in the fiscal year 2009/10 to 9.03% in the fiscal year 2008/09, and in average the ratio is 5.94%.

Alike SCBNL, HBL has also fully implemented the direction of NRB regarding the minimum cash reserve ratio, and thus has exceeded the minimum ratio in each fiscal year. The CRR of HBL is highest, 6.76%, in the fiscal year 2008/09 and 2009/10 and is lowest, 5.13%, in the fiscal year 2007/08, and in average the CRR is 6.10%. In contrast, except in the last two years, EBL cannot meet the minimum CRR of NRB and thus represents poor liquidity management. The CRR of EBL in the fiscal year 2005/06 is 1.88%, is far below the minimum CRR, 5%, and in the fiscal year 2009/010, i.e. 15.53%, is far above the minimum CRR. Whatever, in average the CRR of EBL is 7.83%, and the coefficient of variation in the ratio is 83.37%, indicating high inconsistency.

Comparing four banks, it can be concluded that the SCBNL is superior to other banks in managing liquidity. Next to SCBNL, HBL has managed the liquidity better than other banks, while EBL is inferior in managing liquidity. Thus it can be inferred that SCBNL is quite success in managing working capital to have sound liquidity position.

Figure: 4.5

Cash Reserve Ratio
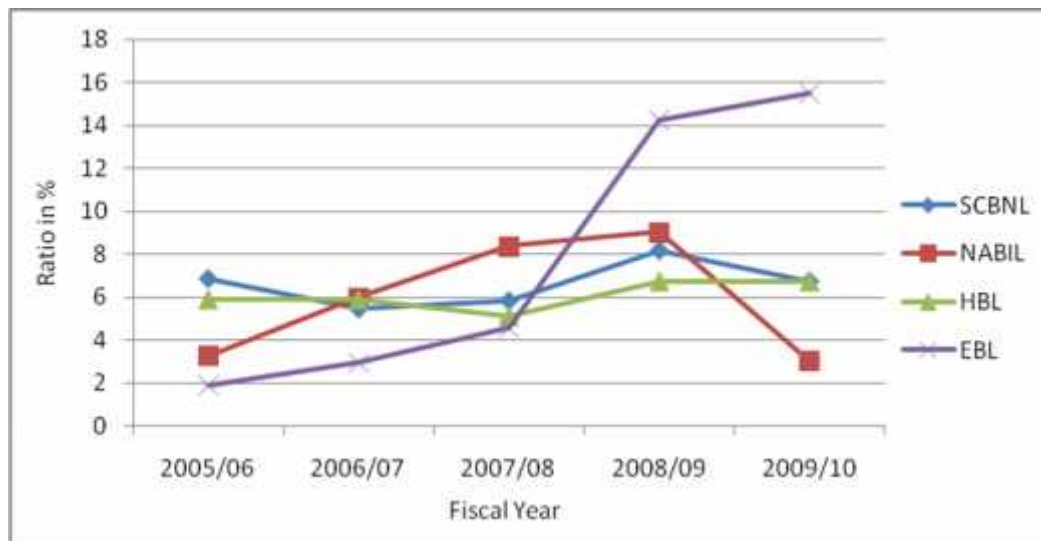
4.1.8 Return on Equity

The aggressive policy uses more short term debt, the conservative policy uses less short term debt and the moderate policy uses moderate. Therefore the return on equity is higher in aggressive policy when the equity growth is lower and vice-versa. To determine whether the bank is following aggressive working capital policy, the return on equity and the relationship of ROE with equity growth have been measured.

Table: 4.8

Return on Equity

(Unit in %)

| FY	SCBNL		NABIL		HBL		EBL	
	ROE	Eq. Gr.	ROE	Eq. Gr.	ROE	Eq. Gr.	ROE	Eq. Gr.
2005/06	37.55	10.81	31.38	-0.01	25.90	29.51	24.65	22.01
2006/07	32.68	-12.97	32.76	4.42	22.91	-11.54	24.80	0.63
2007/08	32.85	0.53	30.63	-6.52	25.30	10.43	23.49	-5.31
2008/09	33.58	2.22	32.94	7.54	24.13	-4.64	28.99	23.42
2009/010	32.22	-4.05	29.70	-9.82	14.79	-38.69	30.15	4.00
Mean	**33.78**		**31.48**		**22.61**		**26.41**	
S.D.	**2.17**		**1.38**		**4.52**		**2.95**	
C.V.%	**6.41**		**4.40**		**19.97**		**11.17**	

(Source: Appendix II)

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The above table presents the achievement of the banks in terms of return on equity and the relationship of ROE with the equity growth. The table shows that the return on equity of SCBNL has fluctuated during the periods. The ROE is highest, 37.55%, in the fiscal year 2006/07 and lowest, 32.68%, in the fiscal year 2007/08. In average, the bank achieved 32.22% of the equity capital as return. Also, the growth rate of working capital has ranged from -12.97% in the fiscal year 2007/08 to 10.81% in the fiscal year 2006/07. Similarly, the ROE of NABIL has been found to be in irregular trend and thus has ranged from 31.38% in the fiscal year 2005/06 to 32.94% in the fiscal year 2009/010. In addition, the growth rate on equity capital of the bank has ranged from -6.52% in the fiscal year 2008/09 to 11.88% in the fiscal year 2005/06, and thus has no perfect inverse relationship with ROE.

Likewise, the return on equity of HBL for the fiscal year 2005/06 is 20.00%, which has increased to 25.90% in the fiscal year 2006/07, further has decreased to 22.91% in the fiscal year 2007/08, again has increased to 25.30% in the fiscal year 2007/08 and finally has decreased to 24.13% in the fiscal year 2009/010. In average, the return on equity is 22.61%, which indicates that HBL has generated Rs. 22.61 from Rs. 100 mobilization of equity capital to finance working capital. Also, the coefficient of variation of 19.97% in the ratio indicates quite uniformity in the ratio. However, the relationship of return on equity on equity capital growth is in inverse order. In other words, the return on equity has increased in the year when the equity capital growth has decreased in the same year compared to that in the previous year. Also, the ROE of EBL has ranged from 23.49% in the fiscal year 2007/08 to 28.99% in the fiscal year 2009/010, and in average the ROE is 26.41%, indicating generation of Rs. 26.41 return from Rs. 100 investment of equity capital

Thus, it can be said that HBL is following perfect aggressive working capital policy, since the principle of working capital states that when the return on equity increases and equity capital decreases, the working capital is said to be aggressive. However, in other bank there is no such strong inverse relationship. Although, it cannot be ignored that these remaining banks are also following aggressive working capital policy.

Figure: 4.6

Return on Equity
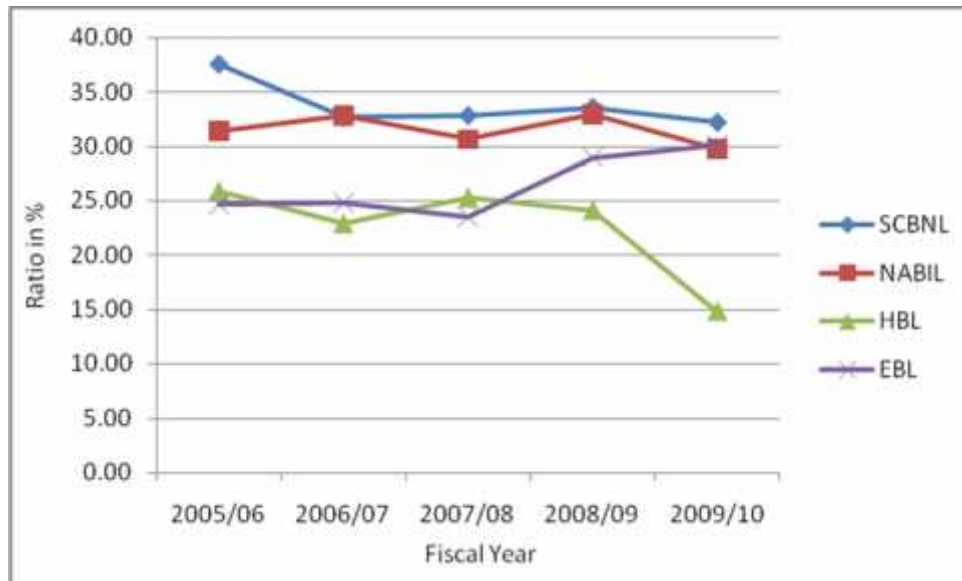
4.1.9 Statistical Analysis

Under this the relationship between the variables that are germane to the working capital management has been determined. Mainly, the Karl Pearson correlation coefficient, regression line and trend analysis have been used.

4.1.9.1 Correlation and Regression Analysis

This statistical tool measures the relationship between the variables. The correlation coefficient measures the relationship whereas the regression analysis measures to what extent the dependent variable is affected by the per unit change in independent variable.

4.1.9.1.1 Net Profit & Net Working Capital

To measure the relationship of net profit with net working capital, the net profit (Y) has been assumed to be the dependent variable on net working capital (X), independent variable. Then the correlation coefficient and regression line calculated in appendix have been summarized below.

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Table: 4.9

Correlation & Regression Analysis between Net Profit & Net Working Capital

Correlation between Net Profit & NWC						Regression Equation
Bank	r	r^2	P.E.	6 P.E.	Remarks	
SCBNL	0.9878	0.9757	0.0073	0.0440	Significant	NP = 0.28NWC - 119.51
NABIL	0.9723	0.9454	0.0165	0.0988	Significant	NP = 0.35NWC + 72.95
HBL	0.4964	0.2464	0.2273	1.3639	Significant	NP = 0.089 NWC + 338.70
EBL	0.9840	0.9683	0.0096	0.0574	Significant	NP = 0.33NWC - 104.11

(Source: Appendix III)

The above table shows the relationship between the net working capital and the net profit after tax. The table delineates that the net profit of each bank has positive relationship with the net working capital and thus net profit increases/decreases with the increment/decrement in net working capital. The correlation between net profit and net working capital of SCBNL is 0.98778, NABIL is 0.97233, HBL is 0.49638, and EBL is 0.98400. Also, the coefficient of determination indicates that 97.50% , 94.54%, 24.64% and 96.83% variation in net profit of SCBNL, NABIL, HBL and EBL respectively has been explained by change in net working capital.

The probable error in the relationship between these two variables is 0.0347, 0.0297, 0.0577, 0.0143 and the six times probable error is 0.2080, 0.1780, 0.3463, and 0.0857 in SCBNL, NABIL, HBL and EBL respectively. Since, the value of 'r' is greater than the calculated 6 P.E., it can be considered that the relationship between net profit and net working capital is statistically significant in each bank, and thus net profit increases with the increase in net working capital and vice-versa. Further, the regression line of net profit on net working capital indicates that the net profit increases by Rs. 0.28 in SCBNL, Rs. 0.35 in NABIL, Rs. 0.089 in HBL, and Rs. 0.33in EBL with per rupee increment in net working capital, if the other variable of the respective banks remains constant.

4.1.9.1.2 Net Profit & Short Term Debt

Let the net profit be the dependent variable and short term debt be the independent variable. Then the relationship between them in terms of correlation coefficient and regression line has been presented in the table below.

Table: 4.10

Correlation & Regression Analysis between Net Profit & Short Term Debt

Correlation between Net Profit & STD						Regression Equation
Bank	r	r^2	P.E.	6 P.E.	Remarks	
SCBNL	0.8112	0.9749	0.0076	0.0455	Significant	NP = 0.03 STD - 139.05
NABIL	0.9659	0.9331	0.0202	0.1212	Significant	NP = 0.02 STD + 239.17
HBL	0.4345	0.1888	0.2447	1.4682	Significant	NP = 0.01 STD +174 .11
EBL	0.9848	0.9699	0.0091	0.0545	Significant	NP = 0.03 STD - 167.60

(Source: Appendix III)

The above table measures the relationship between net profit and short term debt. The table depicts that there exist perfect positive relationship between net profit and short term debt of each bank, since the correlation coefficient is higher, i.e. 0.8112 in SCBNL, 0.9659 in NABIL, 0.4345 in HBL, and 0.9848 in EBL. Further, the coefficient of determination indicates that 97.48%, 93.36%, 18.87% and 96.99% variation in net profit of SCBNL, NABIL, HBL and EBL respectively has been caused by variation in short term debt. Also, the P.E. and 6 P.E. calculated are 0.0076 and 0.0455 in SCBNL, 0.0302 and 0.1212 in NABIL, 0.2447 and 1.4682 in HBL, and 0.0091 and 0.0545 in EBL respectively.

Since the value of 'r' is greater than the value of 6 P.E. in each bank except in case of HBL, certainly there exists statistically significant relationship between net profit and short term debt in each bank. And, thus net profit increases/decreases with the increase in decrease in short term debt. Thus, the bank will earn more profit by using higher short term debt to finance the working capital. Consequently, the regression line of net profit on short term debt indicates that net profit of the SCBNL increases by Rs. 0.03, NABIL increases by Rs. 0.02, HBL increases by Rs. 0.01, and EBL increases by Rs. 0.03, if the respective variable remains constant.

4.1.9.1.3 Net Profit & Long Term Debt

To measure the relationship between net profit and long term debt, the correlation and regression line between them have been determined in appendix, which has been summarized below.

Table: 4.11

Correlation & Regression Analysis between Net Profit & Long Term Debt

Correlation between Net Profit & STD						Regression Equation
Bank	r	r^2	P.E.	6 P.E.	Remarks	
SCBNL	-0.1001	0.0100	0.2986	1.7918	Insignificant	NP = -0.10 LTD + 869.92
NABIL	0.3279	0.1075	0.2692	1.6153	Significant	NP = 0.10 LTD + 722.57
HBL	0.2290	0.0524	0.2858	1.7150	Significant	NP = 0.15 LTD + 479.94
EBL	0.9400	0.8836	0.0351	0.2107	Significant	NP = 1.16 LTD- 22.85

(Source: Appendix III)

The above table evaluates the relationship between net profit and long term debt. In case of SCBNL there is negative correlation of -0.1001 between net profit and STD. In the case of NABIL and HBL, though the correlation is positive it is very low as shown in table above as .03279 and .2290 respectively. On the other hand EBL has a very high positive correlation of 0.9400, which depicts that higher the proportion of STD higher is the profit.

To verify this statement, the probable error and 6 P.E. have been determined. The probable error in the relationship is 0.2986, 0.2692, 0.2858 and 0.0351 and the 6 P.E. is 1.7918, 1.6153, 1.7150 and 0.2107 in SCBNL, NABIL, HBL and EBL respectively. The relationship between these two variables is statistically insignificant in SCBNL and HBL, since the value of 'r' is lower than the value of 6 P.E., and statistically significant in NABIL and EBL, since the value of 'r' is greater than the value of 6 P.E. Hence net profit may not increase by Rs. 0.10 in SCBNL and certainly increases by Rs. 0.15 in HBL, Rs. 0.10 in NABIL and Rs. 1.16 in EBL with per rupee increment in long term debt, as the regression line specifies, if the respective variable remains stable.

4.1.9.2 Trend Analysis

The trend analysis aids to predict the future value on the basis of the past years. To know the efficiency in working capital management of bank in future, the variables that are related to working capital have been estimated.

4.1.9.2.1 Trend Analysis of Net Working Capital

Let Year (X) 1, 2, 3, 4 and 5 denotes fiscal year 2004/05, 2005/06, 2006/07, 2007/08 and 2008/09 respectively. Then regression line of net working capital (Y) on year calculated in appendix has been presented below along with the trend value.

Table: 4.12

Trend Analysis of Net Working Capital

(Rs. in Millions)

Fiscal Year	SCBNL	NABIL	HBL	EBL
2005/06	1754.14	1657.64	1766.18	962.81
2006/07	2116.35	2057.05	2146.50	1201.52
2007/08	2492.55	2437.20	2512.99	1921.24
2008/09	3052.47	3130.24	3119.88	2203.63
2009/10	3369.71	3834.75	3439.21	2759.14
2010/11	**3807.25**	**4251.44**	**3892.76**	**3188.11**
2011/12	**4223.98**	**4794.18**	**4324.70**	**3647.59**
Regression Line	**Y = 1306.87 + 416.73 X**	**Y = 995 + 542.74 X**	**Y = 1301.12 + 431.94 X**	**Y = 431.23 + 459.48 X**

(Source: Appendix IV)

The table shows that the estimated value of net working capital in the fiscal year 20010/11 will be Rs. 3807.25 millions for SCBNL, Rs. 4251.44 millions for NABIL, Rs. 3892.76 millions for HBL, and Rs. 3188.11 millions for EBL and in the fiscal year 2011/12 will be Rs. 4223.98 millions for SCBNL, Rs. 4794.18 millions for NABIL, Rs. 4324.70 millions for HBL and Rs. 3647.59 millions for EBL. Also, the regression line of net working capital on the time period indicates that the net working capital increases by Rs. 416.73 millions in SCBNL, Rs. 542.74 millions in NABIL, Rs. 431.94 millions in HBL, and Rs. 459.48 millions in EBL per year, if the other variable remains constant. Thus, it can be concluded that the pace of working capital will be highest NABIL in future as well.

Figure: 4.7

Trend Analysis of Net Working Capital
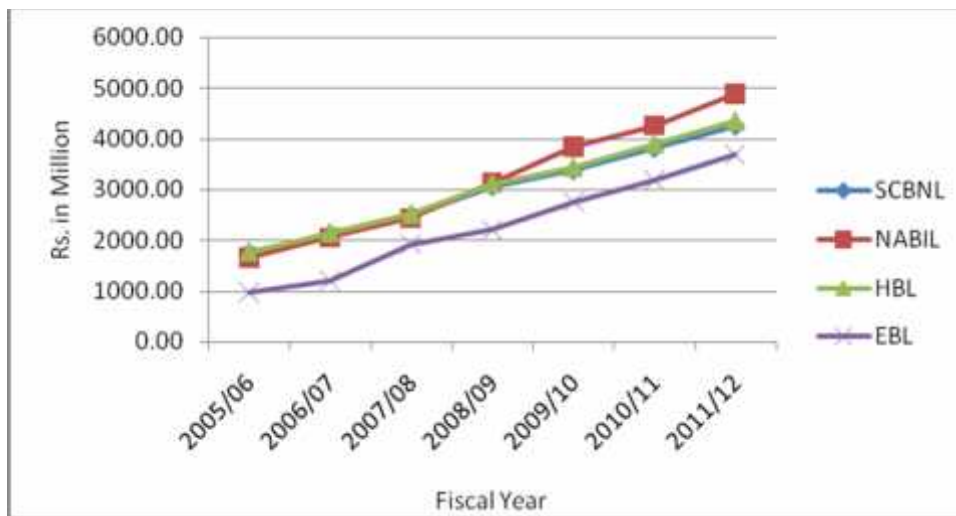
4.1.9.2.2 Trend Analysis of Short Term Debt

Let the dependent Variable, STD be denoted by Y and the independent variable, Year be denoted by X. Then, the regression equation of STD on Year and the trend value of STD are presented in the below table.

Table: 4.13

Trend Analysis of Short Term Debt

(Rs. in Millions)

Fiscal Year	SCBNL	NABIL	HBL	EBL
2005/06	24013.21	15389.38	27189.59	14696.48
2006/07	26080.34	24313.77	30776.67	19931.06
2007/08	30843.24	33095.56	32719.36	24928.11
2008/09	36714.10	38755.85	35710.25	34101.22
2009/10	36843.61	51769.58	38777.92	37919.02
2010/11	**41,787.29**	**58,825.58**	**41,467.81**	**44,499.78**
2011/12	**45,416.75**	**67,545.83**	**44,278.83**	**50,561.31**
Regression Line	**Y = 20010.53 + 3629.46 X**	**Y = 6504.08 + 8720.25 X**	**Y = 24601.69 + 2811.02 X**	**Y = 8130.6 + 6061.53 X**

(Source: Appendix IV)

The table shows that the short term debt increases with the lapse of time. The estimated value of short term debt in the fiscal year 20010/11 will be Rs. 41,787.27 millions for SCBNL, Rs. 58,825.57 millions for NABIL, Rs. 41,467.83 millions for HBL, and Rs. 44,499.75 millions for EBL, and in the fiscal year 2011/12 will be Rs.

45,677.98 millions for SCBNL, Rs. 67,661.36 millions for NABIL, Rs. 44,122.67 millions for HBL, and Rs. 50,914.33 millions for EBL. Thus, it can be said that, as in past, NABIL will continue to use extensive amount of short term debt to finance the working capital. Also, the regression line of short term debt on year delineates that short term debt increases by Rs. 3629.46 millions in SCBNL, Rs. 8720.25 millions in NABIL, Rs. 2811.02 millions in HBL, and Rs. 6061.53 millions in EBL per year, if the variable remains rigid.

Figure: 4.8
Trend Analysis of Short Term Debt
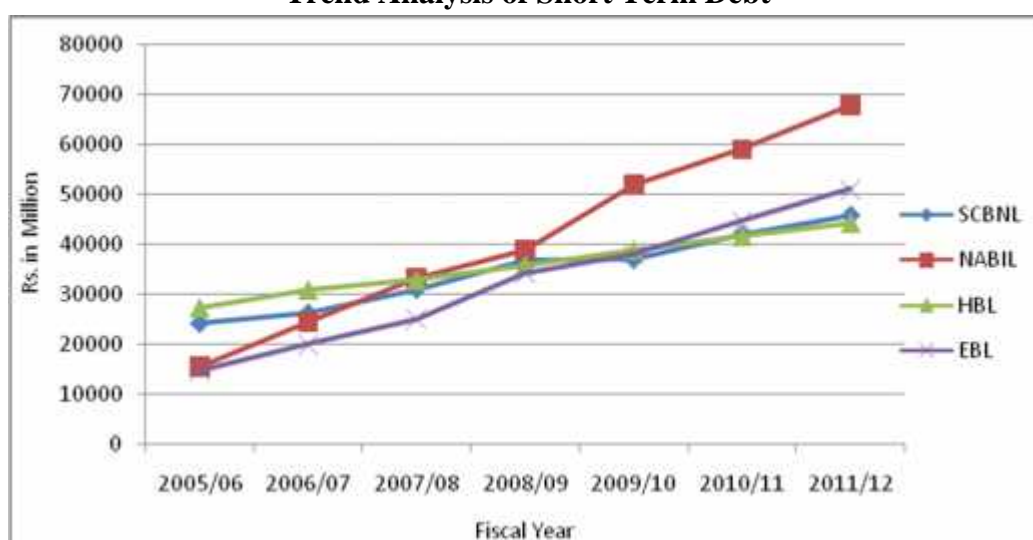
4.1.9.2.3 Trend Analysis of Net Profit after Tax

The trend value of net profit after tax, and the regression line of NPAT, dependent variable (Y), on the fiscal year, independent variable (X), are presented in the table below.

Table: 4.14
Trend Analysis of Net Profit after Tax

(Rs. in Millions)

Fiscal Year	SCBNL	NABIL	HBL	EBL
2005/06	658.76	520.11	457.46	237.29
2006/07	691.67	673.96	491.82	298.00
2007/08	818.92	746.47	635.87	451.22
2008/09	1,025.11	1,031.05	752.83	638.73
2009/10	1,085.87	1,139.10	508.80	831.77
2010/11	**1,212.38**	**1,300.68**	**678.47**	**347.00**
2011/12	**1,331.15**	**1,460.19**	**714.84**	**379.50**
Regression Line	**Y = 499.76 + 118.77 X**	**Y = 343.62 + 159.51 X**	**Y = 460.25 + 36.37 X**	**Y = 152.97 + 32.50 X**

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The above table measures the relationship of net profit with the time period. The table shows that net profit has positive relationship with the time, and thus net profit increases in each year. As a result, the estimated net profit after tax in the fiscal year 2010/11 will be Rs. 1,212.37 millions in SCBNL, Rs 1,300.66 millions in NABIL, Rs. 678.46 millions in HBL, and Rs. 950.31 millions in EBL, and in the fiscal year 2011/12 will be Rs. 1,359.30 millions in SCBNL, Rs. 1,472.06 millions in NABIL, Rs. 687.42 millions in HBL, and Rs. 1,139.55 millions in EBL. The table indicates that SCBNL will recover its fame as highest profit earning private sector bank, which it has lost in the fiscal year 2009/10, in the forthcoming year.

Likewise, the regression line of net profit on fiscal year indicates that the net profit of increases by Rs. 118.77 millions in SCBNL, Rs. 159.51 millions in NABIL, Rs. 36.37 millions in HBL and Rs. 32.50 million in EBL per year, if the other variable remains uniform. Thus, it can be concluded that the pace of growth in net profit per year is highest in EBL.

Figure: 4.9
Trend Analysis of Net Profit after Tax
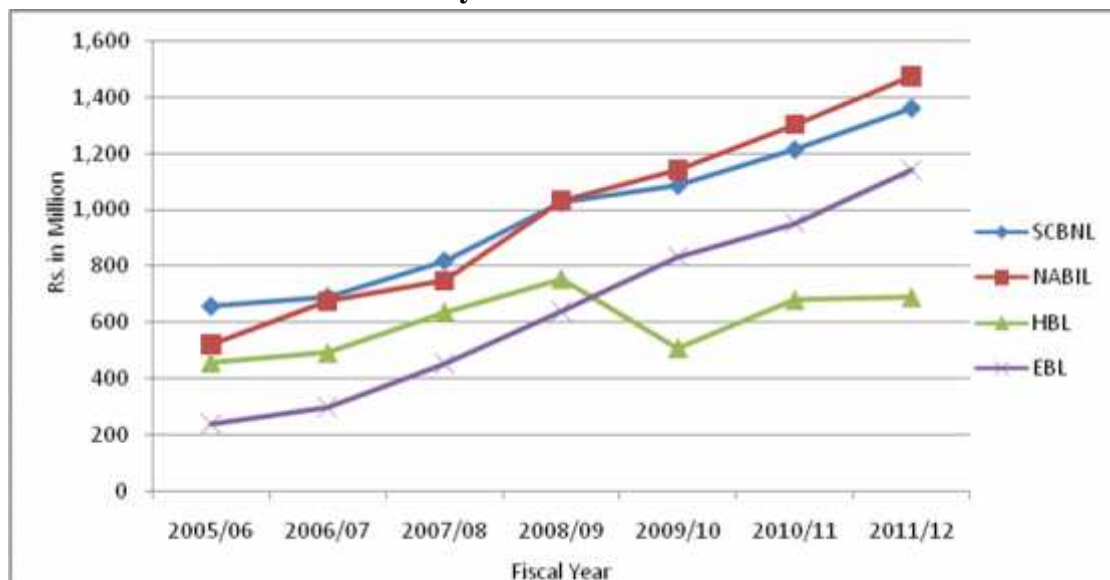
4.2 Primary Data Analysis

For the purpose of collecting primary data, a questionnaire having a set of 8 questions were prepared and presented to 15 respondents. However, only 12 respondents showed interest to respond. The respondents were selected randomly from the

employee of the selected banks and share-known personalities – especially from the share buyer/purchasers in NEPSE floor. The questions contained variety in types. From Question No. 1 to 7, the respondents were asked to choose the best alternative from the list whereas Question No. 8 contained ranking.

4.2.1 Classification of Respondents

A total of 12 respondents were surveyed randomly from the floor of NEPSE. Among these, 2 respondents were high level employee, 4 were middle level employee and 6 were shareholders. Likewise, the respondents are classified in terms of their age and sex as given in Table 4.15.

Table: 4.15

Classification of Respondents

S.N.	Basis of Classification	Male	Female	Number	Percentage
	Occupation				
	High Level Employee	2	0	2	17
1	Middle Level Employee	3	1	4	33
	Shareholder	5	1	6	50
	Total	**10**	**2**	**12**	**100**
	Age				
	Below 25	1	0	1	8
2	25 to 40	4	2	6	50
	40 above	5	0	5	42
	Total	**10**	**2**	**12**	**100**
	Sex				
	Male			2	17
3	Female			10	83
	Total			**12**	**100**

(Source: Field Survey, 2011)

As given in table, 17% of the respondents were from high level employee, 33% of the respondents were from middle level employee and 50% of the respondents were shareholders. Likewise, 83% of the respondents were male where as 17% were female. Similarly, 8% of the respondents were from the age group below 25 years, 50% were between 25 to 40 years and 42% were 40 above.

4.2.2 Performance Role of Working Capital

Working capital management is considered as the crucial faction of financial management. Thus, the first question asked to the respondents is to know the importance of role of working capital. Table 4.16 shows the results of the responses.

Table: 4.16

Role of Working Capital

Responses	No. of Respondents			Total	
	High Level Employee	Middle Level Employee	Shareholder	No.	%
Highly Important	2	2	4	**8**	**67**
Important	0	1	2	**3**	**25**
Not so Important	0	1	0	**1**	**8**
Total	**2**	**4**	**6**	**12**	**100**

(Source: Field Survey, 2011)

The above table shows the number of respondents and their percentage relating the significance of performance role of working capital. It clears that majority, 8 out of 12 (67%) of the respondents think that the performance role of working capital is highly important for smooth running of business. Likewise, only 25% (3 out of 12) and 8% (1 out of 12) of the respondents gave the response that the performance role of working capital is important and not so important for business respectively.

Figure: 4.10

Role of Working Capital
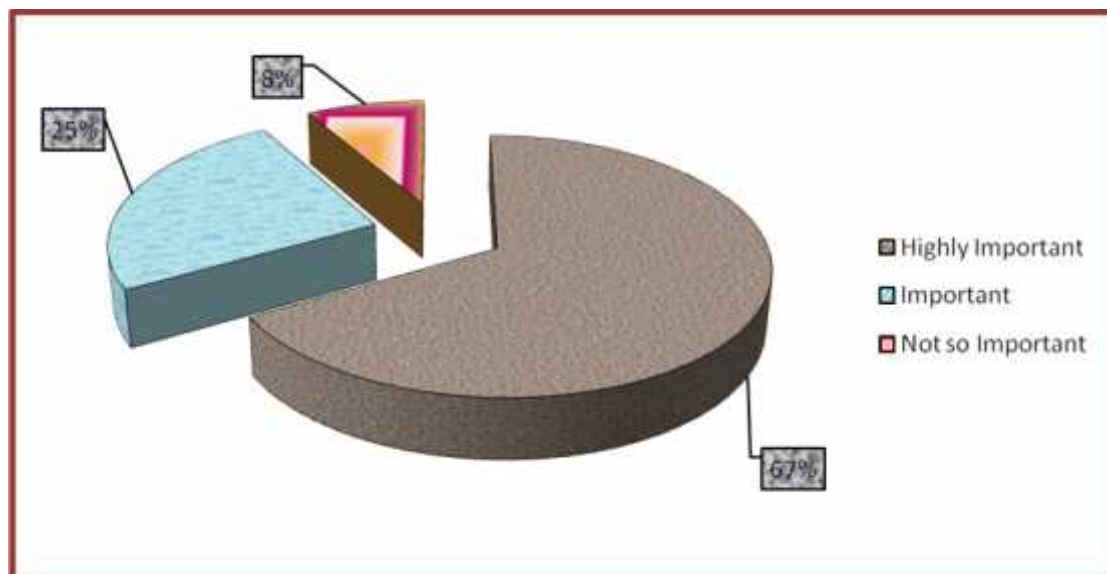
4.2.3 Responsibility to Manage Working Capital

A well managed working capital is the necessity of every business organization. Now, to clear the query that who is responsible to manage an effective working capital, the respondents were asked on this regard. The responses were obtained as shown in Table 4.17.

Table: 4.17

Responsibility to Manage Working Capital

Responses	No. of Respondents			Total	
	High Level Employee	**Middle Level Employee**	**Shareholder**	**No.**	**%**
Top Level Management	2	3	5	**10**	**83**
Middle Level Management	0	1	1	**2**	**17**
Low Level Management	0	0	0	**0**	**0**
Total	**2**	**4**	**6**	**12**	**100**

(Source: Field Survey, 2011)

The above table shows that the majority of the respondent, 10 out 12 (83%) stated that high level management is responsible for managing working capital. Likewise, 2 respondents stated that middle level management should be responsible to manage working capital whereas nobody pointed out low level management to be responsible for working capital. Looking each category, all the respondents (2 out of 2) of high level employee, 3 out of 4 of middle level employee and 5 out of 6 of shareholders strongly affirmed that top level management of the bank should be responsible to manage the working capital.

Figure: 4.11

Responsibility to Manage Working Capital
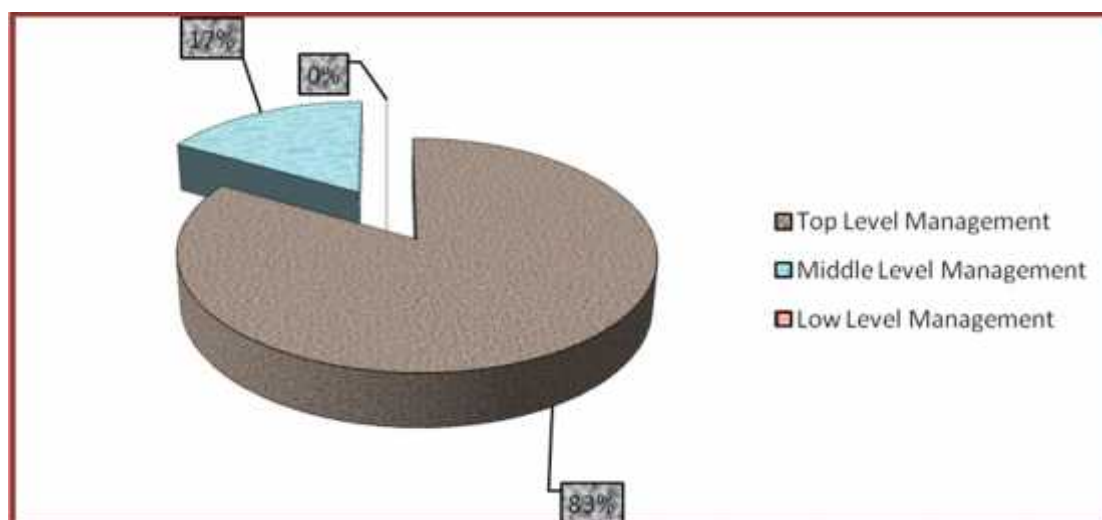
4.2.4 Working Capital Policy

There are three types of working capital viz. aggressive, moderate and conservative. The policy depends upon the nature of the business. So, to know which type of working capital befits in bank, the respondents were asked on this regard. The responses obtained from them are presented in the table 4.18.

Table: 4.18

Working Capital Policy

Responses	No. of Respondents			Total	
	High Level Employee	**Middle Level Employee**	**Shareholder**	**No.**	**%**
Aggressive	2	4	3	**9**	**75**
Moderate	0	0	2	**2**	**17**
Conservative	0	0	1	**1**	**8**
Total	**2**	**4**	**6**	**12**	**100**

(Source: Field Survey, 2011)

The study reveals that 75% of the respondents think that aggressive working capital is the best policy for the bank, whereas 17% and 8% of the respondents think that moderate and conservative policy is the best policy respectively. Looking independently, cent percent of Top level employee and Middle level employee supported aggressive policy, since the company is also adopting aggressive policy by using comparatively higher amount of short term financing and increasing profit in each year. Whereas, 3 respondents of Shareholder, 2 respondents of shareholder and 1

respondent of shareholder supported aggressive, moderate and conservative policy respectively using their own experience and interest.

Figure: 4.12

Working Capital Policy
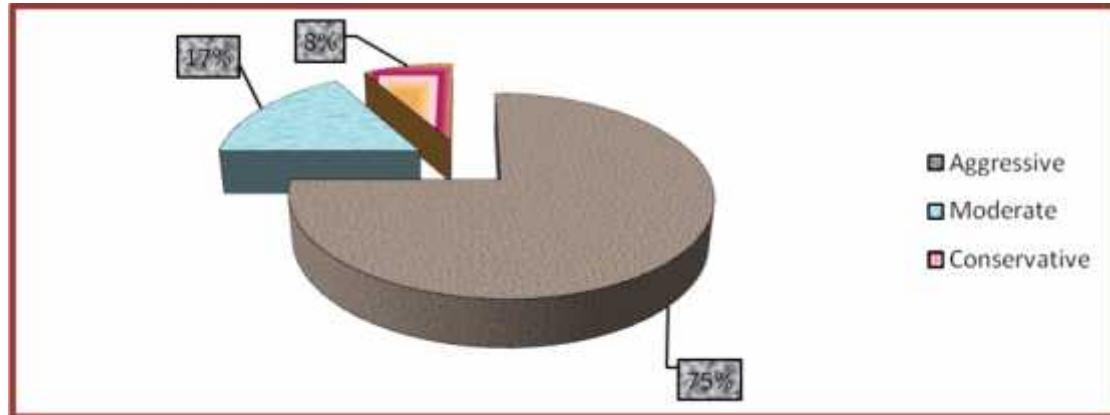
4.2.5 Impact of Working Capital on Profitability

To know the degree of impact of working capital on profitability, the respondents were asked whether working capital affects on profitability or not. The responses obtained are presented in the following table.

Table: 4.19

Impact of Working Capital on Profitability

Responses	No. of Respondents			Total	
	High Level Employee	**Middle Level Employee**	**Shareholder**	**No.**	**%**
Yes	2	3	3	**8**	**67**
No	0	0	1	**1**	**8**
Don't Know	0	1	2	**3**	**25**
Total	**2**	**4**	**6**	**12**	**100**

(Source: Field Survey, 2011)

The above Table No. 4.19 shows that two-third (67%) of the respondents stated that certainly working capital policy highly impacts the level of profit earning. 8% of the respondents said that working capital does not affect profitability, whereas 25% of the respondents remained neutral. It can be depicted in the form of Pie-chart below (Figure 4.13).

Figure: 4.13

Impact of Working Capital on Profitability
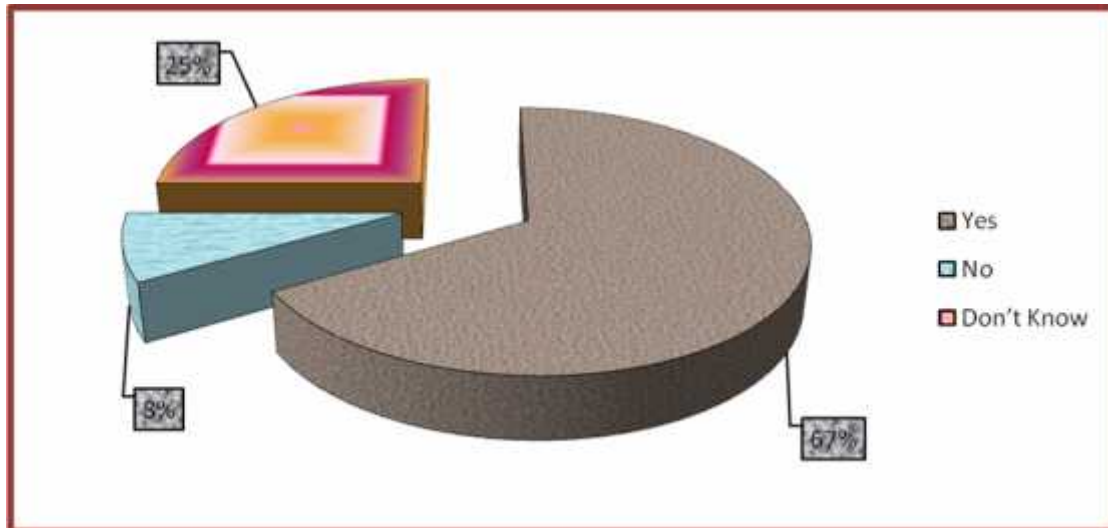
4.2.6 Working Capital and Risk

Also to know whether working capital has impact on risk of the company or not, the respondents were asked on this matter. The responses obtained are presented in the following table 4.20.

Table: 4.20

Working Capital and Risk

Responses	No. of Respondents			Total	
	High Level Employee	Middle Level Employee	Shareholder	No.	%
Yes	2	2	4	**8**	67
No	0	1	1	**2**	17
Don't Know	0	1	1	**2**	16
Total	**2**	**4**	**6**	**12**	**100**

(Source: Field Survey, 2011)

Table 4.20 shows that most of the respondents agreed that working capital has impact on risk of the company. About two-third of the respondents (67%), 8 out of 12, stated that working capital policy affects the risk of the company, approximately 17% of the respondents and 16% of the respondents said that working capital policy does not have impact on risk of the company and remained neutral respectively. Looking each category, the cent percent of high level employee (2 out of 2), half of the middle level employee (2 out of 4) and two-third of the shareholders (4 out of 6) are in the view

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that working capital policy affects on the risk of the company. It can be presented in chart as follows (Figure 4.14).

Figure: 4.14

Working Capital and Risk
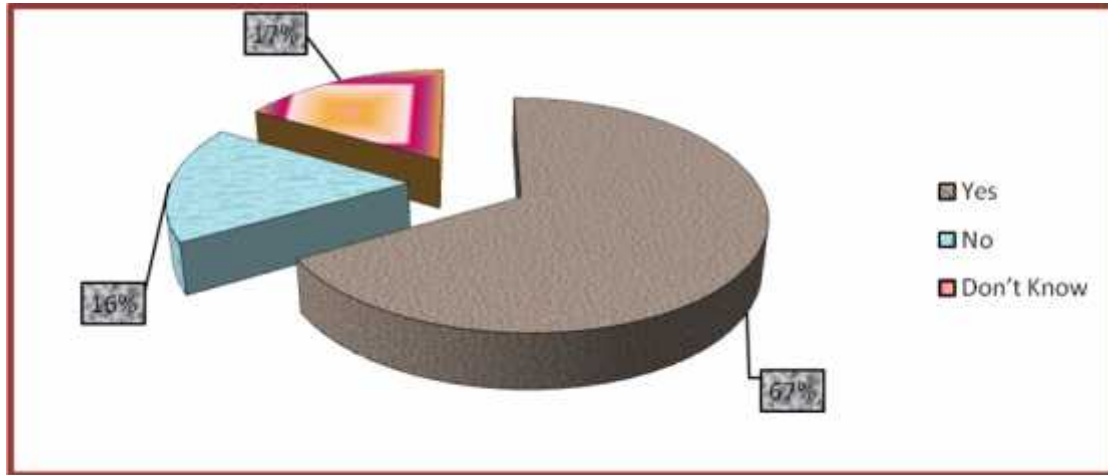
4.2.7 Liquidity Position

Since the liquidity ratios plays a crucial role in paying debts and preventing company from turning bankruptcy, the respondents were asked whether the liquidity position of the bank is appropriate. The responses obtained are presented in the following table 4.21.

Table: 4.21

Liquidity Position

Responses	No. of Respondents			Total	
	High Level Employee	**Middle Level Employee**	**Shareholder**	**No.**	**%**
Yes	1	1	2	**4**	**34**
No	1	3	3	**7**	**58**
Don't Know	0	0	1	**1**	**8**
Total	**2**	**4**	**6**	**12**	**100**

(Source: Field Survey, 2011)

Table 4.21 clears that the liquidity position of the bank is not so good. Almost more than half of the respondents (58%) said that the liquidity position of the bank is not appropriate. Similarly, one-third of the respondents (34%) stated that the liquidity position of the bank is appropriate, whereas 8% (1 out of 12) remained neutral. However, the cash reserve ratio maintained by the bank has met the NRB's minimum

requirement, except in one fiscal year. The responses achieved have been presented in the form of Pie-chart (Figure 4.15) as follows:

Figure: 4.15

Liquidity Position
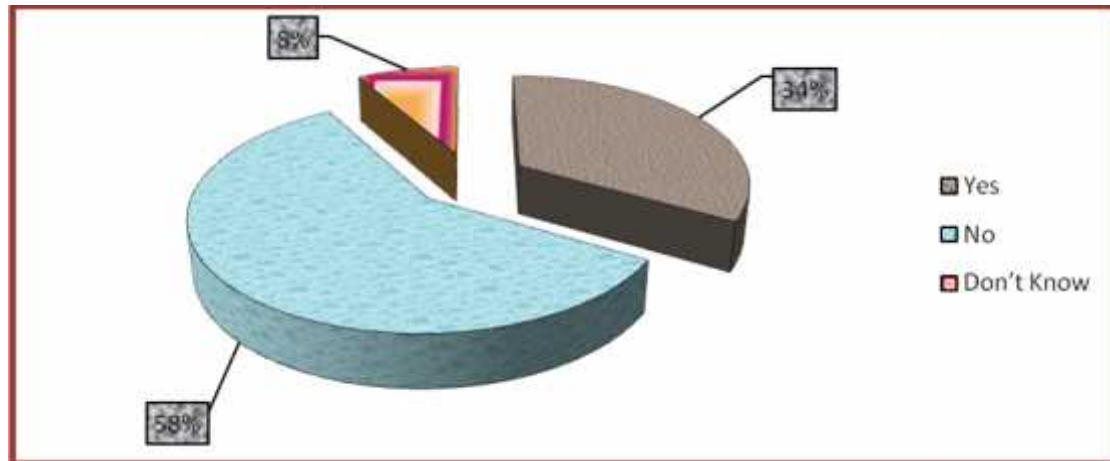
4.2.8 Working Capital Investment Policy

To know which working capital investment policy the most of the commercial bank is adopting, the respondents were asked to express their view on this regard. The responses obtained from them have been presented in the following Table 4.22.

Table: 4.22

Working Capital Investment Policy

Responses	No. of Respondents			Total	
	High Level Employee	Middle Level Employee	Shareholder	No.	%
Relaxed	2	3	5	10	67
Moderate	0	1	1	2	17
Restricted	0	0	0	0	16
Total	2	4	6	12	100

(Source: Field Survey, 2011)

The above table shows that most of the commercial banks are adopting relaxed working capital investment policy. About 83% of the respondents, 17% of the respondents and 0% of the respondents said that the company is adopting relaxed, moderate and restricted working capital investment policy respectively. Looking the majority, 10 out of 12 and the financial statement where current assets is higher than fixed assets in each year, it can be considered that the company is adopting relaxed

working capital investment policy. Figure 4.16 shows the graphical explanation of the above result.

Figure: 4.16

Working Capital Investment Policy
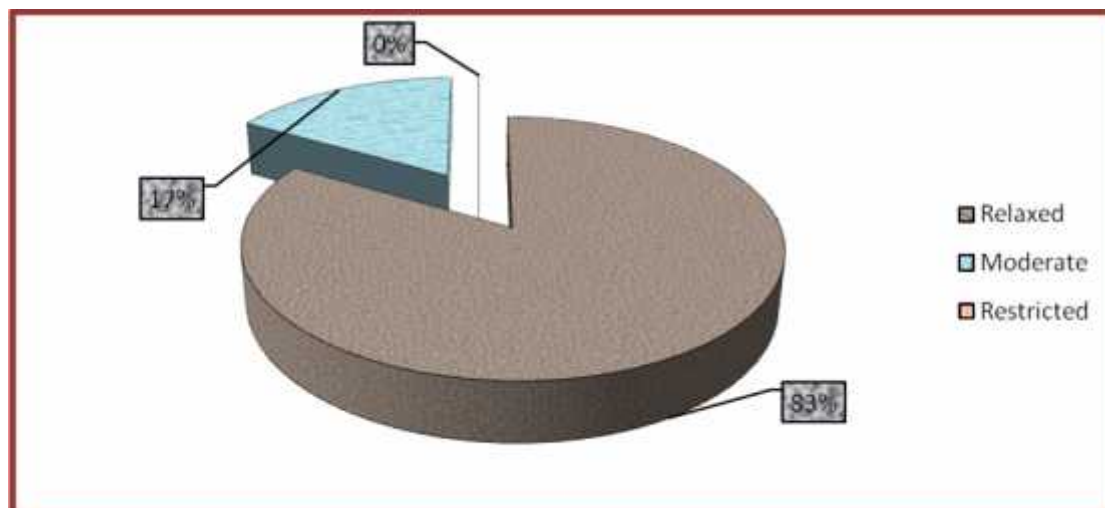
4.2.9 Factors Affecting Working Capital

On the basis of the responses collected from the respondents, the different indicators which influence the working capital of the bank most has been ranked as follows in the table 4.23.

Table: 4.23

Most Influential Factor of Working Capital

Indicators	Basis	Rank						Total	Weight	Mean Wt.	Overall Rank
		1	2	3	4	5	6				
Nature and Size of Business	**Total**	25	18	4	2	0	1	50	87	1.53	1
	High Level Employee	1	1	0	0	0	0	2	3	1.50	1
	Middle Level Employee	3	1	0	0	0	0	4	5	1.25	1
	Shareholder	2	3	1	0	0	0	6	11	1.83	1
Current Assets Policy	**Total**	18	23	7	2	0	0	50	93	5.19	5
	High Level Employee	0	0	0	0	1	1	2	11	5.50	3
	Middle Level Employee	0	0	1	0	2	1	4	19	4.75	5
	Shareholder	0	0	0	0	4	2	6	32	5.33	5
Credit Policy	**Total**	0	0	2	4	18	26	50	268	3.17	3
	High Level Employee	0	0	1	1	0	0	2	7	3.50	2
	Middle Level Employee	0	0	2	2	0	0	4	14	3.50	4
	Shareholder	1	1	4	0	0	0	6	15	2.50	3
Growth and Expansion	**Total**	0	3	6	6	21	14	50	237	3.47	4
	High Level Employee	0	0	1	1	0	0	2	7	3.50	2
	Middle Level Employee	0	1	1	2	0	0	4	13	3.25	3
	Shareholder	0	1	0	5	0	0	6	22	3.67	4
Profit Margin	**Total**	4	5	21	10	6	4	50	171	2.00	2
	High Level Employee	1	1	0	0	0	0	2	3	1.50	1

	Middle Level Employee	1	2	0	0	1	0	4	10	2.50	2
	Shareholder	3	1	1	1	0	0	6	12	2.00	2
	Total	3	1	10	26	5	5	50	194	5.64	6
Level of Taxes	High Level Employee	0	0	0	0	1	1	2	11	5.50	3
	Middle Level Employee	0	0	0	0	1	3	4	23	5.75	6
	Shareholder	0	0	0	0	2	4	6	34	5.67	6

(Source: Field Survey, 2011)

On the basis of above table, it is cleared that nature and size of the business is the most influential factor (ranked: 1) on the working capital. Similarly, profit margin (ranked: 2), credit policy (ranked: 3), Growth and Expansion (ranked: 4), current assets policy (ranked: 5) and Level of Taxes (ranked: 6) are other factors that have impact on the working capital management.

4.3 Major Findings of the Study

From the above data analysis, the following major findings have been drawn;

Findings from Secondary Data Analysis

⌡ Most of the banks finance total assets by using extensively debt capital than equity capital. In average, debt capital represents 92.71%, 92.13%, 93.42% and 93.42% of the total assets finance in SCBNL, NABIL, HBL and EBL respectively. However, only 7.29%, 7.87%, 6.58% and 6.58% of the total assets finance is represented by equity capital in SCBNL, NABIL, HBL and EBL respectively.

⌡ Long term debt has been used in paltry amount compared to short term debt. Short term debt represents 99.51% in SCBNL, 97.21% in NABIL, 98.03% in HBL and 98.52% in EBL of total debt capital.

⌡ The gross working capital of HBL has followed increasing trend. During the five year periods, the average gross working capital is Rs. 29905.02 millions in SCBNL, Rs. 29084.27 millions in NABIL, Rs. 32560.91 millions in HBL, and Rs. 22389.33 million in EBL. And the average growth rate in gross working capital is 11.99%, 21.97%, 9.45% and 31.04% in SCBNL, NABIL, HBL & EBL respectively.

⌡ The net working capital has followed increasing trend in all the banks except in HBL. The average net working capital is Rs. 2234.52 millions in SCBNL, Rs. 2717.00 millions in NABIL, Rs. 196.83 millions in HBL, and Rs. 1172.68 millions EBL.

⌡ Each bank has extensively used short term debt to finance working capital, current assets. 92.60%, 90.95, 93.26% 92.92% of the total working capital of SCBNL, NABIL, HBL and EBL respectively has been financed through short term debt.

⌡ The working capital has represented 99.63% in SCBNL, 98.46% in NABIL, 98.19% in HBL, and 98.93% in EBL of the total assets.

⌡ Only SCBNL and HBL have met the minimum cash reserve ratio directed by NRB. The average CRR maintained during the five year periods is 7.02% by SCBNL, 6.10% by NABIL, 6.22% by HBL and 5.10% by EBL.

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) The relationship of return on equity and equity growth is in complete reverse order only in HBL, which also indicates the adoption of perfect aggressive working capital policy by the bank. SCBNL, NABIL, HBL and EBL have generated Rs. 34.11, Rs. 32.32, Rs. 23.65 and Rs. 22.82 respectively from Rs. 100 investment of equity capital.

) The net profit has positive relationship with net working capital, short term debt and long term debt. However, the relationship between net profit & long term debt is statistically insignificant in SCBNL and NABIL.

) The estimated value of net working capital in the fiscal year 2011/12 will be Rs. 3864.79 millions for SCBNL, Rs. 5910.71 millions for NABIL, Rs. 3342.24 millions for HBL and Rs. 2949.92 millions for EBL, net profit in the fiscal year 2011/12 will be Rs. 1201.30 millions for SCBNL, Rs. 1174.61 millions for NABIL, Rs. 956.26 millions for HBL and Rs. 820.36 millions for EBL.

Findings from Primary Data Analysis

) The primary data analysis shows that the performance role of working capital is very important in the banks. Similarly, top level management should be responsible for managing working capital and the aggressive working capital policy is appropriate in the commercial banks. Working capital has greater impact on the profitability and risk of the bank and the liquidity position of the bank is not so satisfactory, the bank is also adopting relaxed working capital investment policy. Eventually, the nature and size of the business is the most influential factor in the working capital management of the banks.

CHAPTER –V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The development process of a country involves the mobilization and deployment of resources. Financial institutions assist in the economic development of the country and are considered as the catalyst. Commercial banks are the major financial institutions that occupy quite an important place in the framework in the economy development sectors as well as in saving and investment sectors. Commercial banks are the suppliers of finance for trade and industry and play a vital role in the economic and financial life of the country. After the implementation of the open market policy, joint venture commercial banks are opened as private banks. The liberal trade and investment policies have facilitated joint venture banks to invest in Nepal. Joint venture bank has been helpful in transferring foreign investment and advanced technology from one country to another. The establishment of joint venture banks gave a new horizon to the financial sector of the country.

Commercial bank is income oriented, thus proper financial decision-making is more important in banking transaction for its efficiency and profitability. Most of the financial decisions of a bank are concerned with current assets and current liabilities. Working capital management is concerned with current assets and current liabilities. Generally, working capital refers to the difference between current assets and current liabilities. Thus, working capital management has been regarded as one of the conditioning factor in the decision-making issues of commercial banks. The term working capital management closely relates with short-term financing; it is concerned with collection and allocation of resources. Working capital management relates to problems that arise in attempting to manage the current assets, the current liabilities and interrelationships that exist between them.

The main objective of the study is to study the working capital management of banks, especially in Standard Chartered Bank Nepal Limited, NABIL Bank Limited, Himalayan Bank Limited and Everest Bank Limited. To fulfill this objective of this

study and other specific objective as described in chapter one, an appropriate research methodology has been developed which includes the ratio analysis as financial tools and trend analysis, correlation coefficient as statistical tools. The major ratio analysis consists of the composition of working capital position, liquidity position, turnover position, capital structure position and profitability position. Under these, main ratios and their trend position are studied in the chapter five. In order to test the relationship between the various components of working capital, Karl Pearson's correlation coefficient r is calculated and analyzed.

To achieve the objectives of the study, both the primary data and secondary data have been analyzed. The primary data has been collected by collecting the opinions of the respondents through questionnaire, while the secondary data have been extracted from the annual reports of the respective banks. Further, both financial tools and statistical tools have been effectively utilized to get the result.

Finally, the major findings have been extracted from the analysis of primary and secondary data, and the conclusion has been made on the basis of major findings. For the enhancement of the credit management of the sampled banks, the recommendations have been given, considering the major findings and conclusion, at the end of the study.

5.2 Conclusion

Pragmatically the debt capital has been the main source of funds for banks than equity capital while financing the total assets. Among the four selected banks, the preponderance of debt capital is highest in EBL and HBL, which ultimately has visualized higher risk in total assets in these banks in comparison to other banks. Analyzing more deeply on the debt capital, it has been ascertained that the short term debt has been used abound than long term debt in meeting the funds requirement. SCBNL has been found in advanced position in mobilizing highest portion of short term debt, which consequently indicates that the working capital of SCBNL is most risky. However, all the banks are following aggressive working capital policy. Further, the banks have paid more concern in raising the gross working capital for having befit liquidity. Likewise, the banks have increased the current assets in greater

extent to current liabilities; as a result it can be asserted that the net working capital has been augmented.

Besides these, it can be inferred that the observed banks are risk takers since the short term financing to working capital is higher in each banks. In addition, HBL can be considered as the highest risk taker, since the utilization of short term debt capital percentage on working capital is highest. Similarly, the representation of working capital in total assets differs by paltry sum in the banks. However, on the basis of highest ratio, it can be assumed that SCBNL has highest liquidity. This axiom has also been categorically buttressed by the cash reserve ratio, as the cash reserve ratio is highest in SCBNL. However, it is quite disappointing that except SCBNL and HBL, the other two observed banks have not met the minimum cash reserve ratio as directed by NRB. Thus, it cannot be ensured that that the deposits are asylum in the banks. Observing the relationship of return on equity and equity capital growth, it can be considered that only HBL is following the perfect aggressive working capital policy.

Statistically, it can be assumed that the relationship between net profit and net working capital is significant, and thus net profit increases/decreases with the increase/decrease in net working capital. Also, the same situation exists between the net profit and short term debt. However, the relationship between net profit and long term debt is positive and significant only in NABIL and EBL, and in remaining two banks, it can be assumed that the net profit goes astray from the path of long term debt. Although, it is estimated that the net working capital, short term debt and net profit increase in all the banks, it can be considered that the pace of growth of net working capital and net profit will be highest in SCBNL and the pace of growth of short term debt financing will be highest in NABIL.

On the basis of questionnaire survey, it can be concluded that the role of working capital is crucial for smooth operation of the bank. And the responsibility of top level management should be more liable than lower echelon management in managing the required working capital. Further, the bank should be risk taker and should adopt the aggressive policy for the sustainability of the bank in long run, since the working capital has crucial impact on the profitability and risk. Astoundingly, it can be

concluded that the liquidity position of the banks are not satisfactory, and the banks should review the liquidity management to ameliorate the liquidity.

5.3 Recommendations

On the basis of major findings and the conclusion drawn, the following recommendations, which will undoubtedly enhance the bank's performance, are made;

- ） To minimize the risk, the bank should use equity capital as well in the same level of debt capital. In other word, the bank should follow moderate policy.
- ） The bank should use the long term debt capital instead of large amount of short term debt capital to reduce the risk.
- ） To minimize the liquidity risk, the bank should follow the cash reserve ratio directed by NRB.
- ） The observed banks should promote fixed deposit to lessen the immediate requirement of cash and thus having sound working capital management.
- ） Considering the cash and bank balance, the bank should increase the portion of cash and bank balance in total assets.
- ） Similarly, the observed banks should effectively mobilize their total assets, shareholders' equity and total deposit to maximize its profit and sustain in long run. Also, these bank needs to reduce its cost of services to maximize their profit.
- ） The bank needs to adopt the best capital structure that will best suit its interest and thus maximizes profitability and liquidity and minimizes cost.
- ） Finally, the bank needs to have highly positive relationship between loan and advances with total deposit and loan and advances with net profit.

APPENDIX - I
Questionnaire

Dear Sir/Madam,

This is to bring your kind information that this is an attempt to analyze *"Working Capital Management in Banks (with Special Reference to SCBNL, NABIL, HBL & EBL)"* for the partial fulfillment of Thesis required for MBS degree, TU. You are kindly requested to fill up the following questionnaire with the best answer in your view. I would be grateful to you for the contribution of your valuable time and effort.

Name : _____   Sex : M [　] F [　]   Age : _____

Occupation (Tick One):

        High Level Employee

        Middle Level Employee

        Shareholder

Questions:

Please Tick the best alternative (QN 1-7)

1. The performance role of working capital is
   o Highly Important
   o Important
   o Not so Important

2. Who is responsible to manage the working capital?
   o Top Level Management
   o Middle Level Management
   o Lower Level Management

3. Which working capital financing policy is appropriate to your bank?

   Aggressive [   ]   Moderate [   ]   Conservative [   ]

4. Does working policy have impact on profitability?

   Yes [   ]   No [   ]   Don't know [   ]

5. Does working policy have impact on risk of the company?

   Yes [   ]   No [   ]   Don't know [   ]

6. Is Liquidity position of your bank is appropriate?

   Yes [   ]   No [   ]   Don't know [   ]

7. Which working capital investment policy is adopting by your bank?

   Relaxed [   ]   Moderate [   ]   Restricted [   ]

Please Rank 1, 2, 3,..., 6. [1 for the best factor]

8. Which of the following do you think affects the working capital of your bank?

   Nature and Size of Business   [   ]

   Current Assets Policy   [   ]

   Credit Policy   [   ]

   Growth and Expansion   [   ]

   Profit Margin   [   ]

   Level of Taxes   [   ]

Thank you for your time and effort.

APPENDIX - II

A) Calculation of Mean, Standard Deviation and Coefficient of Variation of SCB

Year	TA X	Equity Y	Debt Z	$x = X - \bar{X}$	$y = Y - \bar{Y}$	$z = Z - \bar{Z}$	$x2$
2005/06	25,767	1,754	24,013	(7,829)	(803)	(7,026)	61,286,853
2006/07	28,597	2,116	26,480	(4,999)	(441)	(4,559)	24,992,547
2007/08	33,336	2,493	30,843	(260)	(64)	(196)	67,681
2008/09	40,067	3,052	37,014	6,471	495	5,975	41,869,008
2009/010	40,213	3,370	36,844	6,617	813	5,805	43,789,663
Total	**167,980**	**12,785**	**155,195**	**(0)**	**-**	**0**	**172,005,75**

i) Calculation of Mean

　　　　For Total Assets (TA)　　　　　　　　　　　　　　　For Equity Capital

2

$$\overline{X} = \frac{\sum X}{5} = 33595.94 \qquad \overline{Y} = \frac{\sum Y}{5} = 2,5...$$

Mean

For Debt Capital

$$\overline{Z} = \frac{\sum Z}{5} = 31038.90$$

iii) Calculation of Standard Deviation ( )

For TA

$$\sigma_x = \sqrt{\frac{\sum (x-\overline{x})^2}{N}} = \sqrt{\frac{172005751}{5}}$$

$$= 5865.25$$

For Eq.

$$\sigma_y = \sqrt{\frac{\sum (y-\overline{y})2}{N}} = \sqrt{\quad}$$

$$= 591$$

For Debt

$$\sigma_z = \sqrt{\frac{\sum (z-\overline{z})^2}{N-1}} = \sqrt{\frac{139576750.5}{5}}$$

$$= 5283.50$$

iii) Calculation of Coefficient of Variation

For

$$C.V._x = \frac{\sigma_x}{\overline{X}} \times 100 = \frac{5865.25}{33595.94} \times 100$$

$$= 17.46$$

For Equity

$$C.V.y = \frac{\sigma}{\overline{Y}} \times 100 = \frac{}{\quad} 5...$$

$$= 23$$

For Debt

$$C.V._z = \frac{\sigma}{\overline{Z}} \times 100 = \frac{5283.50}{31038.90} \times 100$$

$$= 17.02$$

Note: Same process has been followed to calculate the mean, standard deviation and coefficient of variation of other variables.

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Table:
  4.2
Total Debt Composition

FY	SCBNL		NABIL		HBL			
	LTD	STD	LTD	STD	LTD	STD	LTD	
2005/06	0.14	99.86	0.11	100	2	98		
2006/07	0	100	0.85	99	2	98		
2007/08	1.51	98.49	3.5	97	2	98		
2008/09	0	100	4.61	95	3	97		
2009/010	0.8	99.2	4.86	95	1	99		
Mean	**0.49**	**99.51**	**2.79**	**97**	**2**	**98**		
S.D.	**0.59**	**0.59**	**1.95**	**2**	**0**	**0**		
C.V.%	**120.66**	**0.59**	**70.09**	**2**	**23**	**0**		**0**

APPENDIX - IV

A) Calculation of Trend Value of NWC

Year	Year X	NWC Y	$x = X-\bar{X}$	$y = Y-\bar{Y}$	x^2	y^2	xy
2005/06	1	1754.14	-2.00	-802.91	4.00	644656.58	1605.81
2006/07	2	2116.35	-1.00	-440.69	1.00	194208.12	440.69
2007/08	3	2492.55	0.00	-64.50	0.00	4159.72	0.00
2008/09	4	3052.47	1.00	495.43	1.00	245446.79	495.43
2009/010	5	3369.71	2.00	812.67	4.00	660425.35	1625.33
Total	**15**	**12785.22**			**10.00**	**1748896.55**	**4167.26**

i) Calculation of Mean

For Year   For NWC

Mean $\bar{X} = X/5 = 3.00$ $\bar{Y} = Y/5 = 2557.04$

ii) Calculation of Correlation Coefficient between Year and NWC

$$r = \frac{xy}{\sqrt{x^2 \; y^2}} = \frac{4167.2577}{4181.98} = 0.9965$$

iii) Calculation of Standard Deviation ( )

For Year

$$\sigma_x = \sqrt{\frac{(x-\bar{x})^2}{N-1}} = \sqrt{\frac{10}{4}}$$

$$= 1.58$$

For NWC

$$\sigma_y = \sqrt{\frac{(y-\bar{y})^2}{N-1}} = \sqrt{\frac{1748896.5}{4}}$$

$$= 661.23$$

iv) Simple Regression Equation of NWC on Year

$$Y-\bar{Y} = \frac{r \; \sigma_x \; \sigma_y \, (X-\bar{X})}{\sigma_x}$$

or, $Y-2557.04 = \dfrac{0.9965 \times 661.23 \, (X-3)}{1.58}$

or, $Y-2557.04 = 658.90 \, X - 1976.70$

or, $Y = 1306.87 + 416.73 \, X$

v) Calculation of Trend Value of NWC

Year	a	b	X	Y = a + b X
2005/06	1306.87	416.73	1	1723.59
2006/07	1306.87	416.73	2	2140.32
2007/08	1306.87	416.73	3	2557.04
2008/09	1306.87	416.73	4	2973.77
2009/10	1306.87	416.73	5	3390.50
2010/11	1306.87	416.73	6	3807.22
2011/12	1306.87	416.73	7	4223.95

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C) Calculation of Trend Value of NPAT

Year	Year X	NPAT Y	$x = X-\overline{X}$	$y = Y-\overline{Y}$	x^2	y^2	xy
2005/06	1	658.76	-2.00	-197.31	4.00	38931.38	394.62
2006/07	2	691.67	-1.00	-164.40	1.00	27026.76	164.40
2007/08	3	818.92	0.00	-37.15	0.00	1379.77	0.00
2008/09	4	1,025.11	1.00	169.05	1.00	28577.33	169.05
2009/010	5	1,085.87	2.00	229.81	4.00	52810.55	459.61
Total	**15**	**4280.33**			**10.00**	**148725.78**	**1187.68**

i) Calculation of Mean

For Year

For NPAT

$$\text{Mean} \quad \overline{X} = \sum X/5 = 3.00 \qquad \overline{Y} = \sum Y/5 = 856.07$$

ii) Calculation of Correlation Coefficient between Year and NPAT

$$r = \frac{\sum xy}{\sqrt{\sum x^2 \cdot \sum y^2}} = \frac{1187.6781}{1219.53} = 0.9739$$

iii) Calculation of Standard Deviation ( )

For Year

$$\sigma_x = \sqrt{\frac{\sum (x-\overline{x})^2}{N-1}} = \sqrt{\frac{10}{4}}$$

$$= 1.58$$

For NPAT

$$\sigma_y = \sqrt{\frac{\sum (y-\overline{y})^2}{N-1}} = \sqrt{\frac{148725.8}{4}}$$

$$= 192.82$$

iv) Simple Regression Equation of NPAT on Year

$$Y-\overline{Y} = \frac{r \cdot \sigma_x \cdot \sigma_y (X-\overline{X})}{\sigma_x}$$

or, $Y-856.07 = \dfrac{0.9739 \times 192.82 (X-3)}{1.58}$

or, $Y-856.07 = 187.78\, X - 356.30$

or, $Y = 499 + 118.77\, X$

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C) Calculation of Trend Value of NPAT

Year	Year X	NPAT Y	$x = X-\overline{X}$	$y = Y-\overline{Y}$	x^2	y^2	xy
2005/06	1	658.76	-2.00	-197.31	4.00	38931.38	394.62
2006/07	2	691.67	-1.00	-164.40	1.00	27026.76	164.40
2007/08	3	818.92	0.00	-37.15	0.00	1379.77	0.00
2008/09	4	1,025.11	1.00	169.05	1.00	28577.33	169.05
2009/010	5	1,085.87	2.00	229.81	4.00	52810.55	459.61
Total	**15**	**4280.33**			**10.00**	**148725.78**	**1187.68**

i) Calculation of Mean

For Year   For NPAT

Mean $\overline{X} = X/5 = 3.00$ $\overline{Y} = Y/5 = 856.07$

ii) Calculation of Correlation Coefficient between Year and NPAT

$$r = \frac{xy}{x^2 \ y^2} = \frac{1187.6781}{1219.53} = 0.9739$$

iii) Calculation of Standard Deviation ( )

For Year

$$\sigma_x = \sqrt{\frac{(x-\overline{x})^2}{N-1}} = \sqrt{\frac{10}{4}}$$

$$= 1.58$$

For NPAT

$$\sigma_y = \sqrt{\frac{(y-\overline{y})^2}{N-1}} = \sqrt{\frac{148725.8}{4}}$$

$$= 192.82$$

iv) Simple Regression Equation of NPAT on Year

$$Y-\overline{Y} = \frac{r \ \sigma_x \ \sigma_y \ (X-\overline{X})}{\sigma_x}$$

or, $Y-856.07 = \dfrac{0.9739 \times 192.82 \ (X-3)}{1.58}$

or, $Y-856.07 = 187.78 \ X - 356.30$

or, $Y = 499 + 118.77 \ X$

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C) Calculation of Trend Value of NPAT

Year	Year X	NPAT Y	$x = X-\overline{X}$	$y = Y-\overline{Y}$	x^2	y^2	xy
2005/06	1	658.76	-2.00	-197.31	4.00	38931.38	394.62
2006/07	2	691.67	-1.00	-164.40	1.00	27026.76	164.40
2007/08	3	818.92	0.00	-37.15	0.00	1379.77	0.00
2008/09	4	1,025.11	1.00	169.05	1.00	28577.33	169.05
2009/010	5	1,085.87	2.00	229.81	4.00	52810.55	459.61
Total	**15**	**4280.33**			**10.00**	**148725.78**	**1187.68**

i) Calculation of Mean

For Year

For NPAT

Mean $\overline{X} = X/5 = 3.00$ $\overline{Y} = Y/5 = 856.07$

ii) Calculation of Correlation Coefficient between Year and NPAT

$$r = \frac{xy}{\sqrt{x^2 \; y^2}} = \frac{1187.6781}{1219.53} = 0.9739$$

iii) Calculation of Standard Deviation ( )

For Year

$$\sigma_x = \sqrt{\frac{(x-\overline{x})^2}{N-1}} = \sqrt{\frac{10}{4}}$$

$$= 1.58$$

For NPAT

$$\sigma_y = \sqrt{\frac{(y-\overline{y})^2}{N-1}} = \sqrt{\frac{148725.8}{4}}$$

$$= 192.82$$

iv) Simple Regression Equation of NPAT on Year

$$Y-\overline{Y} = \frac{r \; \sigma_x \; \sigma_y \, (X-\overline{X})}{\sigma_x}$$

or, $Y-856.07 = \dfrac{0.9739 \times 192.82 \, (X-3)}{1.58}$

or, $Y-856.07 = 187.78 \, X - 356.30$

or, $Y = 499 + 118.77 \, X$

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