# CHAPTER ONE

# INTRODUCTION

## 1.1 Background of Industrial Development in Nepal

Industrialization is said to be panacea for underdevelopment of a country. Through industrialization, production increases, goods becomes cheaper. Plenty and prosperity take the place of poverty. The standard of living of the people is raised. An industrialized country not only fulfill the demands of her own people, but also exports her surplus good. This increases country's foreign trade and helps in earning foreign exchange. Unit also generates employment opportunities.

"Industrialization is a process of economic development which growing part of the national resources is mobilized to develop technically up to date diversified domestic economic structure characterized by a dynamic manufacturing consumer goods, capable of assuming a high and achieving economic and social progress".

Nepal is one of the least developed countries in the world. More than 80% of its total landmass is covered by rugged hills and mountains including river basins and tars. In generals, the altitudes of land increases form south to north though the country is small in its area, there are different types of natural gifts which includes forests, water and minerals. For developing trade and industry, these natural resources play a great role. But Nepal had a late start in development. Its pace industrialization has been slow. The Rana oligarchy, which ruled Nepal for 104 years (1846-1950), isolated the country form the winds of industrial revolution going on in Europe. It did not encourage the growth of modern industries

based on new technology. Economic development was never a goal of the Rana rule. In order to grab quick benefits from the shortages of consumer goods, Biranatnagar, Jute mill was established in 1936. Other industries like sugar, matches, oil, chemicals, hydropower, soap etc. were also established haphazardly. They also laid the foundation of institutional structure for industries in the form of industry board (Udhog parishad in 1935), company Act 1936.

The Nepalese economy is totally dominated by the agriculture sector. About 78% of the total economically active population of Nepal is involved in agriculture sector (Tenth plan, 2059-2064). This sector has contributed about 39.48% to GDP and growth rate is 3.7 at current price in fiscal year 2063/064. The contribution of manufacturing industries to GDP is 7.11% at current price in the FY 2063/064: Therefore, the rule and contribution of agriculture sector in national economy development is not satisfactory. Nepal is in infancy period of industrialization. The developing nation will remain associated with various forms of backwardness unless state tackles the problem of economic backwardness through industrialization, means of achieving economic growth and prosperity.

Manufacturing industries are the main pillar of Nepalese economy. They can also be regarded as import substitute industries, many of which also experts a considerable volume of goods to the different countries. The important aspiration of Nepal has to bring about a structural change that would transfer its agriculture economy into an industrial one. In Nepal, industrialization is a prerequisite economic development which will transfer the traditional old agrarian economy to modern one. In order to increase national employment, there should be optimum utilization of

natural, human and capital resources with the country and improve the balance of payment.

The government of Nepal realizes itself a partner and facilitator than as a director due to the need of private sector in national economy because almost all manufacturing PEs are in huge losses or in bankruptcy. In comparison to public manufacturing industry, private manufacturing industries are efficient. "Government private sector and civil society are equal role playing in economic development but government is not the best resources distributor and its agent (Bureaucracy) gives priority for power than resource mobilization. So, the government adopts liberal economic policy by reforming micro and macro economic policy to attract domestic as well as foreign investors. "Economic liberalization is the first step that makes at other benefits of market from possible decentralizing production decision to enterprises and households, and providing agents with the incentives and information to trade – free and to respond to the forces of demand and supply" (Joshi: 2058: 211).

A World Bank survey of nearly (02-50) private sector manufacturing firms conducted in 2007 found:

  I. Overall manufacturing productivity is low in Nepal compared to international standards.

 II. There is a large variance in productivity between firms within the country.

III. Important determinants of productivity are capacity utilization, economies of scale, infrastructure and learning mechanism.

IV. Entrepreneur characteristics such as education, experience owing multiple business were found not significant in determining productivity.

V. Liberalization has had positive impact on employment growth in export, oriented sectors.

VI. Firms located in Kathmandu were generally growing faster than firm from other regions of the country, younger firms were growing faster than older firms

VII. Main factors driving the growth of firms are exports, worker training and foreign ownership.

It is believed that in order to achieve security stability and high standard of living, the country must proceed towards industrialization. The most important reason for embarking on performance of industrialization is the increase the national income.

No country can survive in isolation these days. Nepal must also March in line with other economically advanced countries of the world. Industrialization is the only way open to her to take her rightful place in the comity of nations since Nepal is rich in natural resources, herbs and herbal trees, business enterprises based on herbs and herbal resources has great scope in the country. Therefore, as a manufacturing enterprise based on herbs and non herbal products is Dabur Nepal Pvt. Ltd came into existence.

This study is a descriptive, explorative study on "Working capital management'. This study is focused on the theoretical and empirical study in relation to working capital management of Dabur Nepal private limited. By employing statistical and financial tools, this study will try to

give valuable        recommendations and measures for correcting deviations. This study will be of great significance for the DNPL, and similar nature of enterprises and concerned parties.

## 1.2 A Brief Overview of Dabur Nepal Pvt. Ltd.

Dabur Nepal Pvt. Ltd. is a first manufacturing base overseas for Dabur group. Dabur Nepal is the third largest and most modern manufacturing base for Dabur group. DNPL is an India joint venture company promoted by Dabur India Pvt. Ltd. It was established in the year 1989 and began it commercial operations in the year 1993. The authorized capital of the company is Rs. 140 million. Dabur India has 80% shares in the company where are Luna trading co. Pvt. Ltd. and Bibhuti Pvt. Ltd with 17.53% and 2.47% general public investors the company products fast moving consumer goods and herbal health care products.

Dabur came into Nepal planning a low key business with targeted local sales of 14.50 million per annum. After experiencing a tremendous increase in business volume, the company is now expanding its operations into newer field and foregoing alliances with a number of organization both local as well as foreign, and investing generously producing packing material for its products besides its expanding production of its original line of herbal and non herbal products.

From the initial business of Rs. 50 million p.a. targeted from local sales, now turnover of the company rose Rs. 3241.2 million tremendously over the year because huge exports to India. As a result, the company now contributes to abut 12% in Nepal's total exports. Now Dabur Nepal is planning to start exporting direct to third countries. The current products of Dabur Nepal includes the following items.

1. Lal Dant Manjan        2. Dabur Lal Tooth Paste 3. Babool Tooth Paste

4. Meswak Tooth Paste 5. Vatika Hair Oil        6. Vatika Hair Oil

7. Vatika Shampoo 8. Vatika Shampoo (Bulk)        9. SLES (30%*)

10. Vatika Face Pack 11. Vatika Honey Saffron Soap 12. Amla Hair Oil

13. Anmol Coconut Oil 14. Anmol Shampoo 15. Anmol Sarson Oil

16. Special Hair Oil 17. Baby Olive Oil 18. Dabur Gulabari

19. Hajmola Candy 20. Hajmola Tablet 21. Chywanprash

22. Real Fruit Juice 23. Glucose D Powder 24. Pchan Churan

25. DCP Mishran 26. Dantmuktra 27. Plastic containers Bottles/caps/plugs

28. Bee frames/Hives/Thermocol sheet 29. Sanifresh 30. Taxin Resin/MCS

31. CHIRAYITA – Plant 32. Stevia Powder/Sappling 33. Honey

34. Kshudhavardhak Churan for tablet 35. Master Batch Red

**1.2.1 Capital and Ownership**

Dabur Nepal Pvt. Ltd. Is a subsidiary company of Dabur India Pvt. Ltd. Currently 80% shareholders are made by Dabur India and rest 20% share by Nepali promoters. The following table provides the pictures of share holding:

**Table 1.1**

**Capital**

| S.N. | Types of capital | No. of ordinary share | Total Capital |
|------|------------------|----------------------|---------------|
| 1. | Authorized capital | 1,400,000@ Rs. 100 | 140,000,000 |
| 2. | Paid up Capital | 798520@ Rs. 100 | 79,852,000 |

**Table 1.2**

**Ownership Patterns**

| Name of Shares holders | No. of Shares | Total Capital (Rs.) | % of Share |
|------------------------|---------------|---------------------|------------|
| Dabur India Pvt. Ltd. | 638816@100 | 36881600 | 80 |
| Luna Credit Co. Pvt. Ltd. and Bibhuti Pvt. Ltd. | 140000@100 | 14000000 | 17.53 |
| General Public | 19704@100 | 1970400 | 2.47 |
| Total | 798520@100 | 79852000 | 100 |

**1.2.2 Management**

The DNPL is managed by the managing director. The managing director is appointed by BCD. The DNPL's BOD comprises members. Mr. Pradip Burman and Mr. Rukman Shumsher Rana are the chairman and the managing director respectively.

**1.2.3 Corporate Purposes**

Corporate purpose of DNPL is to meet the everyday needs of people everywhere. It responding creatively and competitively to costumers and customers with branded products and services by understanding their aspiration, attempt to raise the quality of life. DNPL

is dedicated for long term success through total commitment to exceptional standards for performance and productively to working together effectively, to embracing new ideas and learn continuously. DNPL is one of the manufactures of soaps, deterrents, pharmaceuticals cosmetics, oleaginous, saponaceous, unguents and specially Ayurvedic and herbal products.

## 1.3 Focus of the Study

There are various types of assets and liabilities in every enterprises to run smoothly. One of the most important assets is current assets which is required to meet the daily or short terms obligation. An industrial unit normally needs finance for fulfilling two basic objectives.

A. To set up a manufacturing policy, i.e. acquire land and buildings, plant and machinery etc, collect known as fixed assets;

B. To acquire adequate inventories, comprising raw materials, stock-in-process and finished goods, retain sufficient cash and extend credit to customers collectively termed as current assts as working capital in a gross concept.

This study is related to the working capital management of Dabur Nepal Pvt. Ltd. Working capital in the business is comparable to the blood of human body. Like blood, it gives strength and life i.e. profit and solvency to the business organization. Working capital is firm's investment in current assets such as cash, marketable securities, inventory, account receivable and so on. Management of working capital usually involves management or administration; i.e. planning and controlling the current assets, namely cash and marketable securities and account receivables and also the administration of current liabilities.

Working capital management is a part of decision making process of the firm. It is as important as oxygen to survive. Therefore, no business can run without working capital. However, it does not mean that the company should maintain excess working capital which means idle funds or earn no profit for the firm. At the same time, to little or inadequate working capital damages, the firm's liquidity and also hampers the production process. An enlightened management should, therefore, maintain a right amount of working capital as a continuous basis. To obtain the basic goal of working capital management, current assets and current liabilities of a firm should be managed in a satisfactory way i.e. neither inadequate nor excessive.

This study focuses on the various aspects of the working capital management of Dabur Nepal Pvt. Ltd. This study covers the current assets management policy, current assets utilization and current assets structure. Moreover, this study focuses on the findings of the enterprises for achieving goals. The following are focus points of the study;

1. Profitability and liquidity positions of DNPL.

2. Analysis of WC structure and WC utilization of DNPL.

3. Cash conversion cycle of DNPL.

4. Focus on the relation of working capital variables.

## 1.4 Statement of the Problem

One of the major problems that Nepalese organizations are facing with the working capital management. The working capital management, undoubtedly, is a prime concern of any organization which influences almost all of the functions. The organizations are generally found to

concentrate on acquisition of the working capital but not through proper analysis of trade off between risk and return. They don't pay more attention on effective utilization in spite of high level of importance of optimum level and efficient use of working capital.

Working capital doesn't only show the financial position of a company but also promote competitive advantage. It is to be remembered that qualified human resource, appropriate indicators and efficient utilization are factors associated with sound working capital management. Consideration of profit alone in this connection is a limitation of management. This study attempts to find the facts and suggestions in connection with some major issues which can also be regarded as problems of working capital management. It addresses the policy and liquidity position of DNPL. Identification of WC financing and relation between liquidity and profitability are other problems which are to be dealt with in this study.

Most of the Nepalese industries are still facing the problems of working capital management due to the unprofessional manpower. Managers still focus their attention on the procurement aspect of working capital but not on the efficient utilization of funds defined in term of working capital. Every investor wants to earn return in their investment. Therefore, any organization should make profit for its owners. Profit is not only one indicator of proper management of working capital. There are several indicators of working capital management. So, basically this study has tried to find out the issues of working capital management of DNPL. This study has tried to solve the following research questions:

1) Is the composition of WC of DNPL appropriate?

2) Has the DNPL been following appropriate working capital policy?

3) Is there the sound liquidity position of DNPL?

4) What current assets policy has DNPL been following?

5) What current liability policy has DNPL been following?

6) How is working capital being financed in DNPL?

7) What is the profitability position of DNPL?

8) What is the relationship, between liquidity and profitability in DNPL?

## 1.5 Objectives of the Study

Unbalanced capital is harmful for manufacturing as well as business organization. Objective of this study is to examine the WC management of DNPL. The specific objectives of this study are as follows:

1. To analyze the position of working capital of Dabur Nepal PVT. Ltd. by applying necessary financial and statistical tools and techniques.

2. To determine the structure of utilization of working capital of DNPL.

3. To analyze the size of working capital by measuring the current assets and total assets.

4. To examine the growth of working capital and sales of the company.

5. To assess the liquidity profitability positions of DNPL.

6. To evaluate the efficiency of WC which is observed by evaluating various turnover ratios.

7. to analysis the relationship between working capital components with related variables like production, sales etc.

8. To list some suggestions for the improvement their present working capitol performance.

## 1.6 Need and Importance of the Study

This study is concerned with the theoretical, explanation practical application of working capital management in DNPL. Working capital involves the large portion of the firm's total assets, about more than the half of the total assets. On the other hand, financial manager is used to killing long time span in managing of working capital. Investment in fixed assets can be reduced through renting and leasing but the investment in current asset is unavoidable. This study might be helpful for DNPL in relation to the working capital management. Therefore, this study will be of great reference.

1. It will help other similar nature of manufacturing enterprises to determine and management working capital

2. It will be useful for government to formulate appropriate economic policy for their enterprises.

3. It will help for new financial manager or new business to take decision on efficient WC management and to decide its component strategically.

4. It helps to add the existing literature of the Nepalese financial management.

5. This study helps to evaluate impact of WC on profitability of business enterprises.

6. The findings and conclusions of the study can be used by the management of DNPL as guide in the financial and working capital management of the company.

## 1.7 Hypotheses of the Study

Following hypotheses have been proposed and formulated for the purpose of the study:

i) $H_{01}$: CA  TA i.e. thee is no significant relation between current assets and total assets of DNPL.

$H_{A1}$: CA = TA i.e. there is significant relation between current assets and total assets of DNPL.

$H_{A2}$: SA = WC i.e., there is no significant relation between sales and net working capital of DNPL during the period of study.

$H_{A2}$: SA = W.C. i.e. there is significant relation between sales and net working capital of DNPL.

$H_{03}$: There is no significant correlation among the components of the structure of working capital in DNPL measured in terms of inventory, debtors and cash and banks.

$H_{A3}$: There is significant correlation among the components of the structure of working capital in DNPL measured in terms of inventory, debtor and cash and banks.

$H_{O4}$: There is no significant correlation of sales with inventory, debtors, cash and current assets.

$H_{A4}$: There is significant correlation of sales with inventory, debtors cash and current assets.

$H_{05}$: There is no significant correlation between the current assets and current liabilities and quick assets and current liabilities.

$H_{A5}$: There is significant, correlation between current assets and current liabilities and quick assets and current liabilities.

$H_{06}$: There is no significant correlation between profitability measured in terms of net profit margin and liquidity measure in term of current assets.

$H_{A6}$: There is significant correlation between profitability measured in terms of net profit margin and liquidity measure in term of current assets.

$H_{07}$: There is no significant correlation between profitability measured in terms of operating ratio and liquidity measured in terms of current ratio.

$H_{A7}$: There is significant correlation between profitability measured in terms of operating ratio and liquidity measured in terms of current ratio.

$H_{08}$: There is no significant correlation between profitability measured in terms of return on total assets and liquidity measured in terms of quick ratio.

$H_{A8}$: There is significant correlation between profitability measured in terms of return of total assets and liquidity measured in terms of quick ratio.

$H_{09}$: There is no significant correlation between profitability measured in terms of ROSE and liquidity measured in terms of QR.

$H_{A9}$ there is significant correlation between profitability measured in terms of ROCE and liquidity measured in term of QR.

$H_{010}$: There is no significant correlation between profitability measured in terms of RONW and liquidity measured in term of QR.

$H_{A10}$: There is significant correlation between profitability measured in terms of (Rose) RONW and liquidity measured in term of QR.

## 1.8 Assumptions and Limitation of the Study

Most of the private company financial data may be invalid in Nepalese context. Other words, financial statement may not disclose the true financial data and information. In the case, of companies set up in private sector access to internal information for outsiders in not possible. Preparation multiple financial statement is pen secret and common practice in private sector. So, the conclusion is based on the available financial statement might not be correct in reality.

This study is subject to the following limitations.

1. This study is fully based on secondary data.

2. It is only concerned with WC management of DNPL but not with other financial area.

3. Simple statistical tools are used for data analysis.

4. The analysis covers the data of 6 years (From FY 2000/2001 to 2006/2007).

5. Research experience is also one of the limitations.

6. The study is purely for academic purpose as a partial fulfillment of the requirement for master of business studies. It is thus, conducted on prescribed format.

## 1.9 Organization Plan of the Study

The study of working capital management of Dabur Nepal Pvt. Ltd. has been divided into five major chapters which are as fallows:

### i. Introduction:

The first chapter highlights the basic aim and structure of the study i.e. it deals with the introduction proportions like Background of industrial development in Nepal, A brief overview of Dabur Nepal Pvt. Ltd., Focus of the study, statement of the problem, objectives of the study, need and significance of the study, hypothesis of the study, assumptions and limitation of the study and organization plan of the study.

### ii. Review of Literature

The second chapter i.e. review of literature is devoted to theoretical analysis and brief review of related and pertinent literature available. It is basically a "stock taking" of available literature in one's field of research. It includes a discussion on the conceptual framework and review of the relevant studies. Theoretical framework includes introduction of working capital, concepts of WC, classification of WC, methods of investment in WC, optimum level of current assets, financing of WC, techniques of forecasting WC components of working capital and review of related books, earlier research studies and dissertations.

### iii. Research Methodology

This chapter describes the research methodology employed in the study. It deals the research design, nature and sources of data, population and sample, data processing, methods of data analysis tools and techniques, limitation of the research methods logy and definition of key operational terms used in the study.

**iv. Presentation and Analysis of Data**

This chapter presents and analyze the data using statistical and financial tools. It analyze size and growth of working capital, structure of working capital, presentation of data, analysis of data, interpretation of data and presents the finding the study.

**v. Summary, Conclusion and Recommendation**

Summary gives the overall picture of the study. Conclusion is the deduction based on findings and the recommendation gives the suggested sources of action. The study provides for the improvement of working capital management of DNPL.

# CHAPTER TWO

# REVIEW OF THE LITERATURE

## 2.1 Introduction

This chapter deals with theoretical framework and review the relevant studies. Under the theoretical framework of working capital management, interviews the meaning and concept, classification of working capital factors affecting working capital, techniques of forecasting working capital requirement and so on.

Besides, it also present the relevant studies carried out in the Nepalese context.

## 2.2 Working Capital Management

Financial management looks after two types of capital need: for fixed capital to invest in things such as buildings, plant and equipment and working capital principally to pay for stock and to cover the amount of credit extended to customers. Fixed capital, as the name implies, tends not to vary in the short-term but to move up or down in jumps when major investment decisions are made (or assets sold). Working capital on the other hand, is much more fluid and fluctuates with level of business.

Working capital management is the important branch of the financial management which given answer to the questions such as:

1) How much should we invest in each category of current assets?

2) How should we finance that investment in current assets i.e. appropriate mix of short term and long-term sources to finance current assets.

In most business, funds are deployed in assets which are in the form of cash or back deposits and will be turned into cash in relatively short period as part of national business activities.

Management of working capital usually involves management or administration; i.e. planning and controlling current assets, namely cash and marketable securities, account receivables and inventories and also the administration of current liabilities. Current assets are assets convertible into cash within one year. Any firm should always maintain the right cash balance so that flow of funds is maintain at a desirable speed not allowing any slow downs or, stoppage. Thus, the enterprises can have a balance between liquidity and profitability.

"In short the working capital is the sources of financing current assets and it includes short as well as long term financing".

Planning and control working capital naturally cluster around the sound cash planning which includes setting of cash policies, process, control of cash and receivables. This implies that the cash is the major and very sensitive component of working capital.

The basic goal of working capital management is to manage the current assets and current liabilities of firm in such a way that a satisfactory level of working capital is maintained, i.e. it is neither inadequate nor excessive.

Working capital management is always interested with problems which arises at the time of management of current assets and current liabilities and their interrelation. "For conventional accounting purposes current assets may be defined as those assets held for trade or production or which result from the routine operations of the business.".

In examining the management of current assets, answer will be sought to the following question

1) What is the need to invest funds in current assets?

2) How much funds should be invested in each type of current assets?

3) What should be the proportion of long term and short-term funds to finance current assets?

4) What appropriate sources of funds should be sued to finance current assets?

**Other Views Regarding Working Capital Management**

The management of working capital is based on two conflicting objectives. The first is the desire to have a safety stock of liquid assets that will be enable the firm to survive unforeseen difficulties. When a very large Mexican corporation sold its account receivable to finance long-term investments, it removed a possible source of immediate cash. This lack of flexibility helped lead to its bankruptcy. The second objectives is to apply a series of optimizing models with the objectives of minimizing the cost of carrying working capital and maximizing the firm's profits.

Working capital management is concerned with management of the firms current accounts, which include current assets and current liabilities. For manufactures current assets account for nearly 50% of total assets and current liabilities represent nearly 30% of total financing. The management of working capital is one of the most important aspects of overall financial management. A firm must maintain a satisfactory level

of working capital current assets should be large enough to cover current liabilities in order to ensure a reasonable margin of safety.

The term working capital originated with the old Yankee peddler, who could load up his wagon with goods, then go off on his route to peddle his wares. The merchandise was defined as his "working capital" because it was what he actually sold or "turned over" to produce his profit.

Working capital management is a part of decision making process of the firm it is as important as oxygen to survive we can rarely find any business existing without working capital. In each and every step or activity of business it is indispensable.

Though the working capital is of vital importance, both excessive as well as inadequate positions are dangerous form the firm's point of view. When excessive working capital fund will remain idle, it can not earn profits for the firm. Some of the problems which may arise due to excessive working capital are:

1. It will result in managerial inefficiency.

2. Unnecessary inventory will be collected. It is the cause of loss, theft mishandling and waste.

3. Bad debts may increase which affect the profit.

4. Unnecessary inventory is just an illusion that it will earn more profit but in fact it may not be that.

Not only excessive but shortage of working capital also has bad

effect on the business as follows:

1. No time is taken by the business to reach form galloping stage to creeping stage because it can't meet day to day operation.

2. Firm cannot grab the profitable opportunity i.e. project in the lack of working capital.

3. Rate of return on investment will also drop.

4. It will difficult to maintain the firm's reputation because it will be unable to pay short-term obligations.

5. It will be difficult for a firm to meet its goal.

An efficiency and effective management should, therefore, always maintain sound working capital.

Working capital analysis has profitability and liquidity implications for the enterprises. If the size of working capital is too large, the liquidity position would improve but profitability would adversely be affected as funds will remain idle. On the other land, if its size too small, the profitability would surely be enhanced but there will be an adverse effect on the liquidity position making the enterprise more risky. Working capital, therefore, requires to manage each of the short term assets and liabilities in such a way that an optimum level of working capital is determined, which will maintain adequate liquidity without impairing the profitability of the enterprise.

Poor working management can leads to:

) Over-capitalization (and therefore, waste through under utilization of resources and hence poor returns); and

)     Over trading (trying to maintain a level of sales which is higher than working capital can sustain for business which extend credit terms, more sales means more debtors and higher working capital demands).

)     Characteristics of over – capitalization are excessive stocks, debtors and cash, low return on investment with long term funds tied up in non earning short term assets. Over trading leads to escalating debtors and creditors, and if unchecked, ultimately to cash starvation.

## 2.3 Concepts of Working Capital

Current assets of any firm consists of cash and marketable securities, accounts receivable and inventories. These are assets that are related directly to the production cycle of the firm, and they are called working capital. Current liability accounts, which are used to finance current assets consists of accounts payment, notes payable and taxes payable. Current liability accounts are also related directly to production and sales. The difference between current assets and current liability is called net working capital. There are two concepts of working capital gross working capital and net working capital.

### 2.3.1 Gross Working Capital

The another name for the gross working capital is circulating capital. According to this concept, total current assets are working capital which represents both owned capital as well as loan capital used for financing current assets. It includes cash, marketable securities, receivables and inventories. These assets can be converted into cash within a year. Generally, when it comes to current assets, cash is the most

valuable element because it is immediately available to settle bills and debtors are more value than stock which is nearer to being turned into cash.

The gross concept of working capital refers to be amount of funds invested in short-term assets that are employed in the enterprise.

Working capital or circulating capital means circular flow of cash. This is also called operating cycle in case of manufacturing firm. This cycle starts with cash which is used to pay for raw materials. Raw materials is converted into work-in-progress which is again converted into finished goods. When it is ready for sale, it is converted into receivables. Again cash is recovered through these receivables. Thus, we have a circular cash flow, form cash into inventories to receivables and back to cash. This cycle will repeat again and again for the whole life of the firm.

The value represented by current assets circulates from one working capital to another working capital from purchase accounts to cost of goods manufacturing accounts, form inventory accounts to sales accounts, from sales account to cash account. This is described as circulating nature of current assets or in other word, working capital has circulating nature.

The speed of circulating working capital or the turnover at current assets in an indicator of degree of efficiency of the management. The faster the turnover, the higher the degree of efficiency the working capital cycle can be presented in a diagram as:
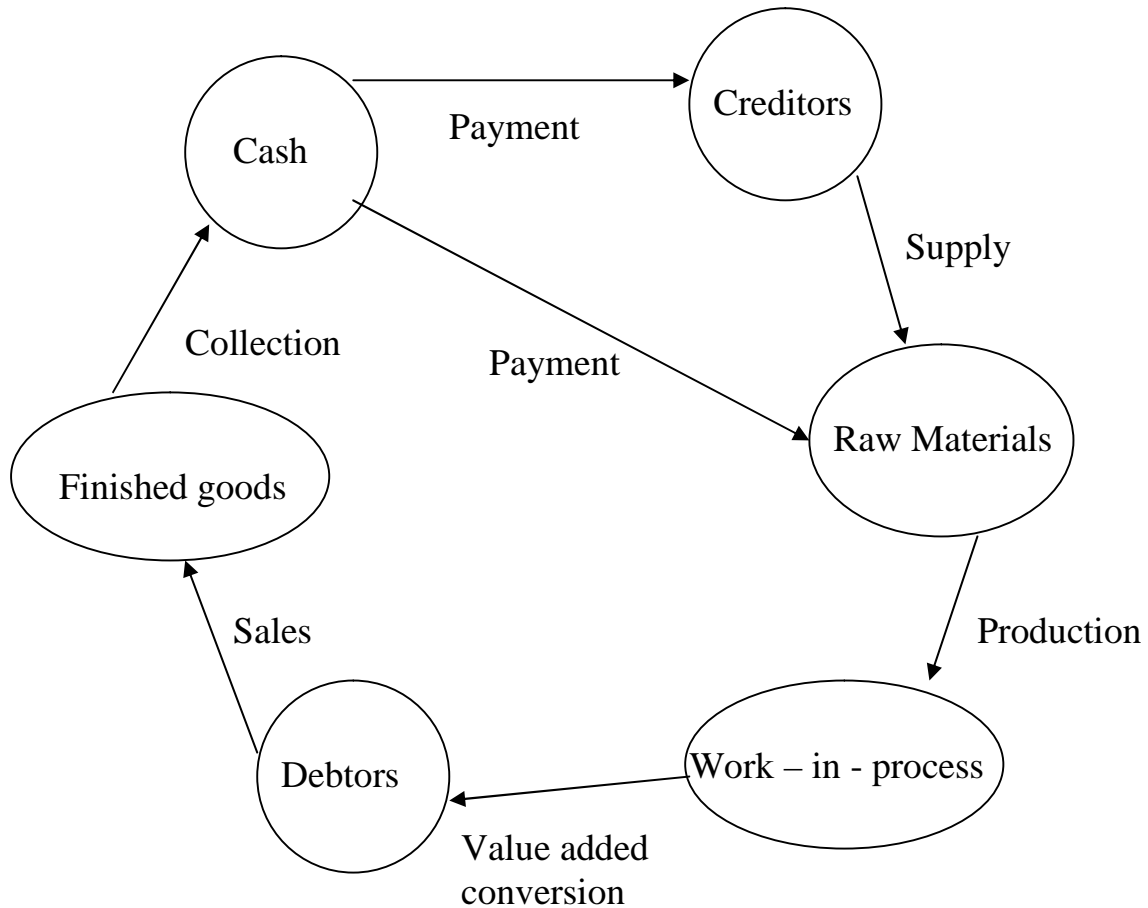


**Fig. 2.1 The WCC of manufacturing firms.**

If the business is profitable, the firm's assets at the end of each cycle will be grater than the original investment. In this manner, each cycle will produce a gross profit, and the amount of net earning for the year will depend in part, on the number of times the cycle occurs or how often working capital is turned over. Turnover of working capital is measured by the ratios of sales to current assets. The higher the ratio, the more efficient operations, fewer current assets are needed to support each dollar of sales. The flow of working capital does not always proceed as it is preplanned when it moves through different stages of the cash cycle.

For e.g. Sales may decline due to change in consumer taste, slow economy and receivable become more difficult to collect, the working capital cycle will be interrupted this leads to decline in profitability and firm could suffer bankruptcy, if this adverse situation prevails for sometime.

There is also a much shorter cycle of activity where in goods and materials are held for manufacture and sale and credit is advanced to customers for rapid conversion into cash to provide the funds with which to continue in business are to make a profit distribution possible.

The working capital cycle shown in figure (fig. 2.1) is the operating cycle for non manufacturing firm where, cash is required to purchase raw materials which is needed to owner into work in process, which is again converted into finished goods. Finished goods are sold for cash and credit and ultimately debtors will be realized.

The non manufacturing firms such as wholesaler and retailers do not manufacture goods, so, they have the direct conversion of cash into stock of finished goods of cash into stock of finished gods into debtors and then into cash.

This can be shown as below:
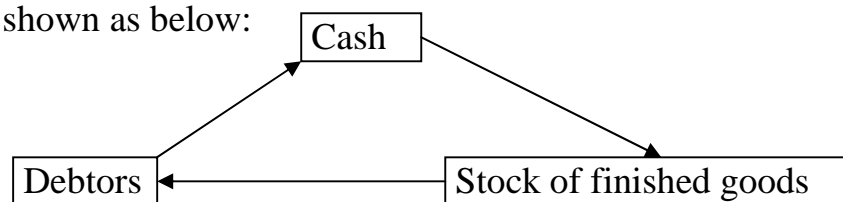


**Fig. 2.2 Operating cycle of non-manufacturing firm**

Sometime service and manufacturing concerns may not have any inventory in this case the operation cycle will be shortest as follows:
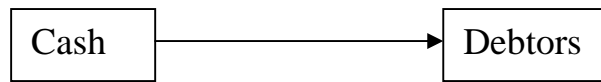
**Fig. 2.3 Operating cycle of service and financial firms**

The goods working capital focuses on two aspects of current assets management.

a) Optimum investment in current assets: As stated earlier, both excessive and inadequate investment is harmful for the business. This aspect thus, emphasis on the optimum or adequate level of current assets working capital depends upon the business activities. It also changes with the change in business actives. This may cause excess or shortage of working capital frequently. The management should be active or alert to correct the imbalances.

b) Financing of current assets: This aspect focus on the need of arranging funds to finance current asses. When more working capital is required due to the increase in business activities, the arrangement should be made quickly similar surplus funds arise, then they should be invested in short-term securities.

### 2.3.2 Net Working Capital

Net working capital comprises short term net assets: addition of stock, debtors and cash, less creditors. Working a capital management is to do with management of all aspects of both current assets and current liabilities, so as to minimize the risk of insolvency while maximizing return on assets.

Net working capital represents the excess of total current assets over total current liabilities. It is a qualitative concept which shows the soundness of current financial position. Net working capital may be positive or negative according to the size of current assets and current liabilities. Current assets should be sufficiently in excess of current

liabilities for the positive working capital. This concept gives idea about the ease and cost of raising working capital to the management. Not only for the management, it is also a major importance to investors and lenders. They always like a company to maintain current assets greater than current liabilities. Generally, current assets should be two fold of current liabilities and this concept is measured by the current ratio viz; current asses $\div$ current liabilities, which should be 2:1 A large ratio indicates greater solvency of the company and makes it unsafe and unsound. A negative working capital denotes negative liquidity which is also dangerous for the company management should always be alert to improve the imbalance in the liquidity position of the firm. Mathematically it is presented as:

Net working capital: Current assets – current liabilities

Where,

Current assets: = cash + marketable securities + inventory + receivables current liabilities = short term bank loans + creditors + payables + outstanding expenses.

An alternative definition of net working capital is that portion of a firm's current assets financed with long term, funds.

For every firm toady, minimum portion of working capital is financed with the permanent sources of funds such as owners capital, debentures, long –term debts, preference capital or retained earnings. This portion of working capital which is financed with long-term funds is called permanent working capital. Management must therefore, decide the extent to which current assets should be financed with equity capital or and borrowed capital.

Both the concepts of working capital, gross and net, are not mutually exclusive. However, they equally important from the management point of view in that the gross concept points out two important aspects of current assets (i) optimum investment in each of the component of current assets (ii) financing of these current assets; while the net concept indicates:

i)      the liquidity position

ii)     the extent to which working capital may be financed by permanent sources of funds.

Both the concepts have their own advantages and disadvantages which concept to choose depends upon the purpose of the firm. The concept of gross capital is a financial concept where as that of net concept is an accounting concept. Management is interested in the amount of current assets to operate the business with efficiency. To evaluate the efficiency, gross concept is appropriate. On the other hand, interest of investors and lenders is in concept of net working capital because it helps in the judgement of liquidity position of the enterprises.

## 2.4 Original Concept of Working Capital

The working capital was originated of a time when most of the industries were agro based manufacturer would buy the crops, process them, sell, the finished goods and end up just before the next harvest with relatively low inventories. Loans were taking from bank which had maturity period not more than one year. These loans were used to finance both purchase and processing cost and these loans were paid from the sales of the finished products. In this concept fixed assets used to grow steadily over the time period, while current assets gallop at the harvest

season and then decline during the year ending just before the next crop is harvested current assets are financed with short term credit and fixed assets are financed with long term funds. This situation is depicted in the following figure.
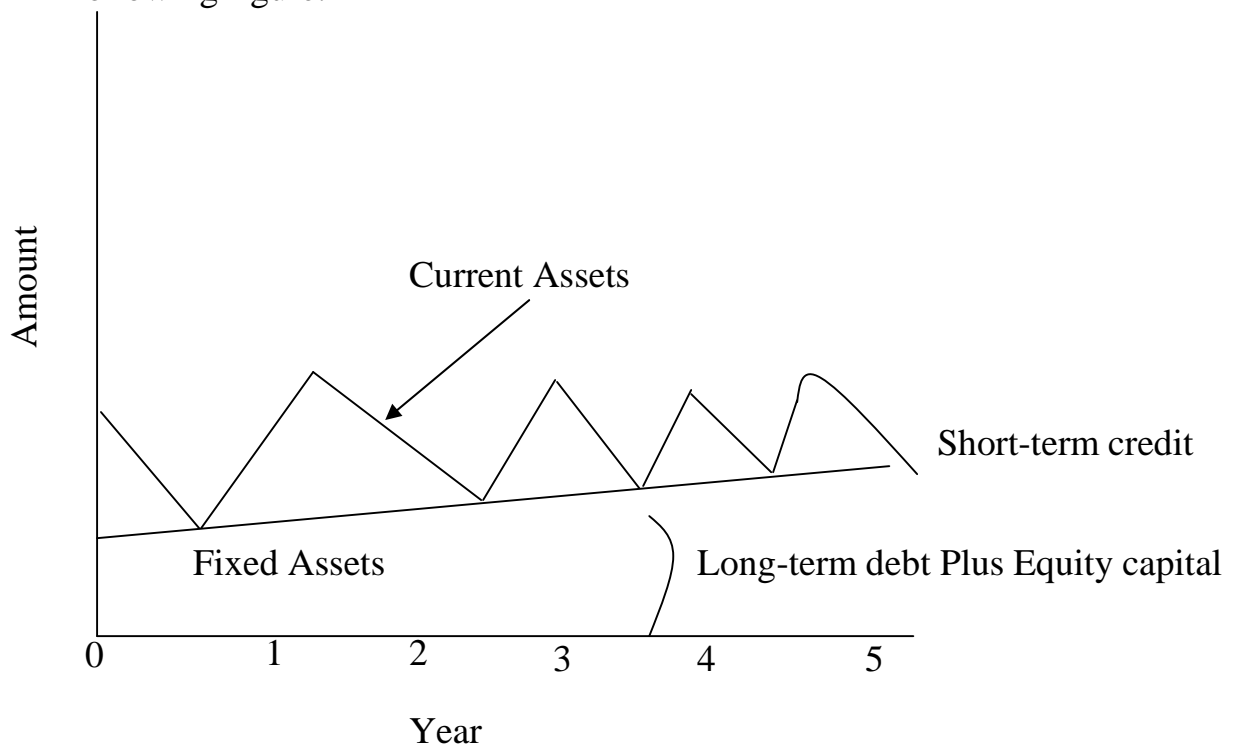


**Fig. 2.4 Fixed and current assets pattern in the agriculture.**

In this figure, the top segment deals with working capital. Current assets build up gradually as corps are purchased and processed, inventories are drawn down less regularly and ending stock never decline to zero. Working capital management consists of decisions relating to the top section of the graph managing current assets and arranging the short term credit used to finance them.


**2.5 Factors Determining Working Capital**

Some of the factors which determine working capital are:

### i) Types and Size of Business

A trading and banking company requires large working capital and industries may requires relatively lower working capital. Basic and key industries requires low working capital. Similarly, grater the size of the business, larger will be the requirement of working capital and vice-versa.

### ii) Process of Manufacture

If the production process is time consuming and complex large working capital is required as compared to the simple production process.

### iii) Terms of Purchase and Sales

When the company use trade credit than lower working capital may be required as compare to cash purchase. Similarly, credit sale requires large working capital than cash sale.

### iv) Requirements of Raw Materials

If lead time of raw materials is large, excess units of raw materials is required.

### v) Cash requirements

Company requires cash in every steps like at the time of dividend, salaries, wages payment, taxation, interest charges etc. so, if the demand of cash is higher, larger will be the working capital.

### vi) Growth and Expansion of a Business

If the business is fast growing, larger, amount of working capital is required as compared to the business with normal or low late of expansion.

### vii) Seasonal Change

During the busy season, a business requires larger amount working capital while during off season it requires lower working capital.

## 2.6 Classification of Working Capital

Working capital can be classified into two categories:

1) Permanent or fixed working capital

2) Temporary or variable working capital.

## 1. Permanent Working Capital

It is that part of working capital which is required to meet the firm's minimum needs in long term, it tends to be constant in the short-term. There is always a minimum level of current assets is permanent or fixed working capital which is permanent like the fixed assets.

This working capital fluctuates according to changes in production and sales of the firm. If production and sales increases, the extra working capital is required to support the changing production and sales activities.

## 2. Temporary or Variable Working Capital

Temporary working capital is created by firm to meet liquidity requirements that will last only temporarily. Like permanent working capital these are also of vital important in production and sales. It is that, part of working capital which varies seasonal requirements of the firm. For e.g. Investment in raw materials, work-in-progress and finished goods will decline with the black of market. In this situation temporary working capital is indispensable.

The temporary working capital is also classified in two ways:

## i) Seasonal Working Capital

That sort of temporary working capital needs which is required not for a whole year but only a particular season of a year is known as seasonal working capital. In another way, the temporary working capital

which is required only during the particular season of a year known as seasonal working capital. So it is kept for fulfilling the seasonal demands of enterprises.

## ii) Special Working Capital

Special working capital is managed for special situation. In other words, during the special seasonal occasion the firm has to produce goods in a large quantity and for this additional working capital is needed.

Temporary and permanent working capital can be graphically presented as:
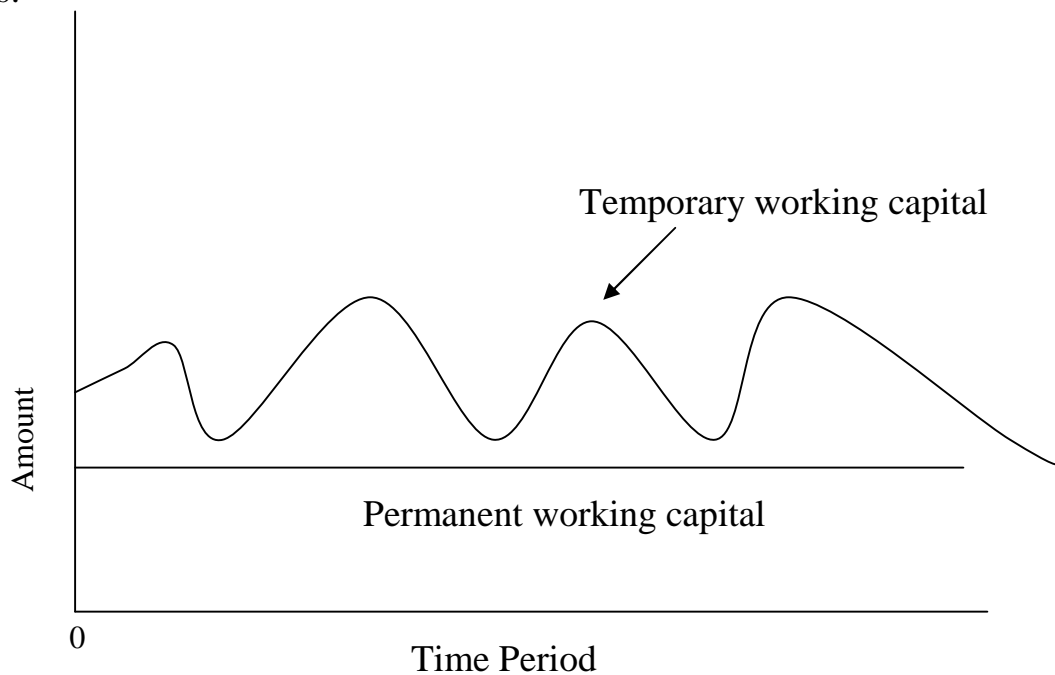


**Fig. 2.5 Permanent and temporary working capital**

In this figure permanent working capital is stable, where as temporary working capital is some time increasing and sometime decreasing.

When firm's requirement for permanent capital is increasing, it will also increase and when the firm's requirement decreases, permanent working capital will also decreases.
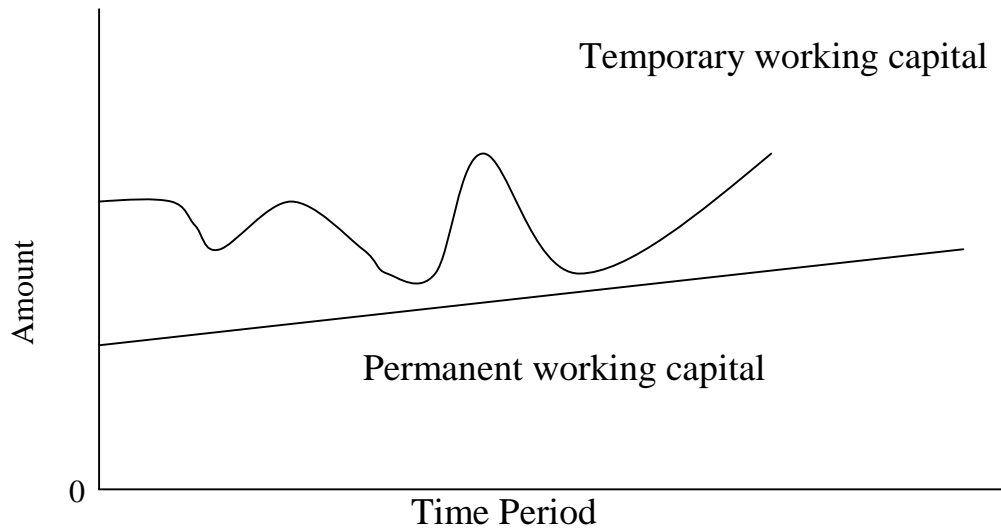


**Fig. 2.6 Permanent and temporary working capital**

In this figure permanent working capital line is increasing trend and temporary working capital is sometime increasing or decreasing. This difference in increasing permanent and temporary working capital is seen in grouping firms.

## 2.7 Methods of Investment in Working Capital

There are generally three types of source available to most of the companies to finance working capital. They are long term financing, short term financing and spontaneous financing. Long term finance includes equity shares, preference shares, debentures, long term debts from financial institutions and retained earnings. Short term financing includes short term bank banks, commercial papers and factoring receivables. Spontaneous financing includes outstanding expenses, creditors, bills payable and advance income. Since the spontaneous financing are of free

cost, firm utilizes these sources at full extent. Those current assets which is not financed with spontaneous finance, must be financed with neither long term or short term financing. Management must choose between these two sources to finance in current assets. There are basically, three approaches to invest in working capital which are as follows:

1) Matching approach

2) Conservative approach

3) Aggressive approach

**1) Matching Approach**

This approach is also known as average or heading approach. In this approach, long term financing are used to finance fixed assets and permanent current assets and short term financing sources are used to finance temporary or current assets. In other words, expected life of assets are matched with expected life of the sources of the funds raised to finance assets i.e., maturity period of both assets and sources of finance should be the same. If short tem financing is used to finance long term assets, it will be inconvenient and costly because arrangement of new short term financing should be made as a continuing basis. Similarly, when short term assets are financed with long term fund, it costs also increases because funds will not be utilized in full extent. Thus, we can say in this approach we have exact match between life of assets and life of funds to finance the assets.

However, it should be realized that exact matching is not possible because of the uncertainty about the expected life of assets.
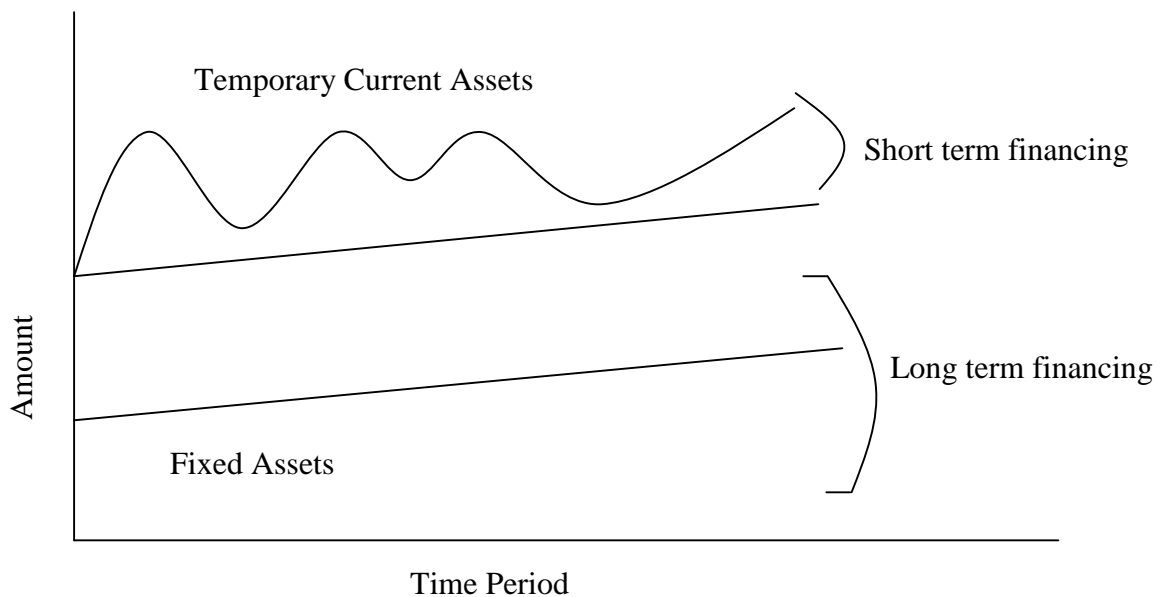


**Fig. 2.7 Financing under matching approach**

In the figure (2.7) the firms fixed assets and permanent current assets are financed with long term funds and as the level of these assets increases, long term financing level also increases. The temporary current assets are financed with short term funds and as their requirement increases, short term funds also increases.

## 2) Conservative Approach

In practical life exact matching is not possible becomes of the expected life of the assets which is uncertain. So, firm uses conservative approach in which firm depends on long term funds then short term funds whenever finance is required. When this approach is adopted by a firm, it finances.. Its permanent assets and a part of temporary current assets with long term financing. Long term financing is less risky so that firm which are risk adverse adopt this approach. When firm has not temporary current assets, surplus long term funds are invested in marketable securities.

36
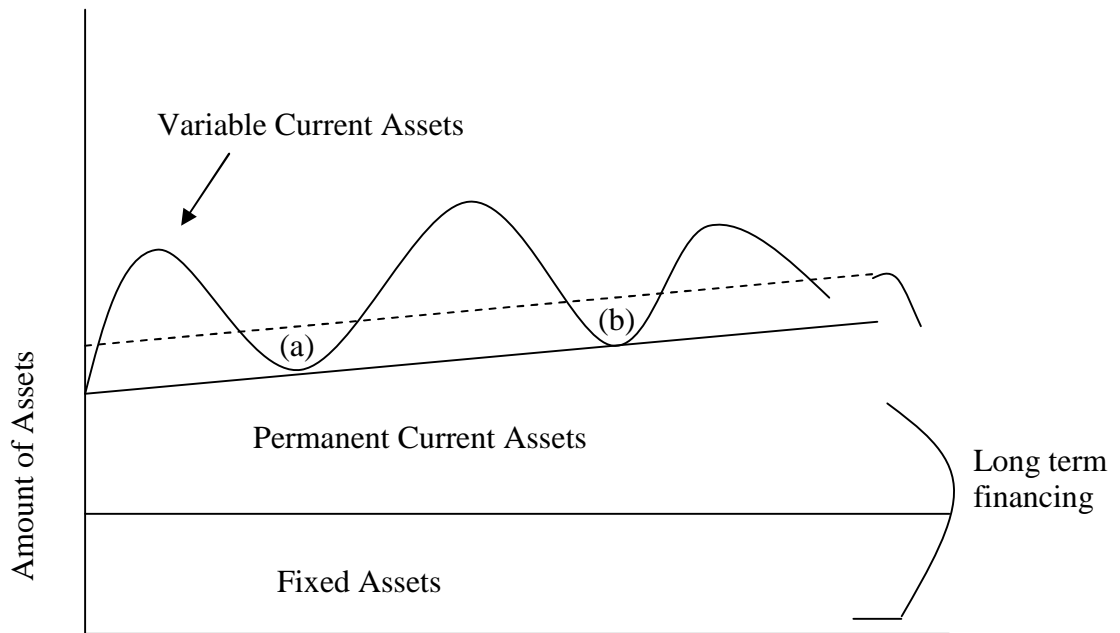
**Fig. 2.8 Financial under Conservative Approach**

In this figure, permanent assets a part of variable current assets are financed with long term funds. When the firm has no variable or temporary current assts e.g. in (a) and (b), firm invest excess funds in marketable securities to build up the liquidity position of the firm.

## 3) Aggressive Approach

In this approach, the firm finances a part of its permanent current assets with short term financing i.e. this type of firms are aggressive nature and uses more short term financing some extremely aggressive firms may even finance a part of their fixed assets with short-term financing. More use of short-term financing makes the firm more risky but the cost of investment is relatively less than that of financing with long term financing.
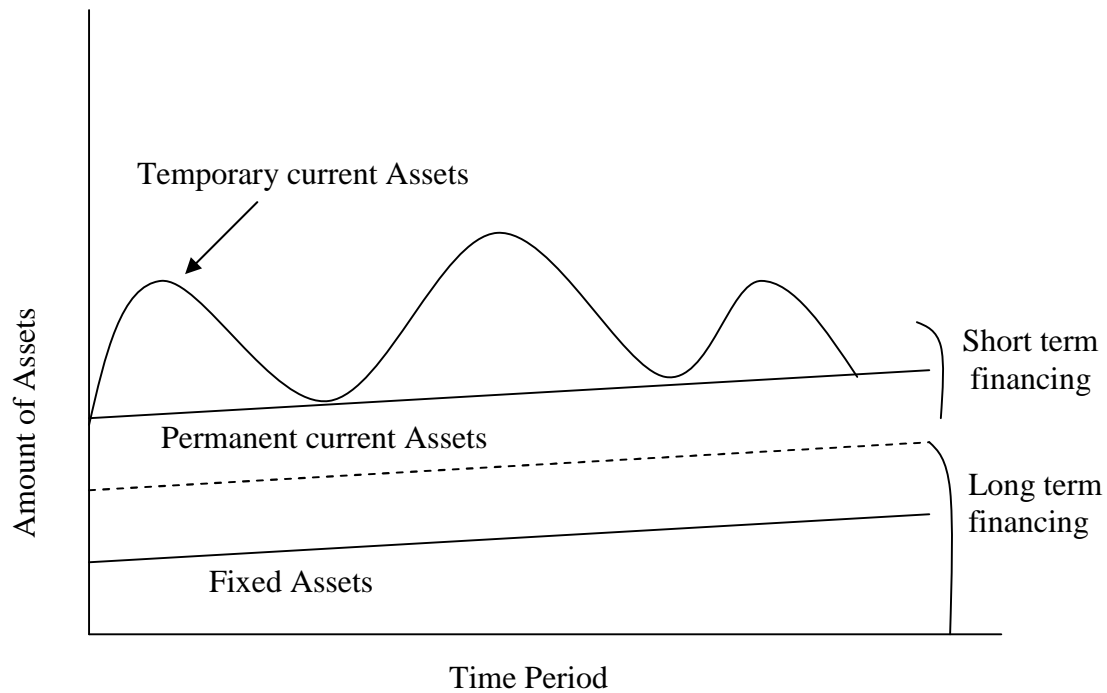
**Fig. 2.9 Financing under aggressive approach**

Here, parts of permanent current assets are financed by short term financing. But short term financing is more risky as compared to long term financing.

Whether or not the firm should adopt a conservative or aggressive; net working capital policy depends upon three factors.

## 1) Expected Volatility of Sales

The greater uncertainty regarding cash flows from sales, the higher the level of working capital required. A utility, for instance, can maintain a lower net working capital level than an electronics firm can.

## 2) Working Capital Cycle of the Firm

The longer time to convert raw materials into collected accounts receivables, the more the firm is exposed to disruption of the working capital cycle. A lower level of net working capital can be maintained of the firm with short working capital cycle.

**3) Risk Preferences of Management**

Greater amount of net working capital increases the firms ability to meet unforeseen disruptions in the working capital cycle. The more risk adverse the management, the higher the working capital balance required.

Working capital management involves many simultaneous decisions abut he level and financing of current assets. Since it is very difficult to maintain a specific amount of net working capital over each operating cycle. Most of the firm find it useful to follow general guidelines and principles when establishing net working capital levels. Financial managers will consider above three factors and principles of matching sources and uses of funds when they make working capital policy decision.

## 2.7.1 Optimum Level of Current Assets

The optimum level of each type of current assets should be fixed in every firm. For a particular level of output both fixed and current assets are required. It is not necessary that for the same level of output, same level of current assets are required. As the firm's output and sales increases, current assets need also increases at a decreasing rate. It denotes that when fewer units of output are produced proportion of investment in current assets is greater.

What should be the level of current assets is denoted by its relation with fixed assets which is measured by current assets to fixed assets ratio i.e. CA ÷ FA. It is assumed that fixed asset is constant. Higher ratio of current assets denotes conservative current assets policy i.e. this policy tries to keep sufficient large amount of current assets. Lower ratios means on aggressive current assets in which lowest amount of current assets is

kept as far as possible. In moderate policy, company tries to keep current assets to the level of real need. Other things being constant, conservative policy implies greater liquidity and lower risk; while aggressive policy denotes higher risk and poor liquidity. Most of firm adopts conservative or aggressive policy. These policies can be depicted in the following figure:
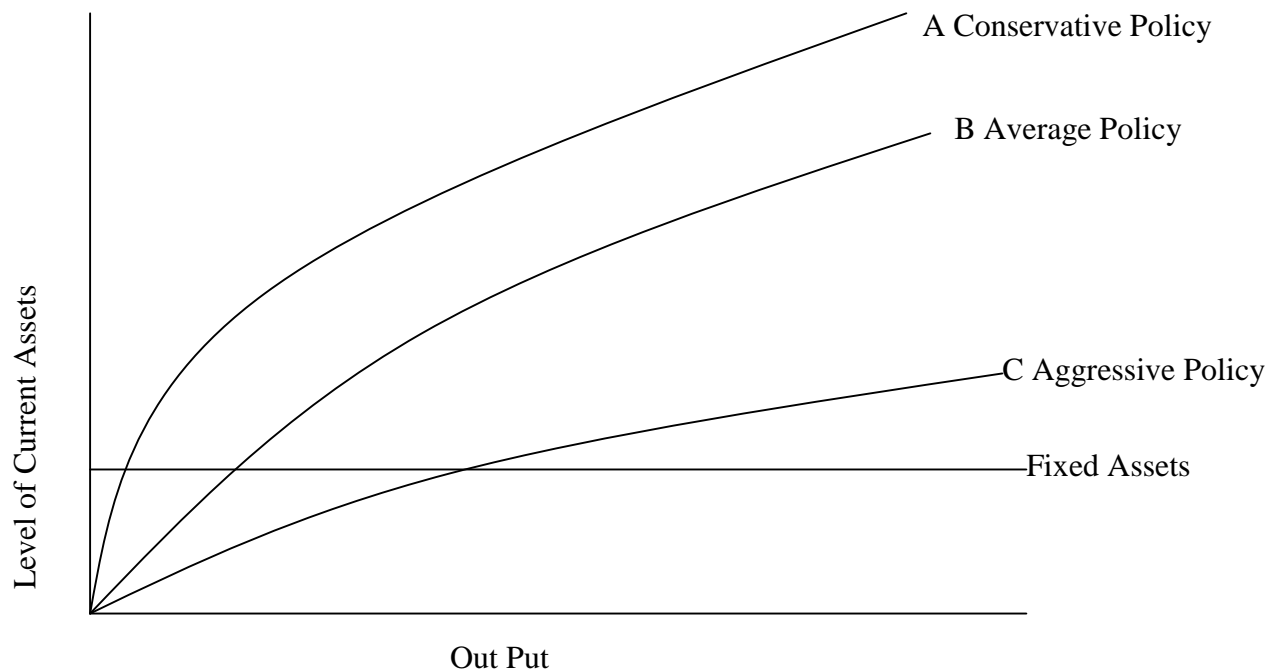


**Fig. 2.10 Alternative Current Assets Policies**

Above figure, conservative is denoted by A which have CA ÷ CF ratios greatest at every level of output. Average policy is denoted by B which lies between the conservative and aggressive policies and is also known as the middle of the road approach. Aggressive policy is denoted by C, where CA ÷ FA ratio is greatest at every level output.

## 2.8 Financing of Working Capital

When there is increase in current assets due to increase in short – term financing, it do not mention the increase in working capital. Increase in working capital is also denoted by the increase in current assets which

are financed by long term source of finance. The major sources of increased working capital are as follows:

i)     Net income

ii)    Provision for depreciation

iii)   Amortization and other non cash expenses

iv)    Amount received by sale of fixed assets.

v)     Insurance of capital stock and long term debt for cash.

The application or use of the working capitals are

i)     Operating losses.

ii)    Purchase of fixed assets

iii)   Payment of cash dividend

iv)    Retirement of capital stock and long term debt for cash.

Since depreciation and other non cashes expenses are charged to profit for tax liability, so it helps in working capital. Depreciation refers to a fall book value of any assets. It involves conversion of fixed assets in current assets and for most of the companies the cash inflow from operation measure and retained through depreciation charges are more sustainable than retained earnings from its income. Depreciation is charged for tax liability and there is no shareholder's claim on it, so depreciation changes would increase the working capital of the company rather than capital expenditure. Depreciation is a expenditure deducted from income before computations of profit for tax liability.

The long term debt may also be in the nature of debenture which issue is practiced popularly in Nepal form the various institutes. If issue of share is not possible, in that case long term loans on fixed rates of interest are borrowed from the government of financial institution. If the amount to be invested in current assets is brought from share capital, there is no need to pay the fixed rate of interest and return the principle. In this case, only dividend is to be paid when the company is a profit. Long term loan is the second most important after equity capital. These long term loans are provided by different banks and financial institutes e.g. for Nepal industrial development corporation (NIDC), agricultural development Bank (ADB) and other commercial banks like Nepal bank limited, Nepal Rastra Bank etc.

Sales of fixed assets would increase the working capital of the company. It would be a source of increasing current assets. If it had not been used for other purposes like repayment of loans, replacement of assets or dividend payment. Equity share capitals are most important source of finance in Nepal because dividend does not carry the fixed rate all the time, the rate may vary each year according to the decision of the management. Share capitals are better than the long term debts because it do not have to refund the principle and pay early interest.

Thus, there would be no working capital if the company financed through current liabilities only and it would be possible for the company to maintain the level of assets needed regularly in the day to day operation. In the other hand, the company would have net working capital at the level required for maintaining liquidity as well as for earning the profit.

Generally, all the business firms invest in current assets i.e. working capital. Investment in working capital is necessary especially to avoid the unnecessary cost at the time of unexpected events such as sudden fluctuation in industry's sales or profit or sudden increase in cash expenses. For the production of goods and services, cash is necessary which can be again gathered by the sale of finished goods. Out flow of cash includes the purchase of raw material which is turned in work-in-process. This work-in-process is turned into finished goods. It later flow in to finished goods inventory and then flow out as the sale of goods. If there is a credit sale, receivables are created which turns into cash after collecting; which is the liquid assets. Cash sale of finished goods directly flow to the liquid assets investment. Business investment in current assets to avoid the cost of quickly adjusting to unexpected changes in demand for the business products. When there is an unfavorable imbalance between inflow and out flow of cash, at the time liquid assets helps the business to meet cash obligation.

Investment in receivables can help to reduce transaction cost associated with cash sales and may also stimulate sales by reducing effective purchase price and by helping customer attain desire purchase patterns of customs cash receipts. Finished gods inventory helps in smooth sale of product because it provides product to customers whenever they demand. It also helps in stable flow of production in response to fluctuating demand when there is increase in raw material inventory helps in avoiding excess costs.

## 2.9 Techniques of Forecasting Working Capital

Generally, the following techniques may be used in foresting working capital.

## A) Operating Cycle Method

Under this working capital is determined by total operating expenses for the year and number of operating cycles during the year. Here operating expenses includes all the cash expenses incurred on raw materials, labours and overheads. When these expenses are estimated all the changes in the product mix, introduction of new products changes in price level etc. should also be adjusted. No. of operating cycle is calculated by dividing days in the year by duration of operating cycles. Duration of operating cycle is number of days involved to the various stages of the operating cycle, i.e. cash    raw materials    semi – finished goods    finished goods    debtors    cash, which is reduced by the credit period allowed by the creditors. The duration of operating cycle in terms of days for various stages may be calculated as under.

1. Materials storage period (days) $= \dfrac{Average\ Stock\ of\ Materials}{Daily\ Average\ Consumption}$

Where, Average stock of materials $= \dfrac{Opening\ Stock\ \Gamma\ clo\sin g\ Stock}{2}$

Daily average consumption $= \dfrac{Consumption\ for\ the\ Year}{365}$

2. Conversion period (days) $= \dfrac{Average\ Stock\ of\ Semi\ \Zeta\ finished\ Goods}{Average\ Daily\ Factory\ Cost}$

Where Average stock of Semi – finished goods

$= $

$\dfrac{Opening\ Stock\ of\ Semi\ \Zeta\ finished\ \Zeta\ goods\ \Gamma\ clo\sin g\ Stock\ of\ Semi\ \Zeta\ Finished\ goods}{2}$

Average daily factory cost $= \dfrac{Total\ factory\ Cost}{365}$

3. Finished goods storage period (days) $= \dfrac{Avg.Stock\ of\ Finished\ Godds}{Average\ Daily\ Cost\ of\ Sales}$

Where,

Average stock of finished goods

$= \dfrac{\text{opening stock of finished goods}\ \Gamma\ \text{closing stock of finished goods}}{2}$

Average daily cost of sales $= \dfrac{Total\ Cost\ of\ Sales}{365}$

4. Average collection period =

Or average debtors $= \dfrac{\text{opening debtors and B/R}\ \Gamma\ \text{closing debtors B/R}}{2}$

$Net\ Credit\ Sales\ per\ Day\ \text{X} \dfrac{Total\ credit\ sale}{2}$

5. Average payment period (Days) $= \dfrac{Avg.Creditors\ and\ B/P}{Net\ Credit\ Purchase\ Per\ day}$

Or, $= \dfrac{Avg.Creditors\ And\ B/P\ |\ 365}{Total\ Credit\ Purchases\ for\ the\ year}$

Where,

Average creditors & B/P $= \dfrac{\text{opening creditors B/P}\ \Gamma\ \text{closing creditors and B/P.}}{2}$

Net credit purposes per day $= \dfrac{Total\ credit\ Purchase\ for\ the\ Year}{365}$

6. No. of operating cycles $= \dfrac{365}{Duration\ of\ Opration\ Cycle}$

7. Working capital $= \dfrac{Total\ operating\ \exp enses}{No.of\ operating\ cycle}$

## B) Estimation of Current Assets and Current Liabilities

This is the traditional method of forecasting the working capital. By estimating the amount of current asses and current liabilities, working capital may be easily forecasted. This estimation of each elements may be a cost per unit or total value. The procedures for estimating the components is as follow:

### i) Stock of Raw Materials

Stock of raw materials are important for smooth and continuous production. Average amount of stocks depends upon the quantity of raw materials required for the production and the average time taken in obtaining fresh raw materials. Adjustment should be make for ascertaining the quantity of raw materials which is seasonal. Amount of stock of raw materials can be obtained as:

Stock of raw materials　　　　=　　　　PXUX Pr

Where,

Pr = Price of materials /unit

P = Period for which stock required

U = Units of production during that period.

### ii) Stock of work – in – Process

In order to determine the stock of work-in-process, time period for which the inputs will be in the process of production and conversion period should be ascertained. Stock of work-in-process can be calculated by multiplying the units in process during the period by the cost of work-in-process per unit.

### iii) Finished Goods Stock

The goods are kept in go down of warehouses for certain period. On the basis of year production, the amount of finished goods for the storage period may easily be calculated.

### iv) Sundry Debtors

The amount of sundry debtors may be calculated on the basis of credit sales, period of credit allowed/time lag in collecting the payments. Again such amount of debtors may be determined either at sales value or at cost. Calculation may be done as under:

Debtors at sales value $= U \times sp \times p$

Where,

$U$ = Units of credit sales during the credit period

$SP$ = selling price per year

$P$ = Credit period

Debtors at cost $= U \times C \times P$

Where,

$C$ = cost Per unit

### v) Cash and bank balances:

These are estimated on the basis of past experience and the problems generally mentioned about them.

**vi) Sundry Creditors:**

This is forecasted on the basis of credit purchase and the time lag in payments to creditors/credit period allowed by suppliers of raw materials.

**vii) Outstanding Expenses**

These are as certained having considered the time lag in payment of various types of expenses.

**3) Cash forecasting Method**

This method estimates cash surplus or deficiency. For this purpose, receipts and payments expected tot be incurred in the future are estimated and their difference disclose the surplus deficiency. This is very much related to cash budgeting.

**4) Projected Balance Sheet Method**

Under this method all the times of assets and liabilities are estimated after taking into account the transaction expected for the future period. When the balance sheet is projected working capital is estimated by deducting current liabilities from current assets.

**5) Profit and Loss Adjustment Method**

Under this, profit is estimated first on the basis of transactions likely to take place in future working capital magnitude is ascertained by making necessary adjustments for cash inflow and outflow in the estimated profit. In fact, this method attempts to covert profit on cash.

## 2.10 Components of the Working Capital

Following are the components of working capital management:

## A) Current Assets:

i) Cash: it is money in the form of notes, coins and chequs held by the firm and balances in bank. It is the major and very sensitive component of working capital. Cash can be disbursed immediately without any restriction it is the basic input needed to keep the business continuously. On the other hand, it is also the output expected to be realized by selling the service or product manufacturing by the firm "the inflow of cash increase the liquidity and the outflow decreases it".

Even profitable companies fails if they have inadequate cash flow. Liabilities are settled with cash and net profits. The primary objectives of working capital is to ensure that sufficient cash is available to:

- ) Meet day to day cash flow needs:

- ) Pay wages and salaries when they fall due;

- ) Pay creditors to ensure continued supplies of goods and services;

- ) Pay government taxation and providers of cash dividends; and

- ) Ensure the long term survival of the business entity.

From the above objective of the working capital firm holds cash for the following four motives:

## a) The Transactions Motive

In this motive cash is hold to conduct day to day operation smoothly. The firm needs cash primarily to make payments for purchase, wages, operating expenses, taxes, dividends etc.

## b) The Precautionary Motive

In this motive cash is hold to meet any of the possible events in the future. It may be borrowing at short notice when need arises.

## c) The Speculative Motive

This motives relates to the holding of cash for investing in profitable opportunities when they arises. Opportunities may arise when security prices falls and the interest of security will rise.

## d) To Satisfy Compensating Balance Requirements

The commercial banking system performs many functions for business firms. Business firms pay for these services in part by direct fees and sometimes in part by maintaining compensating balance at the bank. Compensating balances represents the minimum levels that the firm agree to maintain in its checking account with the bank. With this assurance, the bank can loan such funds on a longer basis, earning a return, which is an indirect fee to the bank. This represents an institutional reason why a firm holds cash.

**Advantages of Adequate Cash:**

1. To take trade discount firm should have sufficient cash balance. The payment schedule for purchases is referred to as the term of the sale. It is measured by the following formula,

$$\text{Cost} = \frac{Discount\%}{100\,\Xi\,discoutn\%} \,\Big|\, \frac{365}{Final\,due\,rate\,\Xi\,discount\,Period}$$

We determine effective interest rate as:

$$\text{Re} = l\,\Gamma\,\frac{Cost\Big/365}{FD\,\Xi\,DP}^{\frac{365}{FD\Xi DP}}\,\Xi 1$$

Where, re = effective interest rate

FD = Final due date

DP = Discount period

2. The current ratio and acid test ratio are the key items in credit analysis, so it is essential that the firm, in order to maintain its credit standing meet the standards of the line of business in which it is engaged. A strong credit standing enables the firm to purchase goods from trade suppliers on favorable terms and to maintain its line of credit with banks and other sources of credit.

3) When the favorable opportunities arises in the business environment, sufficient cash balances is useful to take advantages.

4) There should be sufficient cash to meet the threats such as competitors theft, strikes, fires etc.

Swift flow of cash can be maintained by reduction in float.

**i) Mail time Float:**

Whenever a customer mails a check, some amount of time passes before the check is received by a seller. This is called mail time float.

## ii) Processing Float

When a firm receives a cheque, processing time is involved in crediting the customers account and getting the cheque into banking system. It is related to the processing float.

## iii) Transit float: It is rebated to the clearing time within the banking system.

There are three types of transfer mechanism:

## a) Depositary transfer cheques (DTC)

It is an ordinary cheque which is restricted for deposit at a particular bank and payable only to the bank of deposit for credit to the firm's specific account. So, it moves funds from local depository banks to concentration banks.

## b) Electronic Depository Transfer Checks (EDTC):

It is paperless and the electronic mail is transferred via the automated clearing house (ACH) network developed by the federal reserve system. The EDTC avoids the use of mails and has a uniform one-business-lag clearing time. EDTC is generally initiated by central company management.

## c) Wire Transfers (WT):

It is the fastest way in which funds available for use at one bank to another bank, even in a different city.

The wire transfer is the quickest transfer mechanism but is the cost expensive. Depository transfer checks may cost less but may involve delays from two to seven days. So the break even transfer size should be known. Formula for the break even transfer size is:

$$S* X \frac{\zeta Cost}{r\zeta t}$$

Where,

S* = the breakeven size of transfer above which the faster, higher cost mechanism is preferred

Cost – Incremental cost of the faster mechanism

r= the applicable daily interest rate

t = The difference in transfer time in days.

## 2. Marketable Securities:

Marketable securities is a short term interest earning money market instrument used by a firm to obtain return on temporary idle fund. It can be quickly converted into cash.

Marketable securities are short term money, market instrument that can easily be converted into cash. Marketable securities are often referred to as part of the firm's liquid assets. Marketable securities have different characteristics which are as follows:

### i) A ready Market:

The security market should have both breadth and depth in order to minimize the amount of time required to convert it into cash. The depth of eh market is determined by its ability to purchase or sale of large number of securities. For e.g. if 500 participants are willing to purchase only 1 share then it is less important than 50 participants each willing to purchase 200 shares.

The breadth of the market is determined by the geographical area and the number of participants. More participants more broad the market. By comparing both depth and breadth of the market, we can say that depth of market is more important than breadth in order for a security to be marketed.

## ii) No likelihood of a Loss in Value

There should be little or no loss in the value of marketable security overtime. It should not converted into cash quickly, but the value should also be close to initial investment. Marketable securities includes government issues i.e. commercial paper, banker acceptance, treasury bill etc.

Accrued incomes are the incomes which the firm has earned but cash have not been received yet. They are received within the accounting period.

It is important to point out that not all of the firm's need for cash call for holding cash balances exclusively. Indeed, a portion of these needs may be meet by holding marketable securities cash equivalent assets. For the most part firm do not hold cash for the purpose of speculation. The more likely situation is that the firm will rely on reserve borrowing power rather than holding cash for speculative purposes consequently we concentrate on the transaction and precautionary motives.

## iii) Inventory

Inventory may consists of raw materials, work-in-process and finished goods awaiting sales and shipment. Inventories are the stocks of

the product which is manufactured by the company for selling purpose. It also may be the components that make up the product.

The inventories may be in various forms which are raw materials, work-in-process (Semi-finished goods) and finished goods. Inventory serves as a link between the production and consumption of goods. Inventory is an investment in the sense that it requires the firm to tie up its money.

The management of inventory is not easy task because a major part of working capital is covered by it. "The area of inventory management covers the following individual phases; deterring the size of inventory to be carried, establishing timing schedules, procedure and lot sizes for new order ascertaining minimum safety levels; conducting sales, production and inventory policies, arranging the receipts, disbursement and procurement of materials develop the firms of recording transaction assigning responsibilities for carrying out the inventory control functions; and providing the report necessary for supervising this overall activity.

Four basic levels will need to be established for each line or category of stock. These are:

a) Maximum Level

This level is achieved at the point where new order of stock is physically received.

b) Minimum Level

Sometime it is called buffer stocks i.e. these holds for short term emergencies. It is the point or level just before the delivery of new order.

## c) Re-order Level

In this point new order is placed so that stocks will not fall below the minimum level before delivery is received.

## d) Recorder Quantity or Economic Order Quantity

EOQ is that level of inventory which minimizes the total of ordering and carrying costs. The quantity of stocks which must be recorded to replenish the amount hold at the point delivery arrives up to the maximum level.

The objectives of establishing control levels is to ensure that excessive stocks are never carried (and working capital there by sacrificed) but that they never fall below the level at which they can be replenished before they run out.

## 4. Receivables

When one company sells goods to another company or a government agency it doesn't usually expect to be paid immediately. These unpaid bill or trade credit makes up the bulk of account receivables. Companies also sell some goods or credit to the final consumer. This consumer credit makes up the remainder of account receivables. Receivable is a short term assets representing credit sale to customer. Account receivables represent the extension of credit on open account by the firm to its customers. In order to keep current customers attract new ones, most of the manufacturing concerns find it necessary to offer credit. Whenever goods are sold on credit, an assets item entitled account receivables, appear in the books of selling firm is expected to collect in the near future. Receivables represent future cash or they should

do if proper credit control policies are pursued. The book debt or receivables arising out of credit has three characteristic. Firstly, it involves on element of risk which should be carefully analyzed. Cash sales are totally risk lets, but not the credit sales as the cash payment has yet to be received; secondly it is based on economic value. To the buyer, the economic value in goods or services aspects immediately at the time of sale while the seller expect on equivalent value to be received later on. Thirdly, it implies futurity. The cash payment for goods or services received by the buyer will be made by him in a future period. The customers from whom receivables or book debts have to be collected in future are called trade debtors or simply as debtors and represents the firms claim of assets. The main objective of credit management is to achieve trade off between profitably and risk i.e. when sales are expand to an extent, risk remains within the acceptable limits. For this the objectives of receivables is

1) To obtain optimum and not maximum volume of sales.

2) To control and keep the cost of credit at minimum

3) To invest in debtors at optimum level

The two basic liquidity goals in receivables management concentrate on (i) prospect of collecting receivables when they become due and (ii) prospect of shortening future receivable maturities.

## 5) Prepaid Expenses and Accrued Incomes

These are also includes in current assets. Prepaid expenses are the future expenses which are paid in advance. It includes; prepaid rent, prepaid salary, prepaid insurance etc.

Accrued incomes are the income which the firm has earned but cash have not been received yet. They are accrued dividend, accrued interest etc which are received within the accounting period.

## B) Current Liabilities

These are the short term obligation which are deducted to find net working capital. If it is greater than current assets, negative working capital is obtained. It includes.

### 1: Creditors

These person from whom firm purchase raw materials on credit. They are also denoted as accounts payable in the balance sheet

### 3) Bills or Notes Payable

These are the promises which are in the written form. It is written by the creditors and firm accepts to make particular sum of payment of the particular data to the creditors. They have life less than one year.

### 4) Provisions

This includes taxes provisions for dividend etc. every firm has to pay taxes on its income. Usually it takes sometime to finalize the amount of tax with the tax authorities. Therefore, the amount of tax is estimated and shown as provision for tax in the balance sheet.

### 5) Expenses Outstanding and Income Received in Advance

Outstanding expenses or expenses payable are the expenses which have incurred but is not yet paid. These may be rent payable, wages payable, outstanding commission etc.

Sometimes firm receives payment in advance for the goods yet not supplied. These goods should be delivered within accounting year. These advance income are prepaid income.

**Review of the Literature in Nepalese Prospective**

**A. Dr. Khagendra Acharya's study:**

Dr. Khagendra Acharya Studied on working capital management manufacturing public enterprises. Some major outcomes of this study with special reference to Nepal Tea development corporation (NTDC) are

1. Inventory constitutes the cost important and largest element of working capital in NTDC. The overall adequacy of inventory in NTDC disclose that the growth of working capital and inventory in the corporation are negatively correlated.

2. Receivables are growing rapidly than the corresponding growth on sales volume.

3. The breakeven analysis of NTDC reveals the due to insufficient working capital the corporation has been selling its products at a far below rate than its break even.

4. Monitoring the proper functioning of working capital management has never been included in the managerial job in all the selected public enterprises, with no exception to NTDC during the study period.

5. NTDC is expected to improve its prevalent system of inventory management regarding the planning and purchasing of spare parts manures, insecticide fuels etc.

6. There should be a liaison between the production units of different estates and the central materials management department.

7. The credit policy which is not clear in itself has not been followed by the corporation which collecting the over due accounts.

## B. Dr. Madav Raj Koirala's Study

Dr. Madav Raj Koirala studied on the comparative study of Jute industries of Nepal and India. Some of he finding and conclusions are:

1) Comparative study of the size of working capital of the selected jute companies of Nepal and India on aggregate evinces that the average size of working capital of the Nepalese companies has been much higher (77.40%) than that of the Indian jute companies (53.33%). This difference in the means size of working capital of the companies of the two countries are significantly different.

2) A comparative study of the growth trends of sales and working capital of the selected companies of Nepal and India or aggregate reveals that none of them have encouraging growth trends of sales and working capitals. The compound growth rate of companies is much higher (10.64%) that that (3.62%) of Indian companies. On the contrary, working capitals of Nepalese companies have shown negative growth trend (-4.44%) were as Indian companies have shown positive growth trend (2.48%)

3) The structure of working capital of the jute companies of Nepal and India on aggregate, it has been found that the nature of working capital of the Indian jute companies is more liquid than their Nepalese counter parts. The difference in the mean size of various types of current assets of the companies of the two countries also show statistical significance.

4) Turnover ratios of both the Nepalese and Indian companies on aggregate shows that the Indian jute companies have been more efficient in managing their inventory, receivables and overall

current assets than the Nepalese jute companies. Nepalese companies have been facing more cash deficit than their Indian counter parts. However, the test of significance reveals that only the mean ratios of inventory and overall current assets turnover are statistically different between the companies of the two countries.

5) In the case of Nepalese jute companies, the current and quick ratios which are the measure of liquidity, are much lower than their standards of 2: 1 and 1:1 respectively. Similar is the case of the Indian jute companies.

However, a comparative study indicates that the case of Nepalese Companies is more serious with regard to their liquidity than their Indian counterparts.

## C. Mr. Ramesh Prasad Gautam

Mr. Ramesh Prasad Gautam studied on the working capital management of Nepal lever limited fiscal years from 2054-2055 to 2060-061 some major outcomes and important conclusions and recommendation are as follows:

1) The current assets of structure NL Ltd. are not stable. It has been found that in current assets inventory holds the largest proportion land, CBB and debtors.

2) The NC Ltd. Can not efficiently utilize its working capital structure.

3) Profitability position of N L Ltd. has been found average but it has also been found that there is high gap between GPM and NPM due to the high operating expenses.

4) Liquidity position of Nepal lever Limited has been found below standard due to CR and QR are 1.41 and 0.45 times only.

5) The analysis of Nepal lever limited has shown that long PDP and short ICP and RCP, which is favorable for the company but it will, cause negative impact on its trade creditors.

# CHAPTER THREE
# RESEARCH METHODOLOGY

## Introduction

The methodology explains the method is used in the study. Research methodology is very important for any research study to achieve the objectives and to reach some conclusions. In each and every research study, specified methods and techniques should be followed which is known as research methodology. Researcher has to collect the information which are required, evaluate and verify them to reach some conclusions.

"Research methodology refers to the various sequential steps to be adopted by a researcher in studying a problem with certain objectives in view".

Research methodology means the method, processes, tools and techniques which are used in any of the research or investigations till the purpose is accomplished and the aim is achieved.

"Methodological research is control investigation of the theoretical and applied aspects of measurement, mathematics and statistics and ways of obtaining and analyzing data. Without methodological research, modern behavioral research would still be in the dark ages".

Thus, methodology is an description of the procedures of inquiry in particular field.

This chapter highlights the different methods and procedures that are applied in the present research. It includes research design, nature and sources of data, population and sample, data collection techniques, data analysis tools and variables of the study.

## 3.1 Research Design

"Research design is the plan, structure and strategy of investigation conceived so as to obtain answers to research questions and to control variance. The plan is the overall scheme or programme of the research. It includes on outline of what the investigator will do writing the hypothesis and their operational implications to the final analysis of data. The structure of the research is more specific. It is an outline, the scheme, the paradigm of the operation of the variables. When we draw diagrams that outline the variables and their relating and juxtaposition, we build structural scheme for accomplishing operations research purposes. Strategy as used here, is also more specific than plan. In other words, strategy implies now the research objectives will be reached and now the problems encountered in the research will be tackled".

Research design is a systematic planning, structure and strategy for conducting a particular research work. It provides the framework of the study. To achieve the objectives, the study has collected, evaluated, verified and synthesized past financial information systematically and objectively to reach some conclusions.

The study has also attempted to explore certain facts about the working capital management of the DNPL. The types of research of the study have therefore, been mainly historical, descriptive and inferential.

## 3.2 Population and Sample

The term "Population" or "Universe" for research means all the members of any well-defined class of people, events or objectives. Population refers to the totality of the observation which is selected for study. Population is whole of universe where as sample is the number of representative which are going to be studied. A population in most studies usually consists of large group so, it is very difficult to collect information. To overcome this difficult small unit is choosen from the total which represents the population. This sub groups is called sampling. Dabur Nepal Pvt. Ltd. has completed 6 years, hence the financial statements viz. balance sheet and profit and loss account which have been published till now is the population of the study. In this study, however, the data of all the 6 years operations of DNPL is under taken which are the population of the study. Since, the whole population is choosen for this study that contains 6 published annual reports, this is a census study from the FY 2000-01 to 2005-06.

## 3.3 Nature and Sources of Data

In general data can be classified into primary and secondary form. Primary data are those data which are collected for first time. It is original or first hand in nature. Secondary data are on the other hand, not originally collected rather obtained from published or unpublished sources. Data which are primary in one hand becomes secondary for another.

The study is mainly based on the annual reports of the Dabur Nepal Pvt. Ltd. for the period of  six years, 2000-01 and 2005-06 which have been collected from the corporate office of DNPL is located at TNT

building, Teenkune Kathmandu. Other facts and information were collected form the website of DNPL (wwwdnpl@dabur.com.np). The data for the study have, therefore, primarily been secondary in nature.

## 3.4 Data Processing Procedures

In this study, the data published in the annual reports of DNPL have been used and processed for the required data. For this purpose, the data published were processed and tabulated as per the requirement of the study. In order to facilitate the analysis and interpretation of the data some statistical measures and financial ratios have also been used.

## 3.5 Tools and Techniques of Analysis

In order to achieve the purpose of the study, two types of analysis have been made descriptive and inferential. In this descriptive analysis, techniques of time-series analysis of the financial ratios with their trend parentages have been used. To make the analysis conclusive, the study has also used such statistical tools as mean values, standard deviations, coefficients of correlation and coefficient of determination, regression analysis and compound growth rate.

For the inferential analysis, different hypotheses have been proposed and tested by utilizing students t-test as per the requirement of the data. On testing the null hypotheses have been rejected if the calculated t-value of the financial ratios is greater than the table value at 5% level of significant for n-2 degree of freedom. But, if the calculated t-value of financial ratio is less than the table value at 5% level of significance, the null hypotheses have been accepted and it has been inferred that the mean values the ratios are not statistically different.

### 3.5 A. Financial Tools

Financial tools are used to find the financial indicators which basically represent ratio analysis and indicates mathematical relationship between two figures that are used for establishing the qualitative relationship between two variables of financial statement for reasonable decision making on financial viability.

Under this study we have to use liquidity ratios, profitability ratios and turnover ratio.

### 1. Liquidity Ratios

It is the most important part for the company. It shows the company pay its current obligation. The liquidity positron of the DNPL is computed by analyzing current ratio and quick ratio.

### i) Current ratio (CR)

This is computed as dividing current assets by current liabilities

$$CR \: X \frac{CA}{CL}$$

Where,

CA= Current Assets

CL = Current Liabilities

The high ratio indicates that the position of a company is in liquid and it is able to pay its current obligation or bills. Generally, the current

ratio of 2:1 is considered to be satisfactory. More ratios indicate the greater amount of working capital and vice-versa.

## ii) Quick Ratio

This is computed as diving quick assets by current liabilities.

$$\text{Quick Ratio} = \frac{Quick\ Asset\ (QA)}{Current\ Liabilities\ (CL)}$$

As the quick assets does not include the amount invested in the inventories. It is reliable to measure the company's liquidity, generally, quick ratio of 1:1 of the company is considered to be sound position.

## 2) Activity or Turnover Ratio

Activity ratios are employed to evaluate efficiency which the firm manages and utilizes its assets. Turnover ratio indicates the speed of assets which are being concerted or turned over into sales. Activity ratio indicates the relationship between sales and assets. Activity ratios help to judge the effectiveness of assets utilization. They are as follows:

## i) Inventory turnover ratio (ITR)

The inventory turnover ratio shows how rapidity the inventory is turned into receivables through sales. It means the ratios show the efficiency of the business concern in an inventory management. Inventory turnover ratio equals cost of goods sold or sales divided by average inventory or closing inventory.

$$\text{Inventory turnover} = \frac{Cost\ of\ Goods\ Sold}{Average\ Inventory}$$

$$\text{Or,}\ \frac{Sales}{Closing\ Inventory}$$

This ratio shows the no. of times inventory is replace during the year. Higher the inventory turnover indicates the good inventory management and lower turnover suggests management should manage its inventory properly.

## ii) Debtors turnover ratio (DTR)

DTR shows the relationship between sales and account receivables of the enterprises which indicates the velocity of debt of collection of the firm. DTR is a test of the liquidity position and collecting efficiency of a firm.

$$\text{Debtors Turnover} = \frac{Sales}{Debtors}$$

## iii) Current assets turnover ratio (CATR)

CATR indicates the no. of times the CAs are turned over during the year. The ratio shows the requirement of WC for one rupee of sales. It analyses how firm can efficiently utilize its CAs.

$$\text{Current assets turnover ratio} = \frac{Sales}{Current\ Assets}$$

As the CATR increase, it is utilization of CAs. If the ratio is low a greater volume of WC is there. Low ratio indicates greater WC and high ratio indicates lower WC.

## iv) Net working capital turnover (NWCT)

NWCT refers to the ratio between sales and NWC. NWC is the difference between TCAs and TCLs.

$$\text{NWCT} = \frac{Sales}{Net\ Working\ Capital}$$

More ratios shows the more utilization of net working and less ratio vice-versa.

**v) Cash and Bank balance turnover ratio (CBBTR)**

CBBTR measures how rapidly cash can convert in sales into the company. It shows the effective of management in case of application of each in ordinary business.

$$\text{Cash and bank balance turnover ratio} = \frac{Sales}{Cash\ and\ Bank\ Balance}$$

The higher ratio indicates cash is rapidly converted into sales and efficient cash management low ratio indicates slow, week and inefficient cash management.

**3) Profitability Ratio**

The main objective of each and every business concern is to earn maximum profit. The position of the profitability of the company is analyze with the help of this ratio. The profitability ratio is used to measure the operating performance the company.

**I) Profitability on sales**

**a) Net profit margin (NPM)**

Net profit margin is estimated after dedicating all operation expenses and income tax from gross profit. It shows tax from gross profit. It shows the percentage of net profit out of total sales. This ratio shows the overall measurement of the company's ability to earn net profit. It is computed by diving net profit by sales and given by:

Net Profit Margin $= \dfrac{Net\, Profit\, After\, Tax}{Sales} \mid 100\%$

## b) Operating Expenses Ratio (OER)

This ratio is calculated to ascertain he relationship between operating expenses and volume of assets. The higher percentage of operating expenses ratio shows higher operating cost and vice-versa. It is given by:

Operating expenses ratio

$= \dfrac{Cost\, of\, Goods\, Sold\, \Gamma\, Operating\, Expenses}{Sales} \mid 100\%$ or,

$= \dfrac{Expenses\,(Ad\min istrative\, \Gamma\, Selling)}{Sales} \mid 100\%$

## ii) Return on investment

**a) Return on Assets:** The retune on assets or profit to assets ratio is net profit divided by total assets. The return on assets is a useful measure of he profitability of all financial resources invested in the firm's assets.

Return on Assets (ROA) $= \dfrac{Net\, Profit\, After\, Tax}{Total\, Assets}$

## b) Return on capital employed (ROCE)

Return on Capital employed indicates how well management has used the funds supplied by creditors and owners.

$\text{ROCE} = \dfrac{Net\, Profit\; After\, tax}{Capital\, Employed}$

Where,

Capital employed = Equity + Reserve + long term and short term loans.

c) Return on shareholder's equity: This ratio indicates how the firm has well used the resources of the owners. This ratio is one of the most important relationship in ratio analysis. The return on shareholder's equity (or return on net worth) is net profit after taxes divided by the total of prefence shareholder's equity (If any) common stock shareholders' equity and reserve and surplus.

## 3.5.B. Trend Analysis

In financial analysis the direction of change over a period of years is crucial importance. Trend analysis of ratios indicates the direction of change over a period. Under this segment various data related to working capital are analyzed in term of trend percentage. For this study FY 2000-01 is assumed as a base year variables which are essential for this analysis are:

1. Total sales

2. Total current assets

3. Total current liabilities

4. Total liabilities

5. Total assets

6. Cash and bank balances

7. Net working capital

8. Sundry debtors

9.  Sundry creditors

10. Inventories

11. Net profit after tax

## 3.5.C. Statistical Tools

The help of statistical tools is essential to measure the relationship of two or more variables. In this study, the following statistical tools are used.

### i. Arithmetic mean ($\overline{X}$)

Arithmetic mean or simply a mean is the most popular and commonly used statistical average. It is also simply called "the average" which is the sum of all observations divided by the symbolically,

Mean $\overline{X}$ X$\dfrac{X_1 \, \Gamma \, X_2 \, | \, X_3 ............ \, | \, X_4}{N}$

$\overline{X}$ X$\dfrac{\phi X}{N}$

Where,

$\overline{\text{X}}$ = Arithmetic mean

$X_1 \, \Gamma \, X_2 \, \Gamma \, X_3 . \Gamma ............ | \, X_4$ = values of variables of X

N= total number of observations

$\phi X$ = sum of the values of variables

## ii. Standard Deviation ( )

Standard Deviation is the most popular and most useful measures of dispersion and gives uniform, correct and stable result. The chief characteristics of standard deviation is based on mean. Mean does not give the clear picture about two distribution with same average because seatteredness may differ in those distributions. Therefore, a standard deviation is superior to the mean deviation, quartile deviation and range because it is used for further mathematical treatment. It is the positive square root of average sum of squares of deviation of observation from the arithmetic mean of the distribution. Different formulate can be used to calculate standard deviation, among them fallowing formulate has been used here.

$$\dagger \; X \sqrt{\frac{\phi(X \; Z \overline{X})^2}{N}}$$

Where,

= standard deviation

$\phi(X \; Z \overline{X})^2$ = Sum of the difference between variable and mean square

N= Total no. of observations

## iii. Co- efficient of variation (CV)

Coefficient of variation is the ratio of the standard deviation to the mean expressed in percentage. When there is different mean in the company the decision may not be correct. In this case, coefficient of variation is important. It is independent of unit. It is the best way to

compare the variability of two distribution. Less the coefficient of variation more will be the uniformity, consistency etc and vice versa.

$$\text{C.V.} = \frac{\dagger}{\overline{X}} \,|\, 100$$

† X Standard deviation

CV= Coefficient of variation

$\overline{X}$ X Arithmetic mean

## iv. Correlation Coefficient (r)

Correlation coefficient is defined as the association between the dependent variable and independent variable. It is a method of determining the relationship between these two variables. If the two variables are so related that change in the value of independent variable causes the change in the value of dependent variable, it is said to have correlation coefficient. It can be calculated by using the method of Karl person's correlation coefficient which is a widely used mathematical of correlation coefficient between two variables

$$r = \frac{N\phi dx.dy \; Z\phi dx.\phi dy}{\sqrt{N\phi dx^2 \; Z\phi(dx)^2} \; \sqrt{N\phi dy^2 \; Z\phi(dy)^2}}$$

Where,

d= x – A$_1$ assumed mean

d= x=A$_2$ assumed mean

Interpretation

1. If  r=  O, there is no relationship between  the variables

2. If  r<O, there  is negative  relationship between  the variables

3. If r= >O,  there  is  positive  relationship between  the variables

4. If r= +1,  the  relationship is perfectly positive

5. If r = -1,  The  relationship is perfectly negative

## v. Student's  't' test

To  test  the validity  of the assumptions  t- test is used when the sample size  is less than  thirty students t- value is  calculated  first compared with  the table value of 't'  at  a certain level of significance  for given  degree of freedom.

$$t= \frac{r}{\sqrt{1 Z r^2}} \mid \sqrt{n Z 2}$$

where,

t =  student's  t- value

r =  coefficient of correlation

n =  Number of observations.

On  testing  the null hypothesis  will be  rejected if the calculated  t- value  is greater  than the taste  value  at 5%  level of significance  for the n-2   degree of  freedom. This employs  that  the  value  of  correlation coefficient is significant at 5% level of significance or vice- versa.

# CHAPTER FOUR

# PRESENTATION AND ANALYSIS OF DATA

This chapter attempts to present and analyze the working capital of Dabur Nepal Pvt. Ltd. It deals with the selected ratios pertaining to the size growth, structure and efficiency of working capital and the testing of hypothesis, to observe the statistical significance of the average values of the selected ratios pertaining to the crucial aspects of working capital of the Dabur Nepal Pvt. Ltd.

## 4.1 Size and Growth of Working Capital of DNPL

The size of working capital of an enterprises has significant impact on its risk return complexion. If it is too small to be adequate, it will endanger the enterprise's survival. If on the other hand, it is too large, it will Detroiter its profitability. The size of working capital has to be just adequate. To have an insight into it, following tables. (5.1, 5.2, 5.3, 5.4) consider the size of working capital in the Dabur Nepal Pvt. Ltd. during the period 2000 to 2006.

## 4.1. A. Size of Working Capital

The   table 4.1 shows the ratio measuring the size

**Table 4.1**

**Current Assets to Total Assets of DNPL**

**during 2001-02 to 2002 to 2003**

| Year | Current Assets | | Total  Assets | | Current  Assets to Total Assets | |
|------|------|------|------|------|------|------|
| | Nrs. in crores | Trend | Nrs. in crores | Trend | Ratio | Trend |
| 2001-02 | 113.83 | 100.00 | 201.93 | 100.00 | 0.564 | 100.00 |
| 2002-03 | 128.91 | 113.25 | 213.27 | 105.62 | 0.604 | 107.28 |
| 2003-04 | 143.42 | 125.99 | 227.87 | 112.85 | 0.629 | 111.72 |
| 2004 -05 | 146.09 | 128.34 | 224.47 | 111.16 | 0.651 | 115.63 |
| 2005-06 | 143.73 | 126.01 | 234.88 | 116.32 | 0.610 | 108.34 |
| 2006-07 | 152.34 | 133.83 | 255.34 | 126.45 | 0.596 | 105.86 |
| Average | 138.02 | | 226.29 | | 0.609 | |
| SD | 12.98 | | 16.77 | | 0.02935 | |
| CV | 9.40 | | 7.40 | | 4.82 | |

The   size  of working   capital    of DNPL  during  the  period  of study fluctuated  year  after  year  registering  a  variation between  the highest  651 times  in  2004-05  and the  lowest  0.564 times  in 2001-02, averaging  out  at 0.609 times with the statistical  variation of  4.82%. It manifests  that  during  the period of  DNPL  had  maintained  60.90% liquidity in total assets  during  the period. In study period the total assets has been going on increasing trend so has the trend of the current assets. Therefore, this reveals that current assets should properly arrange as per the increase in total assets
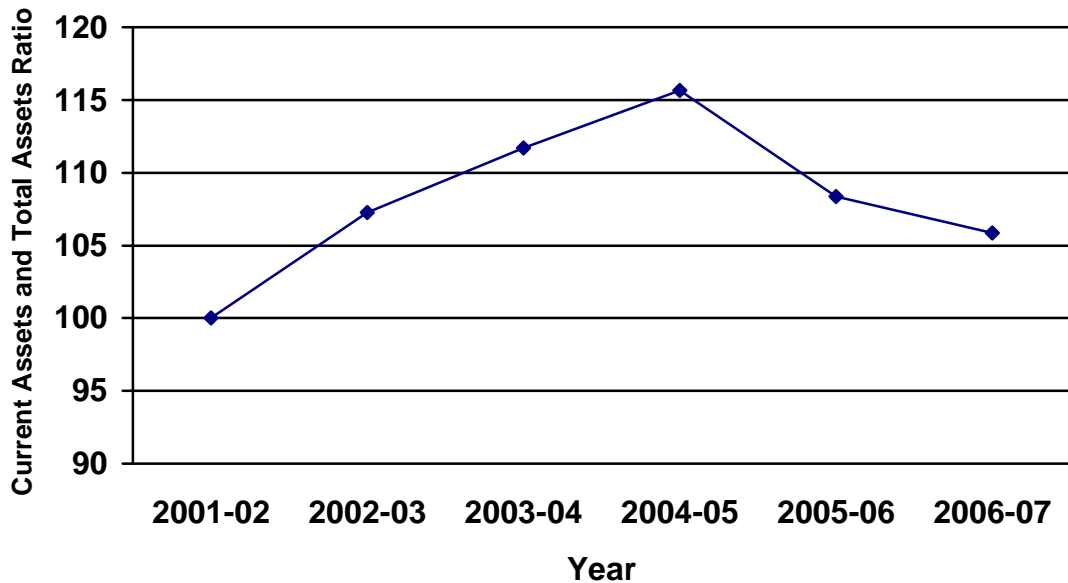
**Fig. 4.1 Structure of Current Assets to Total Assets Ratio**

## 4.1 B. Testing the Hypothesis of the Size of Working Capital

$H_{01}$: CA | TA i.e. there is no significant correlation between current assets and total assets of DNPL during the study period.

$H_{A1}$: CA= TA i.e. there is significant correlation between current assets and total assets of DNPL during the study period.

**Table 4.2**

**The Correlation Coefficient of the Current Assets and total Assets and their Students t- value of DNPL During 2001-02 AND 2006-07**

| Ratio | R | $r^2$ | t= value | d.f | Results |
|-------|-----|-------|----------|-----|---------|
| CA to TA | 0.9313 | 0.8488 | 4.73 | 4 | Significant |

From the above table (5.2) it is obvious that the null hypothesis is found not accepted in respect of the correlation between current assets and total assets as their calculated t= value is greater than its table value at 5% level of significance ($t_{0.05}$, 4 = 2.77)and hence the alternative hypothesis is accepted. It can be also inferred that current assets and total assets of DNPL are significantly.

## 4.1.C Growth of Working Capital

Working capital is dynamic concept which depends upon, interlaid, the scale of operations of an enterprises represented by its volume of sales. The growth of working capital in the enterprise is therefore, related to its growing sales volume. In order to objective the growth of working capital in relation to the growth of sales in the Dabur Nepal Indies of working capital and sales have been calculated and presented in the following tables (5.3).

**Table 4.3**

**Growth of WC and Sales in DNPL**

**during 2000-01 and 2005-06**

| Working Capital | | | Sales | |
|---|---|---|---|---|
| Year | Nrs. in crores | Trend | Nrs. in crores | Trend |
| 2001-02 | 77.92 | 100.00 | 222.49 | 100.00 |
| 2002-03 | 84.61 | 108.56 | 276.50 | 124.28 |
| 2003-04 | 96.65 | 124.04 | 269.95 | 121.33 |
| 2004-05 | 58.03 | 74.47 | 301.77 | 135.63 |
| 2005-06 | 47.65 | 61.72 | 272.88 | 122.65 |
| 2006-07 | 34.84 | 44.71 | 322.70 | 145.04 |

From the above table (5.3) it is oblivious that both the net working capital and sales had a rising trend from the beginning first three years after that sales have been fluctuated but working is going on

decreasing trend. Under the study period, Dabur Nepal Pvt. Ltd. Subscribes the notion that working capital and sales has been functionally related from the period of 2001-02 to 2003-04 and after that they are not.

## 4.1.D Testing  the Hypothesis  of the Growth of Working Capital

To know   the relationship between working capital and sales, the following hypothesis has been formulated and tested by applying the students t- test.

$H_{01}$: CA | TA i.e.  there is no  significant  correlation  between current sales and net  working capital of NDPL

$H_{A2}$: CA = TA i.e.  there is significant  correlation  between sales and net working capital of NDPL

**Table 4.4**

**Regression Equation Coefficient of Correlations with their t- values and Coefficient of Determination for Net Working Capital (y) on Sales (x) of DNPL**

| Regression Equation | r | $r^2$ | t- value | d.f | Results |
|---|---|---|---|---|---|
| Y=  183.93-0.422X | -0.605 | 0.3660 | 1.51 | 4 | not Significant |

It shows table (4.4) that there was indeed no significant relationship between  working capital and sales in the during the period of study from 2001-02   to 2006-07. The correlation between sales and working capital is negative and not statistically significant. But null hypothesis is accepted as the cal. + value is lower than tabulated value of student's t- test   5% level of significant. The reason for this working capital is decreasing trend and sales increasing trend.

## 4.2 Structure of Working Capital

An inquiry into the structure and composition of an enterprise's working capital helps to understand it's nature and problem. Usually, the enterprise's working capital consists of inventory, receivables and cash. Receivables and cash are considered the more liquid form of assets than inventory. Hence, the greater the proportionate size of inventory the less liquid would be the nature of working capital or vice- versa. The following tables (4.5,4.6,4.7,4.8,4.9) portray the structure of working capital in the NDPL during the period under study.

### 4.2.1 Structure of Cash and Bank to Current Assets

Structure of cash and bank to current assets of DNPL is presented in the following table (4.5)

**Table 4.5**

**Structure of Cash and Bank to Current Assets of DNPL**

**during from 2001-02 to 2006-07**

| Year | Cash and bank | | Current assets | | Cash and bank to current assets | |
|---|---|---|---|---|---|---|
| | NRS in crores | Trend | NRS in crores | Trend | Ratio | Trend |
| 2001-02 | 0.35 | 100 | 113.82 | 100 | 0.0026 | 100 |
| 2002-03 | 0.56 | 186.67 | 128.90 | 113.25 | 00043 | 165.38 |
| 2003-04 | 0.42 | 140.00 | 143.41 | 126.00 | 0.0029 | 111.54 |
| 2004-05 | 1.06 | 353.33 | 146.08 | 128.34 | 0.0072 | 276.92 |
| 2005-06 | 0.74 | 246.67 | 143.42 | 126.00 | 0.0051 | 196.15 |
| 2006-07 | 0.19 | 63.33 | 152.33 | 133.82 | 0.0012 | 46.15 |
| Average | 0.54 | | 140.00 | | 0.003 | |
| SD | 0.2902 | | 9.01 | | 0.000013 | |
| CV | 53.73 | | 6.44 | | 0.4 | |

From the above table it is evident that the proportion of cash to total working capital widely fluctuates between 0.72% in 2004-05 and

0.12% In 2006-07 resulting an average of only 0.3 percent. Similarly, the amount of cash and bank balance fluctuates during the period of study. However, as compared to current assets which were continuously increasing over the period but decreased in only 2005-06 as compared to 2004-05, cash and bank balance did not follow the suit. This shows that management of cash and bank balances in Dabur Nepal Pvt. Ltd. is not very efficient. This can also be presented diagrammatically as:
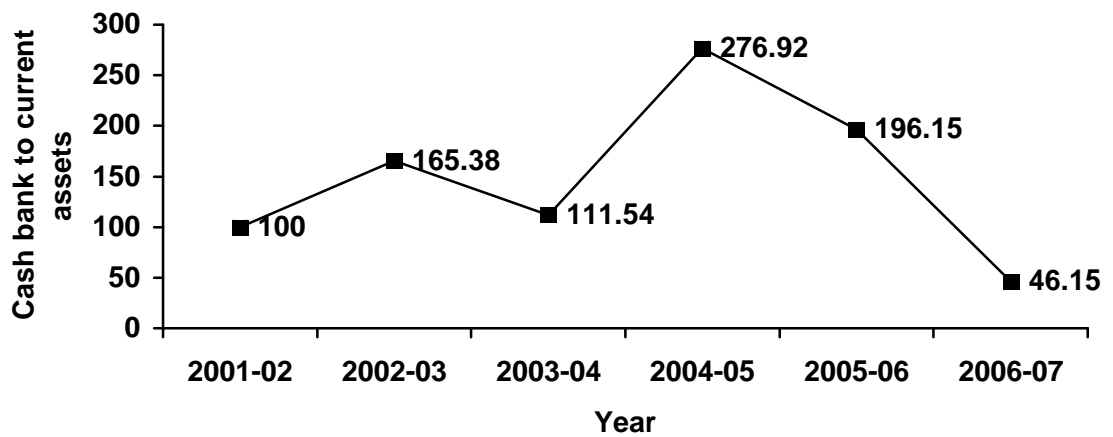


**Fig. 4.2 Structure of Cash and Bank to Current Assets Ratio**

The above figure (4.2) clear that the proportion of cash to total current assets widely fluctuates between 276.92% in 2003-04 and 46.15% in 2006-07. . For the fourth years it is increasing trend and then heavily decreased for last years.

**4.2.2 Structure of Inventory to Current Assets**

**Table 4.6**

**Structure of Inventory to Current Assets of DNPL**

**during 2001-02 and 2006-07**

| Year | Inventory | | Current assets | | Inventory to current asset ratio | |
|------|-----------|-------|----------------|-------|-------|-------|
| | Nrs. in crores | Trend | Nrs. in crores | Trend | Ratio | Trend |
| 2001-02 | 49.16 | 100 | 113.82 | 100 | 0.4371 | 100 |
| 2002-03 | 48.19 | 96.84 | 128.90 | 113.25 | 0.3738 | 85.52 |
| 2003-04 | 53.68 | 107.88 | 143.41 | 126.00 | 0.3743 | 85.63 |
| 2004-05 | 64.03 | 128.68 | 146.08 | 128.34 | 0.4383 | 100.27 |
| 2005-06 | 79.39 | 159.55 | 143.42 | 126.00 | 0.5535 | 126.63 |
| 2006-07 | 85.57 | 171.96 | 152.33 | 133.52 | 0.5617 | 128.51 |
| Average | 63.44 | | 140.00 | | 0.4565 | |
| SD | 14.49 | | 9.01 | | 0.0758 | |
| CV | 22.84% | | 6.43% | | 16.61% | |

The table 4.6 shows that the inventory to current assets fluctuates over the periods from 2001-02 to 2002-03. From the year 2003-04, it is increasing trend with the lowest 0.3738 and 0.5617 is the highest ratios. On aggregate, they average out the statistical variation of 16.61%. Both inventory and current assets are increasing trend except period 2001-02 .It implies that inventory is increasing in proportion to the current assets.

The relationship of inventory and current assets can also be presented in the diagram as follows:
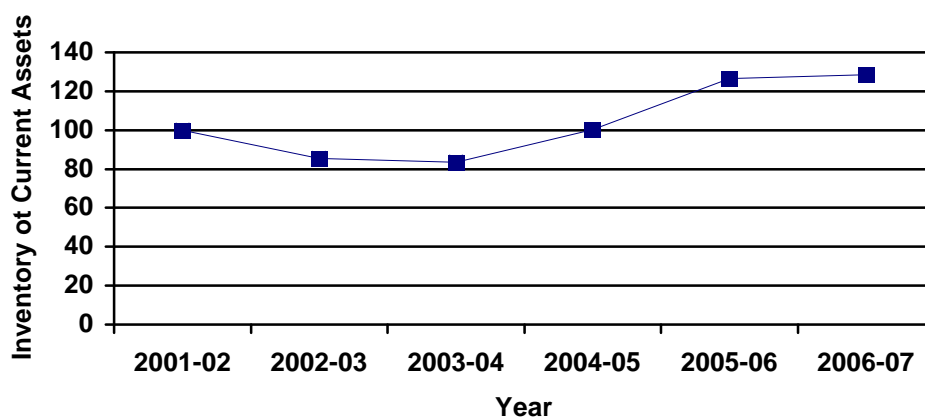
**Fig. 4.3 Inventory of Current Asset**

During the period of study, the ratio of inventory to current assets fluctuate in the beginning year thereafter constant increasing trend. The highest ratio trend is 128.51 and lowest 85.52 in 2001-02 and 2006-07 respectively.

### 4.2.3 Structure of Debtors to Current Assets

**Table 4.7**

**Structure of Debtors to Current Assets of DNPL**

**During 2001-2002 and 2006-07**

| Year | Debtors | | Current assets | | Debts to current asset | |
|------|---------|-------|----------------|-------|------------------------|-------|
|      | Nrs. in crores | Trend | Nrs. in crores | Trend | Ratio | Trend |
| 2001-02 | 25.72 | 100 | 113.82 | 100 | 0.2260 | 100 |
| 2002-03 | 25.03 | 97.32 | 128.90 | 113.25 | 0.1942 | 85.92 |
| 2003-04 | 24.71 | 96.07 | 143.41 | 126.00 | 0.1723 | 76.23 |
| 2004-05 | 22.17 | 86.19 | 146.08 | 128.34 | 0.1517 | 67.12 |
| 2005-06 | 15.64 | 60.80 | 143.42 | 126.00 | 0.1090 | 48.23 |
| 2006-07 | 23.02 | 89.50 | 152.33 | 133.52 | 0.1511 | 66.85 |
| Average | 22.71 | | 140 | | 0.1673 | |
| SD | 3.38 | | 12.88 | | 0.03 | |
| CV | 14.91% | | 9.20% | | 23.38 | |

From the above table 4.7, it is seen that the proportion of debtors to total working capital has been widely fluctuated between 10.9% and

22.6% in 2005-06 and 2001-02 respectively with an average ratio of 16.73% and statistical variation of 23.38%. The reason may be that other componetts of current assets than debtors are increasing with the increase in current assets during the period of study.
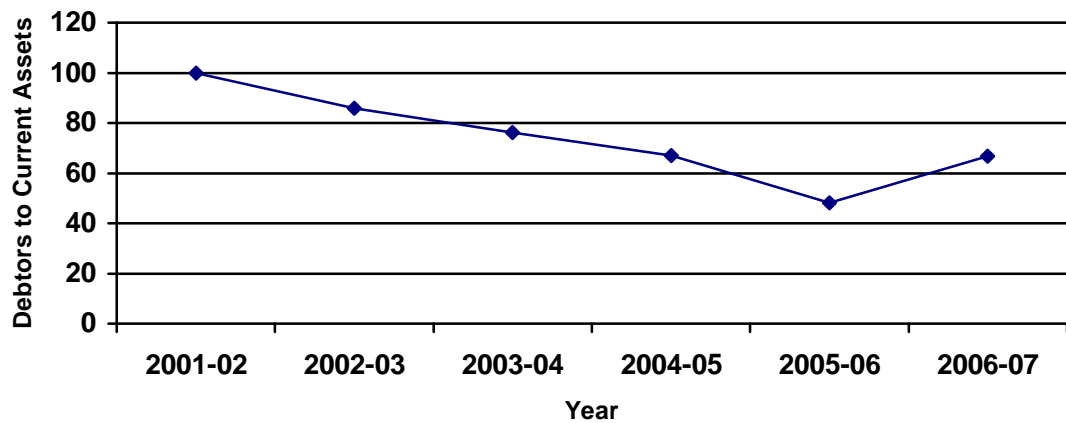


**Fig. 4.4 Structure of Debtors To Current Assets**

The above figure 4.4 shows that the debtors to current assets ratio is decreasing except the year 2006-07. It reached at highest point 100 percent in beginning year (2001-02) and lowest recorded is 48.23% in the 2005-06 Year.

**4.2.4 Structure of Working Capital**

The following table 4.8 portrays the structure of working capital during the period under study of DNPL.

**Table 4.8**

**Structure of Working Capital in DNPL**

**during 2001-02 and 2006-07**

Percent to Current Assets

| Year | Inventory | Debtors | cash and bank |
|------|-----------|---------|---------------|
| 2001-02 | 43..71 | 22.60 | 0.26 |
| 2002-03 | 37.28 | 19.42 | 0.43 |
| 2003-04 | 37.43 | 17.23 | 0.29 |
| 2004-05 | 43.83 | 15.17 | 0.72 |
| 2005-06 | 55.35 | 10.90 | 0.51 |
| 2006-07 | 56.17 | 15.11 | 0.12 |
| Average | 45.65 | 16.73 | 0.30 |
| SD | 7.58 | 3.00 | 0 |
| CV | 16.61% | 23.38% | 0.40% |

It is evident from the table 4.8 that DNPL during the sixth years of study (2001-02 to 2006-07), inventory occupied the most important place in the structure of its working capital .Next to debtors obtained the important and the middle place in the composition of working capital of

DNPL. The proportion of cash to total working capital has been placed third in the hierarch.

During the period of study, inventory is in rising trend except beginning year (2001-02). Contrary to this, debtors is in declining trend. Cash on the other hand, also has remarkable fluctuating trend in whole period. This shows that DNPL is still ineffective in controlling its cash resources.

From this analysis, it is obvious that the DNPL has been shifting its emphasis form debtors to inventory in order to maintain, adequate liquidity in its working capital. However, it still seems to be unable to maintain absolute liquidity by raising the proportion of cash to its working capital. Liquidity may vividly be observed, especially in the final years of the study period.

### 4.2.5 Testing of Hypothesis of Structure of Working Capital

$H_{03}$: There is no significant correlation among the components of the structure of working capital in DNPL measured in terms of inventory. Debtors, and cash and bank.

$H_{A3}$: There is significant correlation among the components of the structure of working capital in DNPL measured in terms of inventory, debtors and cash and bank.

**Table 4.9**

**Coefficient of Correlation with their Student's t-Value and
Coefficient of Determination of the Structure of working Capital
measured in terms of Inventory, Debtors and Cash Bank.**

| Ratio to current assets | r | $r^2$ | t-value | d.f. | Result |
|---|---|---|---|---|---|
| 1. Inventory debtors keeping cash consonant | 0.23 | 0.0529 | 0.47 | 4 | Not significant |
| 2. Inventory and cash keeping debtor constant | -0.4632 | 0.2145 | 2.17 | 4 | Not significant |
| 3. Cash and debtor keeping inventory constant | 0.7368 | 0.5428 | 1.04 | 4 | Not significant |

It is vivid from the above table (4.9) that null hypothesis has been accepted in respect to the correlation of all three ratio of current assets i.e. inventory and debtors keeping cash constant, inventory and cash keeping debtors constant and cash and debtors keeping inventory constant. The three all ratio to current assets as their calculated value is lower than tabulated value at 5% level of significance ($t_{0.05,4} = 2.77$). Inventory ratios are increasing trend but debtors ratios are decreasing where as cash and bank ratios are fluctuating.

## 4.3 Efficiency of Working Capital

Since working capital has significant bearing on the conflicting object of liquidity and profitability of an enterprises, its efficient management helps to achieve a trade-off between them. It is thus desirable to look into the efficiently with which the working capital and its constituents such as inventory, receivables and cash have been managed or utilized by the enterprise. This part of analysis, therefore inquires into, the efficiency of working capital is DNPL during under sixth year consideration. For that purpose turnover ratios of inventory, receivables, cash and total current assets have been calculated and presented in the following (table (4.10, 4.11, 4.12, 4.13, 4.14). These ratio reflect how these resources have been utilized by the companies to obtain, higher profits in lower costs and risks. It is suggested that the higher the ratios, the more efficient would be their use and smaller their requirement and hence, lower would be the costs and risk associated with the working capital.

### 4.3.1 Inventory Turnover Ratio of DNPL

One of the important measures of efficiently of working capital management is the inventory turnover ratios which indicates how frequently inventory moved in – out of an enterprise during a period of time. This ratio helps to judge the efficiency of inventory management. The ratio so usually expressed in the number of times the inventory is turnover during the period. It is suggested that the higher ratio, the larger amount of profit due to the small amount of working capital tied up in inventory. However, this ratio should be carefully interpreted as higher inventory ratio may also arrive at by maintaining inadequate size of inventory which may be detrimental to the enterprise. The following table

(4.10) exhibits the inventory turnover ratio of the DNPL during the sixth year 2001-02 to 2006-07.

**Table 4.10**

**Inventory turnover ratio of DNPL**

**during 2001-02 to 2006-07.**

| Year | Sales | | Inventory | | Sales to inventory | |
|---|---|---|---|---|---|---|
| | Nrs. in Crores | Trend | Nrs. in Crores | Trend | Ratio in times | Trend |
| 2001-02 | 222.49 | 100 | 49.76 | 100 | 4.47 | 100 |
| 2002-03 | 273.49 | 124.28 | 48.19 | 96.84 | 5.73 | 128.18 |
| 2003-04 | 269.95 | 121.33 | 53.68 | 107.88 | 5.02 | 112.30 |
| 2004-05 | 301.77 | 135.63 | 64.03 | 128.68 | 4.71 | 105.36 |
| 2005-06 | 272.87 | 122.65 | 79.39 | 159.55 | 1.71 | 38.25 |
| 2006-07 | 322.70 | 145.64 | 85.57 | 171.96 | 3.77 | 84.34 |
| Avg. | 277.71 | | 6344 | | 4.24 | |
| SD | 30.77 | | 14.99 | | 1.27 | |
| CV | 11.08% | | 22.84% | | 29.95% | |

From the table (4.10). It shows that inventory turnover ratio is fluctuating, it was rising trend with the higher 5.73 times in 2002-03 and lowest 1.71 times at the 4th year 2005-06. The average turnover ratio is 4.24 times during the period. The coefficient of variation is 29.95%. Both sales and inventory are increasing trend but improving trend of DNPLS'

inventory turnover, ratio is certainly due to the rapid increase of it sales. It means company has utilized its inventory efficiently.

The relationship of sales to inventory can also be presented in a diagram as:
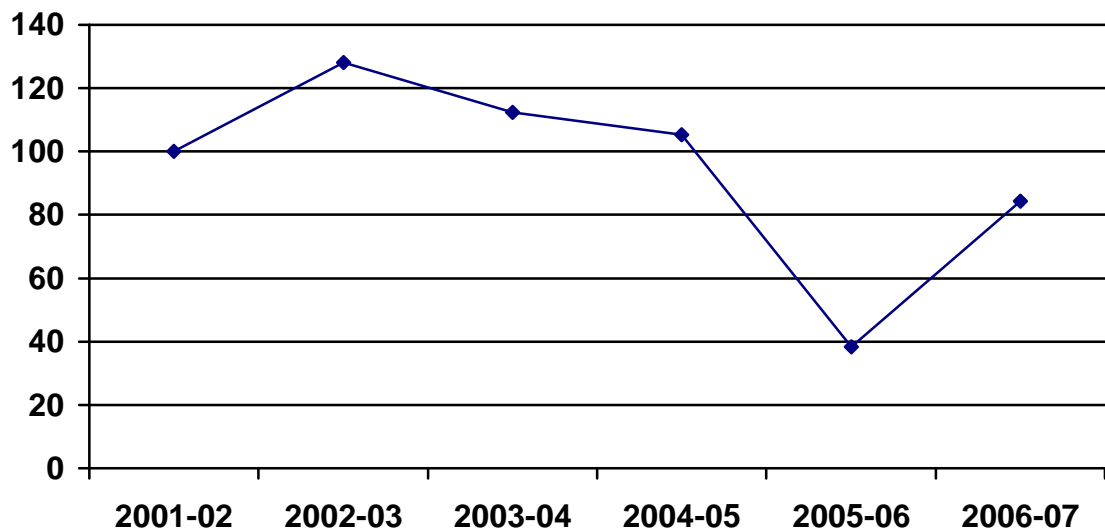


**Fig. 4.5 Structure of inventory turnover ratio**

Figure 4.5 shows that the inventory turnover ratio decreasing after two years. In 2001-03 is he highest range which is 128.18 rapidly increased and lowest range is 38.25 in fifth period (2005-2006).

**4.3.2 Debtors Turnover Ratio of DNPL**

Another important measure of efficiency of working capital management is debtors turnover ratio which indicates the efficiency with debtors are being utilized in the enterprise. This ratio is expressed in the number of times the debtors turned over during a period. It is therefore, the higher the ratio, the more efficient of management of debtors. However, the ratio should be carefully interpreted as high ratio could be achieved through strict verdict polling. The debtors turnover ratio of

Dabur Nepal Pvt. Ltd. during period of study 2001-02 and 2006-07 has been resented in the following table (4.11)

**Table 4.11**

**Debtors turnover ratio of DNPL**

**during 2001-02 and 2006-07.**

| Year | Sales | | Debtors | | Sales to debtors | |
|------|-------|-------|---------|-------|-----------------|-------|
|      | Nrs. in Crores | Trend | Nrs. in Crores | Trend | Ratio in times | Trend |
| 2001-02 | 222.49 | 100 | 25.72 | 100 | 8.65 | 100 |
| 2002-03 | 273.49 | 124.28 | 25.03 | 97.32 | 11.04 | 127.63 |
| 2003-04 | 269.95 | 121.33 | 24.71 | 96.07 | 10.92 | 126.24 |
| 2004 -05 | 301.77 | 135.63 | 22.17 | 86.19 | 13.61 | 157.34 |
| 2005-06 | 272.87 | 122.65 | 15.64 | 60.80 | 17.44 | 201.62 |
| 2006-07 | 322.70 | 145.64 | 23.02 | 89.05 | 14.01 | 162.06 |
| Avg. | 277.71 | | 22.71 | | 12.61 | |
| SD | 30.77 | | 3.38 | | 2.80 | |
| CV | 11.08% | | 14.88% | | 22.20% | |

Evidently, the above table (4.11) shows that average of debtors turnover ratio is 12.61 times and coefficient of variation shows that the variability of the ratio during the period is 22.20%. It is in fluctuating and increasing trend. Highest ratio was 17.44 times in 2005-06 and lowest8.65 times at the beginning year (2001-02). But here debtors turnover ratio fluctuates which implies that cash sales was more than the credit sales during the period of study 2001-02 and 2006-07.

This debtors turnover ratio can also be presented in a diagram as follows.
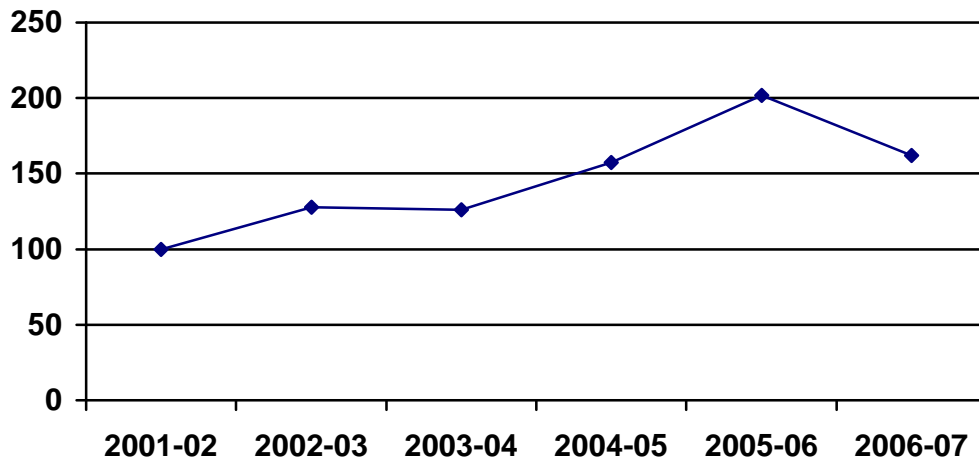
**Fig. 4.6 Structure of debtors turnover ratio**

From the above figure (4.6), it is clear that debtors turnover ratio fluctuates almost every year. Highest fluctuation is 201-62% in 2005-06 and lowest 126.24% in 2003-04.

### 4.3.3 Cash and Bank Turnover Ratio

Although cash has the smallest size in the total working capital of on enterprise, it being the most liquid of all needs to be managed as efficiently as receivables or inventory. In order to measure the efficiency of cash management, cash turnover ratio is usually employed which indicates the velocity of cash in and out of the enterprise. It is expressed in the number of times. It is suggested that the higher the ratio greater is the efficiency of cash management or vice-versa. However, while interpreting the ratio one must be careful that greater ratios may be due to inadequate or too small amount of cash balances.

## Table 4.12

## Cash Turnover Ratio of DNPL

## during 2001-02 and 2006-07.

| Year | Sales | | Cash | | Sales to cash and bank | |
|---|---|---|---|---|---|---|
| | Nrs. in Cores | Trend | Nrs. In Cores | Trend | Ratio in times | Trend |
| 2001-02 | 222.49 | 100 | 0.3035 | 100 | 733.08 | 100 |
| 2002-03 | 276.49 | 124.28 | 0.5648 | 186.09 | 489.53 | 66.77 |
| 2003-04 | 269.95 | 121.33 | 0.4234 | 139.50 | 637.57 | 86.97 |
| 2004-05 | 301.77 | 135.63 | 1.0686 | 352.09 | 282.39 | 38.52 |
| 2005-06 | 272.87 | 122.65 | 0.7484 | 246.59 | 364.60 | 49.73 |
| 2006-07 | 322.70 | 145.64 | 0.1905 | 62.16 | 1693.96 | 231.07 |
| Avg. | 277.71 | | 0.5498 | | 700.18 | |
| SD | 30.77 | | 0.2927 | | 469.77 | |
| CV | 11.08% | | 187.80% | | 67.09% | |

The table (5.12) evinces that during the period, the ratio showed a fluctuating trend having a wide variation between 1693.96 times in 2006-07 and 282.39 times in 2004-05. The average cash turnover ratio of DNPL is 700.18 times and coefficient of variation is 67.09%. This shows that cash had been always, deficit in DNPL. Its liquidity position is not so good.
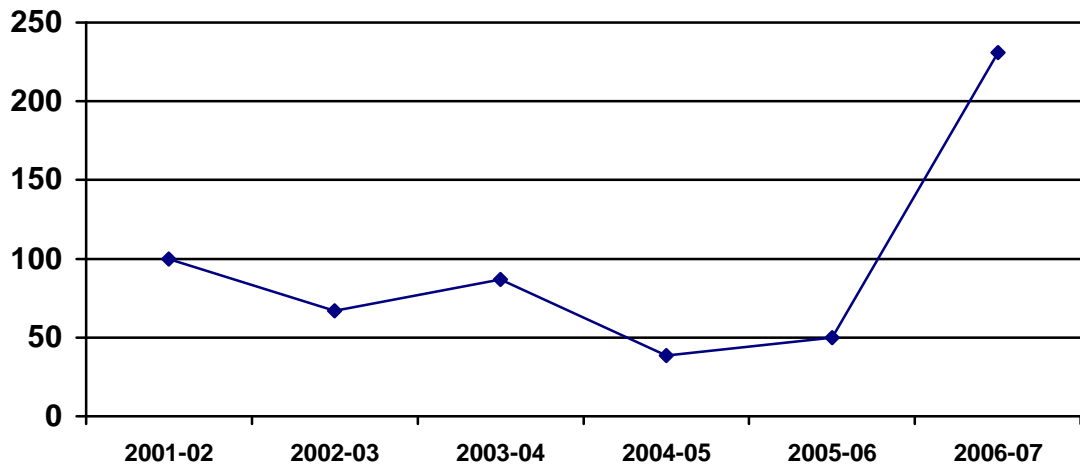
**Fig. 4.7 Structure of Cash turnover ratio**

Fig. 4.7 Shows that cash turnover ratio heavily fluctuates during the period of study 2001-02 to 2006-07 lowest fluctuation is 38.52% in 2004-05 to 2005 to 06 and higher fluctuation is 231.07% in last year (2005-06).

## 4.3.4 Current Assets Turnover Ratio

The overall efficiency of working capital management of an enterprise can be measured by current asses turnover ratio which indicates how efficiently the short term funds have been employed by the enterprise for maximizing profitability with a given level of risk. The higher the working capital turnover ratio the lower the investment in short them funds and hence greater the profits. However, it must be taken while interpreting the ratio because a very high ratio may also mean insufficient working capital funds for a given volume of business. A lower ratio, therefore, should clearly be taken to mean that the capital is not sufficiently active.

**Table 4.13**

**Current Assets Turnover Ratio**

**during 2001-02 and 2006-07**

| Year | Sales | | Current assets | | Sales to current assets | |
|---|---|---|---|---|---|---|
| | Nrs. in Cores | Trend | Nrs. in Cores | Trend | Ratio in times | Trend |
| 2001-02 | 222.49 | 100 | 113.82 | 100 | 1.95 | 100 |
| 2002-03 | 273.49 | 124.28 | 128.90 | 113.24 | 2.14 | 109.74 |
| 2003-04 | 269.95 | 121.33 | 143.41 | 126.00 | 1.88 | 96.41 |
| 2004-05 | 301.77 | 135.63 | 146.08 | 128.34 | 2.06 | 105.64 |
| 2005-06 | 272.87 | 122.65 | 143.42 | 126.00 | 1.90 | 97.93 |
| 2006-07 | 322.70 | 145.64 | 152.33 | 133.83 | 2.11 | 108.63 |
| Avg. | 277.71 | | 138.00 | | 2.0 | |
| SD | 30.77 | | 12.88 | | 0.10 | |
| CV | 11.08% | | 9.33% | | 5.09% | |

It is apparent from the table (4.13) hat turnover of current assets if DNPL during the period is fluctuating almost year to year without making a clear cut trend of increase or decrease. The vitiation between the highest and he lowest ratio was recorded 2.14 times in 2002-03 and 1.90 times in 2005-06 respectively, resulting in an average of 2.00 times with a statistical variation of 5.09%.
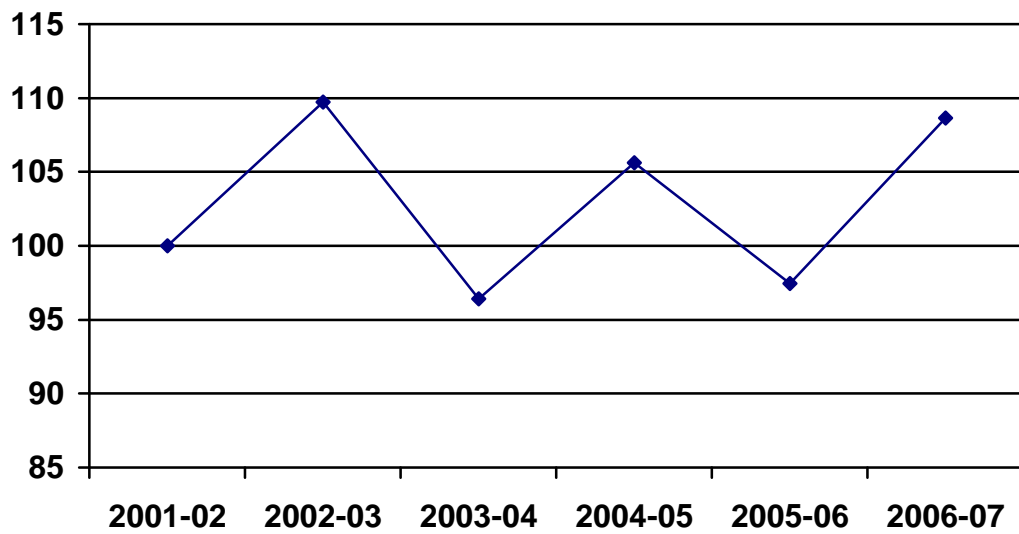
**Fig. 4.8 Structure of Current Assets Turnover Ratio**

Figure 4.8 indicates that the current assets turnover is fluctuating trend during the whole study period 2001-02 and 2006-07.

## 4.3.5 Testing of Hypothesis of Efficiency of Working capital

$H_{O4}$: There is no significant correlation of sales with inventory, debtors, cash and current assets.

$H_{A4}$: There is significant correlations of sales with inventory, debtors, cash and current assets.

**Table 4.14**

**Coefficient of Correlation and Coefficient of Determination with their t- values of the ratios Measuring the Efficiency of Working Capital Management in DNPL.**

| Ratio | R | r2 | t value | d.f | Result |
|---|---|---|---|---|---|
| Inventory and sales | 0.7375 | 0.5439 | 2.18 | 4 | Not significant |
| Debtors and sales | -0.2460 | 0.0605 | 0.50 | 4 | Not significant |
| Cash a sales | 0.2076 | 0.0430 | 0.50 | 4 | Not significant |
| Current assets and sales | 0.9587 | 0.9191nd | 6.74 | 4 | Significant |

It is clear that from the table (4.14) the null hypothesis has been found positive in efficiency of working capital except current assets turnover ratio of DNPL as their calculated t- value is lower than tabulated value at 5% level of significance ( $t_{0.05,4} = 2.77$) and hence null hypothesis significantly difference has not been accepted. From these results, it can be interred that the relationship of receivables, inventory cash management are not significantly different whole current assets is.

## 4.4 Analysis of Liquidity

Liquidity refers to the ability an enterprise to pay its short term obligations. The enterprises has to pay its short term obligations when they are due, otherwise it will be technically insolvent and its future will be somber. In order to avoid such a risk the enterprise, nonetheless, can not maintain to high liquidity to be adequate because it is an expensive affair. Liquidity management is therefore, the core of working capital management.

Liquidity of an enterprise can be measured on the basis of current and liquid ratios which express the precise relationship between current assets and current liabilities, and liquid assets and current liabilities. For the manufacturing enterprise a current ratio of 2:1; and a liquid ratio of 1:1 are considered appropriate for measuring the efficient liquidity management of the enterprise.

### 4.4.1 Analysis of Current Ratio

Current ratio is one of the most popularly used measured of liquidity. It measures the degree to which current assets can cover current liabilities. A higher current ratio indicates greater assurance of ability to pay current liabilities. The following table exhibits the current ratios of the Dabur Nepal Pvt. Ltd. during the period of 2001-02 and 2006-07.

**Table 4.15**

**Current ratio of Dabur Nepal Pvt. Ltd.**

**during 2001-02 and 2006-07**

| Year | Current Assets | | Current Liabilities | | Currant Asset to Current Liabilities | |
|---|---|---|---|---|---|---|
| | Nrs. in cores | Trend | Nrs. in cores | Trend | Ratio | Trend |
| 2001-02 | 113.82 | 100 | 93.90 | 100 | 1.21 | 100 |
| 2002-03 | 128.90 | 113.24 | 95.50 | 101.70 | 1.35 | 111.57 |
| 2003-04 | 143.41 | 126.00 | 119.89 | 127.67 | 1.20 | 99.17 |
| 2004-05 | 146.08 | 128.34 | 146.54 | 156.05 | 1.00 | 82.64 |
| 2005-06 | 143.42 | 126.00 | 155.83 | 165.95 | 0.92 | 76.03 |
| 2006-07 | 152.33 | 133.83 | 172.84 | 184.06 | 0.88 | 72.72 |
| Average | 138.00 | | 130.75 | | 1.09 | |
| SD | 12.88 | | 29.91 | | 0.17 | |
| CV | 9.33% | | 22.87 | | 15.67 | |

The above table (4.15) reveals that the current ratio of DNPL is decreasing trend except in the years 2001-02 and 2002-03. The highest ratio recorded was 1.35 times in 2002-03 and lowest 0.88 times in ending year (2006-07). It average 1.09 times with a coefficient of

variation of 15.61%. From the above analysis, it may be asserted that the liquidity measured by matching current assets and current liabilities are not up to the standard of 2:1 in DNPL in any of the year during the period of study.
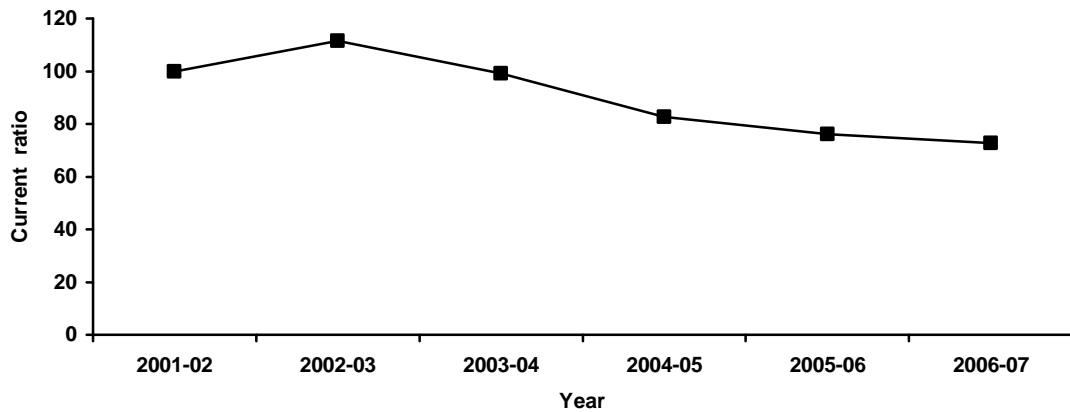


**Fig. 4.9 Structure of Current Ratio**

It indicates that the highest trend of current ratio is 111.57 in 2002-03 year and the lowest trend 72.72 in 2006-07 study period.

## 4.4.2 Analysis of Quick Ratio

Another measure of liquidity in an enterprise is quick or acid- test ratio which is believed to be more refined than the current ratio as it excludes inventory, the less, liquid form of current assets in its calculation. It indicates the degree to which quick assets such as receivables and cash can cover the current liabilities. A higher ratio indicates higher assurance of ability to pay current liabilities.

## Table 4.16

## Quick ratio of Dabur  Nepal  Pvt. Ltd.

## during 2001-02 and 2006-07

| Year | Current assets | | Current Liabilities | | Quick Ratio | |
|---|---|---|---|---|---|---|
| | Nrs. in cores | Trend | Nrs. in cores | Trend | Ratio | Trend |
| 2001-02 | 64.05 | 100 | 93.90 | 100 | 0.68 | 100 |
| 2002-03 | 80.70 | 125.99 | 95.50 | 101.70 | 0.84 | 123.52 |
| 2003-04 | 89.72 | 140.07 | 119.89 | 127.67 | 0.74 | 108.82 |
| 2004-05 | 82.05 | 128.10 | 146.54 | 156.05 | 0.56 | 82.35 |
| 2005-06 | 64.02 | 99.95 | 155.83 | 165.95 | 0.41 | 60.29 |
| 2006-07 | 66.76 | 104.23 | 172.84 | 184.06 | 0.38 | 55.88 |
| Average | 74.55 | | 130.75 | | 0.60 | |
| SD | 10.04 | | 29.91 | | 0.28 | |
| CV | 13.48 | | 22.87 | | 47.85 | |

It is  clear  from above table  (4.16)  that  after  two years  (2001-02 and 2002-03)  quick ratio is decreasing  way  the highest  quick ratio is 0.84  times in year  2002-03 and the lowest   0.38 time  at  ending  year 2006-07. It average  ratio. 0.60  times  with the statistical variation  of 47.85% . The  liability  position as  reflected by the  ratio is  not up to the rule of  thumb  norm of 1:1.
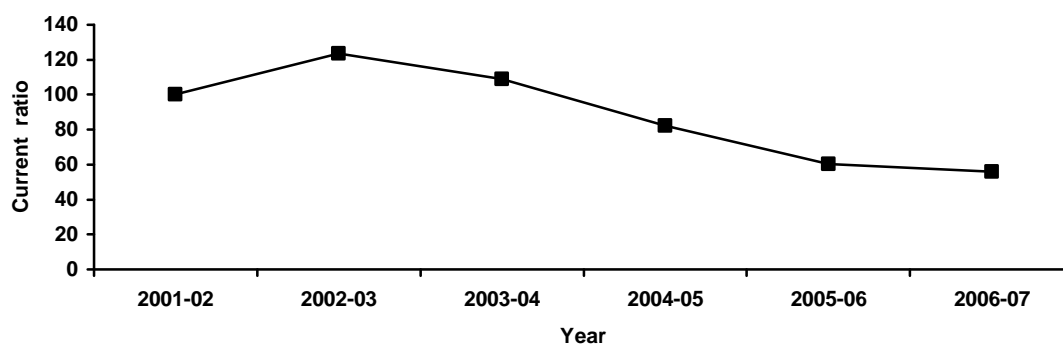


## Fig.  4.10 Structure of Quick Ratio

It describes that quick ratio during the period of study do not follows the fixed trend but it's decreasing trend. Highest point recorded is at 123.52% in 2002-03 and lowest 55.88% at the ending year 2006-07.

### 4.4.3 Testing Hypothesis of Liquidity of DNPL

$H_{05}$: There is no significance correlation of current assets and quick assets with current liabilities of DNPL.

$H_{A5}$: There is significance correlation of current assets and quick assets with current liabilities of DNPL.

**Table 4.17**

**Coefficient of correlation, coefficient of determination with their student's t- values of the ratios measuring liquidity in the DNPL during 2001-02 to 2006-07.**

| Ratio | r | r2 | t -value | d.f | Result |
|---|---|---|---|---|---|
| Current assets and current liabilities | 0.8733 | 0.7626 | 3.58 | 4 | Significant |
| quick assets and current liabilities | -0.2595 | 0.0673 | 0.53 | 4 | Not significant |

From the table (4.17) we clear that the alternative hypothesis has been accepted and calculated value is higher than tabulated value at 5% level of significance. Other hand the null hypothesis difference has been accepted From this result it can be inferred that the relationship current assets and current liabilities is statistically significantly difference . But quick assets with current liabilities are not different.

## 4.5 Liquidity VS Profitability

Liquidity in any firm is essential to meet its current obligations and expenses. Therefore, every firms is supposed to maintain higher liquidity to avoid the technical insolvency of the firm. But since maintaining higher cost higher liquidity impairs the profitability of the firms. Therefore, there is always an inverse relationship between liquidity and profitability. The following tables (4.18, 4.19, 4.20, 4.21, 4.22) attempt to show the relationship between liquidity measured in terms of operating profit ratio, net profit to total assets, net profit to total capital employed and return on net worth.

### 4.5.1 Testing of Hypothesis between Net Profit Margin and Current Ratio

$H_{06}$: There is no significant correlation between profitability measured in terms of net profit margin and liquidity measured in terms of current ratio.

$H_{A6}$ There is significant correlation between profitability measured in terms of net profit margin and liquidity measured in terms of current ratio.

**Table 4.18**

**Coefficient of correlation coefficient of determination with their student's t- value of net profit margin and liquidity in terms of current ratio.**

| Ratio | r | r2 | t -value | d.f | Result |
|-------|-----|-----|---------|-----|--------|
| Current ratio and net profit margin | 0.8121 | 0.6595 | 278 | 4 | Significant |

It is apparent from the above table (4.18) that the null hypothesis is not accepted in respect of correlation between net profit

margin and current ratio as their calculated t- value is greater than the table value at 5% level of significance and hence, the alternative hypothesis of significance difference has been accepted. From this result it can be interred that the correlation of net profit margin and current ratio are positive. This many due to the decreasing trend of both net profit margin and current ratio.

## 4.5.2 Relationship between Current Ratio and Operating Ratio

$H_{O7}$: There is no significant correlation between profitability measured in terms of operating profit ratio and liquidity measured in terms of current assets.

$H_{A7}$ There is significant correlation between profitability measured in terms of operating ratio and liquidity measured in terms of current assets .

**Table 4.19**

**Coefficient of correlation coefficient of determination with their student's t- value of operating ratio and current ratio.**

| Ratio | r | r2 | t -value | d.f | Result |
|-------|-----|-----|----------|-----|--------|
| Current ratio and ratio operating | -0.9020 | 0.8136 | 4.17 | 4 | Significant |

The alternative hypothesis has been accepted with respect to the relationship between current ratio and operating ratio of DNPL as its t-value is greater than table value at 5% level of significance ($t_{0.05}$, 4 = 2.77 2.228). The reason for this may be the operating ratios are increasing tend but the current ratios are decreasing trend after two years.

### 4.5.3 Relationship between net Profit to total Assets Ratio and Quick Ratio

To know the relationship between return on total assets (net profit to total assets) and quick ratio, following full hypothesis has been proposed and tested by using student's t-test.

H08: There is no significant correlation between profitability measured in terms of return on total assets and liquidity measured in terms of quick ratio.

$H_{A8}$: There is significant correlation between profitability measured in terms of return on total assets and liquidity measured in terms of quick ratio.

**Table 4.20**

**Coefficient of correlation with their t-values and coefficient of determinations of quick ratio and return on total assets.**

| Ratio | r | $r^2$ | cal. t-value | d.f. | Result |
|---|---|---|---|---|---|
| Quick ratio and return on total assets ratio | .5366 | .2879 | 1.27 | 4 | not significant at 5% |

It is clear from above table (4.20) that there is indeed correlation between the quick ratio and during the period of study 2001-02 and 2006-07. it's t-value is lower than the table value at 5% level of significance ($t_{0.05,4} = 2.77$). Hence, null hypothesis \ has been accepted. It is noted that the proposition such as higher liquidity higher the profitability is true in DNPL.

### 4.5.4 Relationship between Return on Capital Employed and Quick Ratio

To test the relationship between return on capital employed (ROCE) and quick ratio (QR), the following hypothesis has been proposed and tested.

$H_{09}$: There is no significant correlation between profitability measure in terms of return on capital employed and liquidity measure in terms quick ratio.

$H_{A9}$: There is significant correlation between profitability measure in terms of return on capital employed and liquidity measure in terms of quick ratio.

**Table 4.21**

**Coefficient of Correlation, Coefficient of Determination with their Students t-test for ROCE and QR.**

| Ratio | r | $r^2$ | cal. t-value | d.f. | Result |
|---|---|---|---|---|---|
| Quick ratio and return on capital employed | 0.5463 | 0.2985 | 1.30 | 4 | not significant |

Evidently, the null hypothesis has been accepted with respect to the relationship between return on capital employed and quick ratio of DNPL, as its calculated t-value is lower than table value at 5% level of significance ($t_{0.05,4}$ = 2.77). This implies that there is not statistically significant correlation between ROCE and QR. Form the table (4.21), It is noted that proposition such as higher the ROCE higher will be the QR is statistically supported in the DNPL.

### 4.5.5 Relationship between Return on Net Worth and Quick Ratio

To test the relationship between return on net worth (RONW) and quick ratio (QR), the following hypothesis has been proposed and tested by applying the student's t-test.

$H_{010}$: There is no significance correlation between profitability measured in terms of return on net, worth (RONW) and quick ratio.

$H_{A10}$: There is significant correlation between profitability measured in terms of return on net worth and liquidity measured in terms of quick ratio.

**Table 4.22**

**Coefficient of Correlation, Coefficient of Determination with their Students t-test for RONW and QR.**

| Ratio | r | $r^2$ | Cal t-value | d.f. | Results |
|-------|------|--------|-------------|------|----------------|
| QR and RONW | 0.5394 | 0.2909 | 1.56 | 4 | Not significant |

It vivid from the above table (5.22) that there was indeed moderate correlation between the quick ratio and return on shareholders equity in DNPL during the period of study 2000-01 and 2005-06. Theie correlation is positive and statistically insignificance because the cal-t – value is less than the table value at 5% level of significance ($t_{0.05,4} = 2.77$). Hence, null hypothesis has been accepted which implies that proposition such as the QR and ROSE is not constant or variable and other side not statistically supported in the DNPL.

## 4.6 Major Finding of the Study

### 4.6.1 Major Findings under Descriptive Analysis

The major finding under descriptive analysis are as follows:

1. The current assets to total assets ratio have been increasing trend in the beginning of first four study period (2001-02 and 2004-05) after that decreasing trend. But the current asset and total assets has been individually almost showed increasing trend.

2. The sales and working capital both have been showed the increasing trend but working capital has decreased from the study period 2004-05.

3. The cash and bank balances has not followed the current assets suit. It has been fluctuating almost every year.

4. Inventory to current assets ratio has showed increasing trend. Inventory has increased as compared to the base year but not in the proportion of current assets.

5. Debtors to current assets has been decreasing trend under study period. It has specially highly increased in the beginning year of study period.

6. Structure of working capital has showed that inventory occupied the most important place which is followed by debtors. Cash and bank has showed third place in hierarchy.

7. Inventory turnover ratio has been increasing trend and is following the sales suit.

8. Sales to debtors ratio has been decreasing however, it has decreased as compared to base year.

9. Cash and bank turnover ratio had been increasing in the first four study period (from 2001-02 to 2004-05) and decreasing after that but sales has been increasing.

10. Though both sales and current assets are in increasing trend, the proportion has increased in sales as compared to that of current assets.

11. Current ratio has not been seen up to the rule of thumb of 2:1 during the study period.

12. Quick ratio has not been seen up to the rule of thumb of 1:1 during the study period.

## 4.6.2 Major Finding under Inferential Analysis

The major findings of the study is derived form inferential which are analysis as follows:

1. There is positive correlation between current assets and total assets. Null hypothesis is rejected as its student's t-value is higher that the table value at 5% level of significance. The result implies that the correlation of current assets and total assets is significantly different.

2. The correlation between sales and working capital is negative but its student's t-value is lower than table value at 5% level of significance which results in acceptance of null hypothesis.

3. The calculated student's t-value of correlation coefficient between cash and bank to current assets, inventory to current assets and debtors to current assets are less than table value at 5% level of significance. Hence, null hypothesis has been accepted as it is statically significant.

4. Cash, debtors and inventory in relation with sales are rejected alternative hypothesis and accepted null hypothesis of significance difference as their student's t-value is more than the table value at 5% level of significance while current assets relation with sales has accepted alternative hypothesis.

5. Current assets and current liabilities which results in acceptance of alternative hypothesis as its calculated t-value is grater than table value at 5% level of significance. Where as quick assets and current liabilities is accepted null hypothesis is statistically significant.

6. Net profit margin and current ratio are statistically significant as its students t-value is greater than the table value at 5% level of significance. Hence, alternative hypothesis is accepted.

7. Relationship between current ratio and operating ratio is statistically significant, since its calculated value is higher than tabulated value. Hence, alternative hypothesis is accepted.

8. Relationship between net profit to total assets ratio is not significantly difference because calculate t-value is less than table value at 5% level of significance. Hence null hypothesis is accepted.

9. Relationship between ROCE and QR is not significantly difference. hence null hypothesis has been accepted based on 5% level of student's t-value.

10. Showing relation between RONW (ROSE) and QR is statistically insignificance as its calculated student's t-value is lower than tabulated value at 5% level of significance. Hence, alternative hypothesis is rejected.

# CHAPTER FIVE

# SUMMARY, CONCLUSION AND RECOMMENDATION

## 5.1 Summary

Industrialization is the process of economic development of a country, which increases the production manifold, raises the standard of living of the people, increase the foreign trade which helps in foreign exchange, helps in replacing poverty with prosperity and generating employment opportunity. Industrialization is the only way open to Nepal to take her rightful palace in the comity of nations which helps her to march in line with other economically advanced countries of the world.

Working capital is an indispensable component of financial management. 'Working capital' principally is needed by a firm to pay for stock and to cover the amount of credit extended to customers. It is fluid and fluctuates with the level of business. The working capital cycle links directly with the cash operating cycle i.e. Conversion of cash into inventory into sales into debtors and debtors again into cash formulating a cycle.

Working capital has two concepts. Its gross concept includes all the current assets of the firm i.e. cash, stock and debtors. Its net concept comprises short-term net assets: stock, debtors and cash less creditors. In net concept working capital management is to do with management of all aspects of both current assets and current liabilities. To control the working capital, the firm must focus on its maintain elements or components viz. cash, debtors, inventory and creditors. Working capital may by permanent or temporary, permanent working capital is that

minimum level of current assets which is continues required by the firm to carry on its business operations. Temporary working capital is created by the firm to meet liquidity requirements that will last only temporarily and it varies according to the seasonal requirements of the firm.

There are basically three approaches to invest working capital. In matching or hedging approach expected life of the assets are matched with expected life of the source of the funds raised to finance assets, i.e. maturity period of both assets and source of finance should be the same. According to conservative approach, firm finances its permanent assets and a part of temporary current assets, which long term financing which is less risky and when the firm has no temporary current assets the surplus fund is invented in marketable securities. In aggressive approach, the firms which are of aggressive nature uses more short – term financing even in its permanent current assets.

For forecasting working capital there are different techniques viz; operating cycle method; estimating of current assets and current liabilities: cash forecasting method; projected balance sheet method; profit and loss adjustment method.

This study aims at examine the size the growth of working capital; structure of working capital; efficient of working capital; liquidity of working capital and liquidity v profitability of Dabur Nepal private limited. For these assessment, various of financial tools like current ratio, quick ratio, activity ratios related to working capital, profitability ratios and the ratios of current assets with its components are calculated and measured.

Statistical tools like arithmetic means standard deviation coefficient of variations and coefficient of correlation are also computed

to evaluate and reach certain conclusions. Correlation coefficient of different ratios has been tested with the help of students t-values which is helpful for accepting or rejecting null hypothesis.

## 5.2 Conclusion

The major conclusions derived form descriptive and inferential analysis are as follows:

### 1. Size of Working Capital

The size of working capital has significant impact on the risk return complexion of an enterprises. It should therefore, be just adequate, neither too large nor too title. A study of the current asset to total assets ratio measuring the size of working capital of DNPL has shown that the company has maintained average of 69.9% of working capital to their total assets. The coefficient of variation (C.V.) is 4.82%. it manifests that the during the period of study, DNPL has maintained 69.9% liquidity in its total assets. However, current assets and total assets has showed increasing trend, which reveals that current assets are mostly arranged as per the increase in total assets.

The inferential analysis shows that null hypothesis has been on acceptable in respect of the correlation between current assets and total assets as its calculated student's t-value is greater than tabulated value at 5% level of significance. From this result, it can be inferred that the correlation of current assets and total assets is significantly different.

### 2. Growth of Working Capital

The growth trend of working capital has been increased beginning of first three years (2001-02to 2003-04) but after growth trend is

decreased where as sales growth is going on increasing trend. The highest percentage of sales to the sales of base year 2001-02 is shown 145.04 percent in 2006-07. The highest percentage of net working capital to the net working capital of base year 2001-02 is shown 124.04 percent in 2003-04.

## 3. Structure of Working Capital

The composition of working capital structure indicates that the proportionate size of different types of current assets. Moreover, it also reveals the nature of working capital. Thus, the greater the proportionate size of inventory, the less liquid would be the  nature of working capital and conversely, the greater size of receivables, more liquid would be nature of working capital. A study of the structure of working capital of the DNPL indicates that the inventory occupied the most important place in the structure of its working capital with size of 45.65%. Next to inventory, debtors obtained the important and middle place in the composition of working capital with the size of 16.73%. The proportion of cash and bank to total working capital has been placed third in the hierarchy with the size of 0.3%. This shows that DNPL seems to be unable to maintain absolute liquidity by raising the proportion of cash to its working capital.

The inferential analysis shows that there is not significantly different in the relationship with inventory and current asset, debtors and current assets and cash and current assets.

## 4. Efficiency of Working Capital

The efficient management of working capital trades off between the conflicting objects of liquidity and profitability. The working capital

efficiency of an enterprise is measured by evaluating various turnover ratios. From the study of turnover ratios of DNPL, it is found that inventory turnover averages 4.24 times, debtors turnover averages on 12.61 times, cash turnover averages on 700.18 times and current assets turnover averages on 2.00 times. Debtors turnover ratios is higher than the inventory turnover which implies that the DNPL has been shifting its emphasis from inventory to receivables in order to maintain adequate efficiency of working capital. However, cash turnover implies that it still seems to be unable to maintain absolute efficiency of working capital by raising the cash balance.

The inferential analysis is showed that current assets turnover is significant i.e. correlation between current assets and sales is statistically significant because its calculated t-value is higher than the tabulated value at 5% level of significance. On the other hand, inventory, debtors and cash have no significance correlation with sales i.e. they are not statistically different. This is due to their student's t-values which are lower than the table value at 5% level of significance.

## 5. Liquidity of Working Capital

Liquidity is the core of working capital. The higher the liquidity the lower would be the risk of technical insolvency or vice versa. In the study, it is found that the current and quick ratios which are the measure of liquidity are much lower than their standards of 2:1 and 1:1 respectively.

Its inferential analysis is showed that null hypothesis has been unaccepted in respect of the correlation between current assets and current liabilities as is calculated student's value is greater than the tabulated value at 5% level of significance. On the other hand, null

hypothesis has been accepted in respect of the correlation between quick assets and current liabilities as its calculated t-value is les than the tabulated value at 5% level of significance.

## 6. Liquidity Vs Profitability

There is always on inverse relationship between liquidity and profitability. In other words maintaining higher liquidity results in higher costs, higher liquidity impairs the profitability of the firm. The liquidity measured in terms of current assets and profitability measured in terms of net profit margin shows that it correlation is statistically significant and its student's t-value is higher than the table value at 5% level of significance.

Relationship between return of total assets and quick ratio return on capital employed and quick ratio, return on net worth and quick ratio. They all accept null hypothesis. Their correlation is positive but not statistically significant because their calculated t-values are less than tabulated value ($t_{0.05,4} = 2.77$) at 5% level of significance. But relationship between current ratio and operating ratio and current ratio and net profit margin are negative and positive correlated respectively but its calculated t-values is higher than tabulated value. Hence, alternative hypothesis has been accepted.

## 5.3 Recommendation

1) DNPL should try to improve its liquidity position because both current and quick assets are not sufficient to meet current obligation.

2) The proportion of increase in current liabilities is more than that of current assets. So, it should make a proper planning to decrease the liabilities or increase current assets.

3) DNPL are suggested to negotiate for improvements in the credit terms offered by the suppliers.

4) High cash turnover ratio may indicate a low level of cash build by the company. DNPL should, therefore, make a proper provisions for emergencies.

5) Cash and bank balances have been very low in DNPL. Therefore, in order to avoid contingencies, DNPL should have credit arrangements which banks to avoid contingencies.

6) DNPL should tighten its credit and collection policies of drive out the slow paying customers because its debtors turnover, though have increased as compared to the beginning year is fluctuating which indicates the chances of bad debts losses.

7) Credit checking even for established customers should feature in regular procedures.

8) DNPL should maintain proper balance of inventories which must commensurate with the current asses and sales.

9) Regular stock taking and ventilation must be done by DNPL.

10 DNPL must emphasis on two level of control. The first making sure money received is banked as soon as possible, making payments the most efficient way, and second, ensuring any surplus balances are put to interest earning use, e.g. Government bonds etc.

11. While making proper planning, DNPL should make the comparison of sales and production.

12. Since DNPL is involved in herbal products, raw materials which are not of durable nature, should be procured only for immediate needs.

13. The inferential analysis of total current assets and sales is showed that there is significance difference between them. So, DNPL is going to improving in totally but separately it should be still maintain its current assets position proportionate to its sales.

14. For the purpose of speculating motive, DNPL may hold the marketable securities.

In fine, it may be maintained that the adoption of the recommendation would help DNPL to improve its present working capital position. This study also may used by the government for making policies regarding joint venture companies such as this and herbal products manufacturing and their exports and used by teachers and students as reading materials.

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# APPENDIX - I
## Six Years Financial Results of DNPL
## (2006-07)

**Nrs. in Lakhs**

| Financial Result | 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 |
|---|---|---|---|---|---|---|
| Sales | 22249.16 | 27649.62 | 26995.05 | 30177.02 | 27287.90 | 32270.23 |
| Other Income | 66.41 | 101.74 | 91.37 | 135.35 | 255.51 | 141.89 |
| Total Income | 22315.57 | 27751.36 | 27086.42 | 30212.37 | 27543.41 | 32412.12 |
| Cost of Material | 15609.03 | 19660.71 | 19292.15 | 22155.01 | 20542.52 | 248.44 |
| Mfg. Overheads | 1157.26 | 1548.61 | 1496.45 | 1513.76 | 1618.20 | 2020.71 |
| Personal Overheads | 333.40 | 422.11 | 482.61 | 746.31 | 891.21 | 1228.42 |
| Adm. & Selling Overheads | 1207.25 | 1314.90 | 1531.10 | 1742.06 | 1988.04 | 2502.51 |
| Royalty | 88.27 | 106.30 | 106.94 | 94.70 | 69.24 | 103.35 |
| Financial Exp. | 1295.09 | 1284.67 | 1215.33 | 854.75 | 631.69 | 734.06 |
| Depreciation & Amortization | 845.66 | 1076.87 | 1096.84 | 1037.36 | 1056.84 | 1274.88 |
| **Total Expenses** | 20535.96 | 25414.17 | 25221.42 | 28144.03 | 26797.82 | 32112.37 |
| Profit Before Extraordinary item | 1779.61 | 2337.19 | 1865.00 | 2168.34 | 745.59 | 299.75 |
| Extraordinary Item | 3.37 | 111.47 | 196.18 | 300.29 | 38.22 | - |
| Net profit before Provisions | 1776.24 | 2225.72 | 1668.82 | 1868.05 | 707.37 | 299.75 |
| Provn. for Housing & bonus | 257.55 | 322.73 | 241.98 | 270.86 | 102.57 | 43.47 |
| Provn. for tax | 123.60 | 260.00 | 276.00 | 384.46 | 151.37 | 135.00 |
| Net profit after tax | 1395.09 | 1642.99 | 1150.84 | 1212.73 | 453.43 | 121.28 |
| Profit & Loss B/F | 1764.22 | 2740.03 | 3941.63 | 4663.55 | 5419.19 | 5439.04 |
| Profit for Appropriation | 3159.09 | 4383.02 | 5092.47 | 5876.28 | 5872.62 | 5560.32 |
| Provn. for tax (Previous year) | (0.13) | 21.98 | 9.52 | 37.67 | 14.17 | 64.24 |
| Interim Dividend | 319.41 | 319.41 | 319.41 | 319.41 | 319.41 | - |
| Trans. For Gen. Res. | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| C/F to Balance sheet | 2740.03 | 3941.63 | 4663.55 | 5419.19 | 5439.04 | 5496.08 |
|  | 3159.31 | 4343.02 | 5092.47 | 5876.28 | 5872.62 | 5560.32 |
| **Balance Sheet** | 15.07.01 | 16.07.02 | 16.07.03 | 15.07.04 | 15.07.05 | 16.07.06 |
| **Source of funds:** |  |  |  |  |  |  |
| Share capital | 798.52 | 798.52 | 798.52 | 798.52 | 798.52 | 798.52 |
| Share Premium Account | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 |
| Reserves & surplus | 459.30 | 559.30 | 659.30 | 759.30 | 859.30 | 859.30 |
| Profit & Loss A/c. | 2740.03 | 3941.63 | 4663.55 | 5419.19 | 5439.04 | 5496.08 |
| Working Capital Loan | 5799.46 | 5120.34 | 7312.38 | 5848.45 | 6004.84 | 5534.67 |
| Long Term Loans | 6204.62 | 5877.00 | 4077.00 | 214.92 | 207.89 | 496.20 |
| **Total** | 16601.93 | 16896.79 | 18110.75 | 13640.38 | 13909.59 | 13784.77 |
| **Application of Funds** |  |  |  |  |  |  |
| Fixed Assets (net) | 8744.79 | 8414.97 | 8358.79 | 7758.36 | 9099.96 | 10250.32 |
| Investments | 22.50 | 2.21 | 86.98 | 19.30 | 0 | 19.98 |
| Current Assets |  |  |  |  |  |  |
| Inventories | 4976.92 | 4819.94 | 5368.78 | 6403.04 | 7939.92 | 8557.15 |
| Sundry Debtors | 2572.52 | 2503.39 | 2471.57 | 2217.45 | 1564.92 | 2302.81 |
| Cash and Bank Balance | 30.35 | 56.48 | 42.34 | 106.86 | 74.84 | 19.05 |
| Advances, Deposits and other receivables | 3802.96 | 5510.84 | 6458.97 | 5881.17 | 4763.23 | 4354.93 |
| **Total** | 11382.75 | 12890.65 | 14341.66 | 14608.52 | 14342.91 | 15233.94 |
| Current liabilities and provisions | 3591.02 | 4429.98 | 4676.68 | 8806.19 | 9578.29 | 11749.68 |
| Net current assets | 7791.73 | 8460.67 | 9664.98 | 5802.33 | 4764.62 | 3484.26 |
| Preliminary and pre-operative Expenses | 42.91 | 18.94 | 0.00 | 60.39 | 45.31 | 30.22 |
| **Total** | 16601.93 | 16896.79 | 18110.75 | 13640.38 | 13909.59 | 13784.77 |
| **Key Ratios** |  |  |  |  |  |  |
| Gross contribution (%) | 24.64% | 23.29% | 22.99% | 21.57% | 18.79% | 19.0% |
| Net profit (%) | 6.27% | 5.94% | 4.26% | 4.02% | 1.66% | 0.4% |
| Current Ratio | 1.21 | 1.35 | 1.20 | 1.00 | 0.92 | 0.88 |
| Debt-Equity Ratio | 0.57% | 0.50% | 0.38% | 0.03% | 0.03 | 0.06 |
| Gearing Ratio | 0.30 | 0.41 | 0.45 | 0.57 | 0.55 | 0.78 |
| Asset Turnover | 1.98 | 2.32 | 2.11 | 2.34 | 1.79 | 3.15 |
| ROCE | 16.2% | 13.3% | 13.1% | 15.2% | 7.8% | 8% |
| EPS (Rs) | 174.71 | 205.75 | 144.12 | 151.87 | 56.78 | 15.19 |

## APPENDIX - II

## Calculation of Correlation Coefficient of Current Assets and total Assets

| F/Y | CA(x) | dx=x-138.02 | dx$^2$ | TA (Y) | dy = y-226.29 | dy$^2$ | dx.dy | Ratio (R) | (R-$\overline{R}$)$^2$ |
|---|---|---|---|---|---|---|---|---|---|
| 2001-02 | 113.83 | -24.19 | 585.15 | 204.93 | -24.36 | 593.41 | 589.27 | 0.564 | 0.002025 |
| 2002-03 | 128.91 | -9.12 | 83.17 | 213.27 | -13.02 | 169.52 | 118.74 | 0.604 | 0.002025 |
| 2003-04 | 143.42 | 5.40 | 29.16 | 227.87 | 1.58 | 2.49 | 8.52 | 0.629 | 0.0004 |
| 2004-05 | 146.09 | 0.07 | 65.12 | 224.47 | 1.82 | 3.31 | 14.68 | 0.651 | 0.00249 |
| 2005-06 | 143.43 | 5.41 | 29.26 | 234.88 | 8.59 | 73.79 | 46.47 | 0.610 | 0.000026 |
| 2006-07 | 152.34 | 14.32 | 205.06 | 255.34 | 29.05 | 843.90 | 415.99 | 0.596 | 0.000169 |
| | $\overline{X}$ X138.02 | -0.11 | 996.92 | $\overline{Y}$ X226.29 | 3.66 | 1686.42 | 1193.67 | | 0.005170 |

We get, $\dagger_x \ X \sqrt{\dfrac{996.92}{6} Z \left(\dfrac{Z0.11}{6}\right)^2} X12.88$     $\dagger_y \ X \sqrt{\dfrac{1686.42}{6} Z \left(\dfrac{3.66}{6}\right)^2} X16.75$     $_R = 0.029$

C.V.$_x$= 9.33%          C.V.$_y$ = 7.40%          C.V.$_R$ = 4.82

$r \ X \dfrac{6 \ |1193.67 \ Z \ fZ0.11Å| \ 3.66}{\sqrt{6 \ | \ 996.92 \ Z \ fZ0.11Å} \ \sqrt{6 \ |1686.42 \ Z \ f3.66Å}} X0.9213$     $t \ X \dfrac{.9113}{\sqrt{1 \ Z \ f.9213Å}} \ | \ \sqrt{6 \ Z \ 2} \ X4.73$

## Calculation of Correlation Coefficient of WC and Sales

| F/Y | WC(x) | $d_x = x-66.62$ | $dx^2$ | Sales (Y) | $d_y = y-277.72$ | $d_y^2$ | $d_x.d_y$ |
|---|---|---|---|---|---|---|---|
| 2001-02 | 77.92 | 11.30 | 127.69 | 222.49 | -55.22 | 3049.98 | -623.98 |
| 2002-03 | 84.61 | 17.99 | 232..64 | 276.50 | -1.22 | 1.48 | -21.94 |
| 2003-04 | 96.65 | 30.03 | 901.80 | 269.95 | -7.77 | 60.37 | -233.33 |
| 2004-05 | 58.03 | -8.59 | 73.79 | 301.77 | 24.05 | 578.40 | -206.58 |
| 2005-06 | 47.65 | -18.97 | 359.86 | 272.88 | -4.88 | 23.42 | 91.81 |
| 2006-07 | 34.84 | -31.78 | 1009.96 | 322.71 | 44.99 | 2024.10 | -1429.78 |
| | $\overline{X}$ X66.62 | -0.02 | 2796.75 | $\overline{Y}$ X277.72 | -0.01 | 5737.75 | -2423.80 |

We get, r = - 0.605                                                            /t/ = 1.51

## Calculation of Regression Equation of WC on Sales of DNPL

Let sales and WC denoted by X and Y respectively. Then, the regression equation of WC (y) on sales (x) be

$\quad$ Y = a+bx………………….1

The normal equations estimating a and b are

$\quad$ y = na+b x ………………..2

and $\quad$ xy = a x+b $x^2$…………….3

| F/Y | Sales (X) | $x^2$ | WC (Y) | Y2 | xy |
|---|---|---|---|---|---|
| 2001-02 | 222.49 | 49501.80 | 77.92 | 6071.52 | 17336.42 |
| 2002-03 | 276.50 | 76452.25 | 84.61 | 7158.85 | 23394.66 |
| 2003-04 | 269.95 | 72873.00 | 96.65 | 9341.22 | 26090.66 |
| 2004-05 | 301.77 | 91065.13 | 58.03 | 3367.48 | 17511.71 |
| 2005-06 | 272.88 | 74463.49 | 47.65 | 2270.52 | 13002.73 |
| 2006-07 | 322.71 | 104141.74 | 34.84 | 1213.82 | 11243.21 |
| | 1666.30 | 468497.41 | 399.70 | 29423.41 | 108579.39 |

Putting these value in 2 and 3, we get

$\quad$ x (a) = 183.93

$\quad$ y (b) = -0.422

We get,

$\quad$ The required equation, y = 183.93-0.422x

## Calculation Correlation Coefficient of Cash and Current Assets

| F/Y | C&B (x) | Dx=x-.54 | dx$^2$ | CA (Y) | dy = y-140 | dy$^2$ | dx.dy | Ratio (R) | (R-$\bar{R}$)$^2$ |
|---|---|---|---|---|---|---|---|---|---|
| 2001-02 | 0.30 | -0.24 | 0.0576 | 113.83 | -26.18 | 685.39 | 6.28 | 0.0026 | 0.0000001 |
| 2002-03 | 0.56 | 0.02 | 0.0044 | 128.91 | -11.10 | 123.21 | -0.222 | 0.0043 | 0.000001 |
| 2003-04 | 0.42 | -0.12 | 0.0144 | 143.42 | 3.14 | 11.62 | -0.4092 | 0.0029 | 0.00000001 |
| 2004-05 | 1.06 | 0.52 | 0.2704 | 146.09 | 6.08 | 36.96 | 3.1616 | 0.0072 | 0.00001 |
| 2005-06 | 0.74 | 0.20 | 0.0400 | 143.43 | 3.42 | 11.69 | 0.684 | 0.0051 | 0.00004 |
| 2006-07 | 0.19 | -0.35 | 0.1225 | 152.34 | 12.33 | 152.02 | -4.3155 | 0.0012 | 0.00003 |
| | $\bar{X}$ X0.54 | 0.03 | 0.5053 | $\bar{Y}$ X138.02 | -12.04 | 1020.89 | 5.1789 | $\bar{R}$ X0.003 | 0.00008 |

We get,

x = 0.2902                          y =9.01                          $_R$ = 0.000013
C.V.x = 53.73%                     C.V.y = 6.44%                    C.V.$_{·R}$ = 0.4
r = 0.23                           t = 0.47

## Calculation of Correlation Coefficient of Inventory and Current Assets

| F/Y | Inventory (x) | dx=x – 63.44 | dx$^2$ | CA (Y) | dy = y-140 | dy$^2$ | dx.dy | Ratio (R) | (R-$\bar{R}$)$^2$ |
|---|---|---|---|---|---|---|---|---|---|
| 2001-02 | 49.76 | -13.68 | 187.14 | 113.83 | -26.18 | 685.39 | 358.14 | 0.4371 | 0.0003 |
| 2002-03 | 48.19 | -15.25 | 232.56 | 128.91 | -11.10 | 123.21 | 169.27 | 0.3728 | 0.0068 |
| 2003-04 | 53.68 | -9.76 | 95.25 | 143.42 | 3.14 | 11.62 | -33.28 | 0.3743 | 0.0067 |
| 2004-05 | 64.03 | 0.59 | 0.35 | 146.09 | 6.08 | 36.96 | 3.58 | 0.4383 | 0.0003 |
| 2005-06 | 79.39 | 15.95 | 254.40 | 143.43 | 3.42 | 11.69 | 54.95 | 0.5535 | 0.0094 |
| 2006-07 | 85.57 | 22.13 | 489.74 | 152.34 | 12.33 | 152.02 | 272.86 | 0.5617 | 0.0110 |
| | $\bar{X}$ X63.44 | -0.02 | 1259.43 | $\bar{y}$ X140 | -12.04 | 1020.89 | 825.52 | $\bar{R}$ X0.4565 | 0.0345 |

We get,

x = 14.49                          y =9.01                          $_R$ = 0.075
C.V.x = 22.84%                     C.V.y = 6.44%                    C.V.$_{·R}$ = 16.61
r = 0.7368                         t = 2.17

**Calculation of Correlation Coefficient of Debtors and Current Assets**

| F/Y | Debtors (x) | dx=x – 22.71 | dx2 | CA (Y) | dy = y-140 | dy2 | dx.dy | Ratio (R) | $(R-\overline{R})2$ |
|---|---|---|---|---|---|---|---|---|---|
| 2001-02 | 25.72 | 3.01 | 9.06 | 113.83 | -26.18 | 685.39 | -78.80 | 0.22 | 0.0036 |
| 2002-03 | 25.03 | 2.32 | 5.38 | 128.91 | -11.10 | 123.21 | -25.75 | 0.19 | 0.0009 |
| 2003-04 | 24.71 | 2.00 | 4.00 | 143.42 | 3.14 | 11.62 | 6.82 | 0.17 | 0.0001 |
| 2004-05 | 22.17 | -0.54 | 0.29 | 146.09 | 6.08 | 36.96 | -3.28 | 0.15 | 0.0001 |
| 2005-06 | 15.64 | -7.07 | 49.98 | 143.43 | 3.42 | 11.69 | -24.17 | 0.10 | 0.0036 |
| 2006-07 | 23.02 | 0.31 | 0.09 | 152.34 | 12.33 | 152.02 | 3.82 | 0.15 | 0.0001 |
| | $\overline{X}$ X22.71 | 0.03 | 68.80 | $\overline{y}$ X140 | -12.04 | 1020.89 | -121.36 | $\overline{R}$ X0.16 | 0.0084 |

We get,

x = 3.38  y = 12.88  R = 0.03

C.V.x = 14.91%  C.V.y = 29.20%  C.V.R = 23.38

r = -0.4632  t = 2.17

**Calculation of Correlation Coefficient of Inventory and Sales**

| F/Y | Sales (x) | dx=x – 277.71 | dx2 | Inventory (Y) | dy = y-63.44 | dy2 | dx.dy | Ratio (R) | $(R-\overline{R})2$ |
|---|---|---|---|---|---|---|---|---|---|
| 2001-02 | 222.49 | -55.22 | 3049.43 | 49.76 | -13.68 | 187.14 | 755.40 | 4.47 | 0.0529 |
| 2002-03 | 276.50 | -1.22 | 1.48 | 48.19 | -15.25 | 232.56 | 18.60 | 5.73 | 2.2201 |
| 2003-04 | 269.95 | -7.76 | 60.21 | 53.68 | -9.76 | 95.25 | 75.73 | 5.02 | 0.6084 |
| 2004-05 | 301.77 | 24.06 | 578.88 | 64.03 | 0.59 | 0.35 | 14.19 | 4.71 | 0.2209 |
| 2005-06 | 272.88 | -4.84 | 13.42 | 79.39 | 15.95 | 254.40 | 77.20 | 1.71 | 6.4009 |
| 2006-07 | 322.71 | 50.00 | 2024.10 | 85.57 | 22.13 | 489.74 | 1106.50 | 3.77 | 0.2209 |
| | $\overline{x}$277.71 | 55.00 | 5737.52 | $\overline{y}$ X63.44 | -0.02 | 1259.43 | 1893.22 | $\overline{R}$ X4.24 | 9.7241 |

We get,

x = 30.77  y = 14.49

C.V.x = 11.08%  C.V.y = 22.84%  r=1.27

r = 0.7375  t = 2.18  C.V.R = 29.95%

## Calculation of Correlation Coefficient of Debtors and Sales

| F/Y | Sales (x) | dx=x – 277.71 | dx2 | Debtors (Y) | dy = y-22.71 | dy2 | dx.dy | Ratio (R) | $(R-\bar{R})2$ |
|---|---|---|---|---|---|---|---|---|---|
| 2001-02 | 222.49 | -55.22 | 3049.43 | 25.72 | 3.005 | 9.03 | -165.93 | 8.65 | 15.68 |
| 2002-03 | 276.50 | -1.22 | 1.48 | 25.03 | 2.32 | 5.38 | -2.83 | 11.04 | 2.46 |
| 2003-04 | 269.95 | -7.76 | 60.21 | 24.71 | 2.00 | 4.00 | -15.52 | 10.92 | 2.85 |
| 2004-05 | 301.77 | 24.06 | 578.88 | 22.17 | -0.54 | 0.29 | -13.00 | 13.61 | 1.00 |
| 2005-06 | 272.88 | -4.84 | 13.42 | 15.64 | -7.07 | 49.98 | 34.22 | 17.44 | 23.32 |
| 2006-07 | 322.71 | 50.00 | 2024.10 | 23.02 | 0.31 | 0.09 | 15.50 | 14.01 | 1.96 |
| | $\bar{x}$ X277.71 | 55.00 | 5737.52 | $\bar{y}$ X22.71 | 0.025 | 68.77 | -147.56 | $\bar{R}$ X12.61 | 47.27 |

We get,

x = 30.77                                     y = 3.38

C.V.x = 11.08%                          C.V.y = 14.88%          r= 2.20

r = -0.246                                    /t/ = 0.50                    C.V.$_R$ = 22.20%

## Calculation of Correlation Coefficient between Sales and Cash

| F/Y | Sales (x) | dx=x – 277.71 | dx2 | C&B (Y) | dy = y-0.5498 | dy2 | dx.dy | Ratio (R) | $(R-\bar{R})2$ |
|---|---|---|---|---|---|---|---|---|---|
| 2001-02 | 222.49 | -55.22 | 3049.43 | 0.3035 | -0.2463 | 0.0606 | 13.60 | 733.08 | 1082.41 |
| 2002-03 | 276.50 | -1.22 | 1.48 | 0.5648 | 0.0150 | 0.0002 | -0.01 | 489.53 | 44373.42 |
| 2003-04 | 269.95 | -7.76 | 60.21 | 0.4234 | -0.1264 | 0.0159 | 0.98 | 637.57 | 3920.01 |
| 2004-05 | 301.77 | 24.06 | 578.88 | 1.0686 | 0.5188 | 0.2691 | 12.48 | 282.39 | 174548.48 |
| 2005-06 | 272.88 | -4.84 | 13.42 | 0.7484 | 0.1986 | 0.0394 | -0.96 | 364.60 | 112613.93 |
| 2006-07 | 322.71 | 50.00 | 2024.10 | 0.1905 | -0.3593 | 0.1290 | -17.96 | 1693.96 | 987598.68 |
| | $\bar{x}$ X277.71 | 55.00 | 5737.52 | $\bar{Y}$ X0.5498 | 0.0004 | 0.5142 | 8.13 | $\bar{R}$ X700.18 | 1324136.93 |

We get,

x = 30.77                                     y = 0.2927

C.V.x = 11.08%                          C.V.y = 187.80%                    r= 469.77

r = -0.2076                                  t = 0.42                               C.V.$_R$ = 67.09%

## Calculation of Correlation Coefficient between Sales and Current Assets

| F/Y | Sales (x) | dx=x – 277.71 | dx2 | CA (Y) | dy = y-138 | dy2 | dx.dy | Ratio (R) | $(R-\bar{R})2$ |
|---|---|---|---|---|---|---|---|---|---|
| 2001-02 | 222.49 | -55.22 | 3049.43 | 113.82 | -24.18 | 584.39 | 1335.22 | 1.95 | 0.0025 |
| 2002-03 | 276.50 | -1.22 | 1.48 | 128.90 | -9.10 | 82.81 | 11.10 | 2.14 | 0.0196 |
| 2003-04 | 269.95 | -7.76 | 60.21 | 143.41 | 5.41 | 29.26 | -14.98 | 1.88 | 0.0144 |
| 2004-05 | 301.77 | 24.06 | 578.88 | 146.08 | 8.08 | 65.28 | 194.40 | 2.06 | 0.0036 |
| 2005-06 | 272.88 | -4.84 | 13.42 | 143.42 | 5.42 | 29.37 | -26.23 | 1.90 | 0.01 |
| 2006-07 | 322.71 | 50.00 | 2024.10 | 152.33 | 14.33 | 205.34 | 716.50 | 2.11 | 0.0121 |
| | $\bar{x}$ X277.71 | 55.00 | 5737.52 | $\bar{Y}$ X138 | -0.04 | 996.45 | 2189.01 | $\bar{R}$ X2.00 | 0.0622 |

We get,

x = 30.77            y = 12.88

C.V.x = 11.08%      C.V.y = 9.33%     r= 0.10

r = -0.9587          t = 6.74      $C.V._{.R}$ = 5.09%

## Calculation of Correlation Coefficient of Current Assets and Currant Liabilities

| F/Y | CA (x) | dx=x – 138.00 | dx2 | CL (Y) | dy = y-130.75 | dy2 | dx.dy | Ratio (R) | $(R-\bar{R})2$ |
|---|---|---|---|---|---|---|---|---|---|
| 2001-02 | 113.82 | -24.18 | 584.39 | 93.90 | -36.85 | 1357.92 | 891.03 | 1.21 | 0.0144 |
| 2002-03 | 128.90 | -9.10 | 82.81 | 95.50 | -35.25 | 1242.56 | 320.77 | 1.35 | 0.0676 |
| 2003-04 | 143.41 | 5.41 | 29.26 | 119.89 | -10.86 | 117.93 | -58.75 | 1.20 | 0.0121 |
| 2004-05 | 146.08 | 8.08 | 65.28 | 146.54 | 15.79 | 249.32 | 127.58 | 1.00 | 0.0081 |
| 2005-06 | 143.42 | 5.42 | 29.37 | 155.83 | 25.08 | 629.00 | 135.93 | 0.92 | 0.0289 |
| 2006-07 | 152.33 | 14.33 | 205.34 | 172.84 | 42.09 | 1771.56 | 603.14 | 0.88 | 0.0441 |
| | $\bar{X}$ X138 | -0.04 | 996.45 | $\bar{Y}$ X130.75 | 0 | 5368.29 | 2019.70 | $\bar{R}$ X1.09 | 0.1752 |

We get,

r = 0.8733                t = 63.5

## Calculation of Correlation Coefficient between Quick Assets and Current Liabilities

| F/Y | QA (x) | dx=x – 74.55 | dx2 | CL (Y) | dy = y-130.75 | dy2 | dx.dy | Ratio (R) | $(R-\bar{R})2$ |
|-----|--------|--------------|-----|--------|----------------|-----|-------|-----------|----------------|
| 2001-02 | 64.05 | -10.5 | 110.25 | 93.90 | -36.85 | 1357.92 | 386.92 | 0.68 | 0.0064 |
| 2002-03 | 80.70 | 6.15 | 37.82 | 95.50 | -35.25 | 1242.56 | -216.78 | 0.84 | 0.0576 |
| 2003-04 | 89.72 | 15.17 | 230.12 | 119.89 | -10.86 | 117.93 | -164.74 | 0.74 | 0.0196 |
| 2004-05 | 82.05 | 7.5 | 56.25 | 146.54 | 15.79 | 249.32 | 118.42 | 0.56 | 0.0016 |
| 2005-06 | 64.02 | -10.53 | 110.88 | 155.83 | 25.08 | 629.00 | -264.09 | 0.41 | 0.0361 |
| 2006-07 | 66.76 | -7.79 | 60.68 | 172.84 | 42.09 | 1771.56 | -327.88 | 0.38 | 0.0484 |
| | $\bar{x}$ X74.55 | 0 | 606.00 | $\bar{Y}$ X130.75 | 0 | 5368.29 | -468.15 | $\bar{R}$ X0.60 | 0.4946 |

We get,

x = 10.04                                          y = 29.91

C.V.x = 13.48%                          C.V.y = 22.87%          r= 0.28

r = -0.2595                                    /t/ = 0.53          C.V.R = 47.85%

## Calculation of Correlation Coefficient of Net Profit Margin and Current Ratio

| F/Y | NPM (x) | dx = x -0.0435 | dx2 | CR (Y) | dy = y-1.09 | dy2 | dx.dy |
|-----|---------|----------------|-----|--------|-------------|-----|-------|
| 2001-02 | 0.0627 | 0.0192 | 0.00036 | 1.21 | 0.12 | 0.0144 | 0.00230 |
| 2002-03 | 0.0594 | 0.0159 | 0.00025 | 1.35 | 0.26 | 0.0676 | 0.00413 |
| 2003-04 | 0.0426 | -0.0189 | 0.00035 | 1.20 | 0.11 | 0.0121 | -0.00207 |
| 2004-05 | 0.0402 | -0.0003 | 0.00001 | 1.00 | -0.09 | 0.0081 | 0.00002 |
| 2005-06 | 0.0166 | -0.0269 | 0.00072 | 0.92 | -0.17 | 0.0289 | 0.00457 |
| 2006-07 | 0.0400 | -0.0034 | 0.00001 | 0.88 | -0.21 | 0.0441 | 0.00073 |
| | $\bar{x}$ X0.0435 | -.0145 | 0.00170 | $\bar{y}$ X0.12 | 0.02 | 0.1752 | 0.01382 |

We get,

r = 0.08121                                                             t = 2.78

## Calculation of Correlation Coefficient between Current Ratio and Operating Ratio

| F/Y | Operating Ratio (x) | dx = x -0.87 | dx2 | CR (Y) | dy = y-1.09 | dy2 | dx.dy |
|---|---|---|---|---|---|---|---|
| 2001-02 | 0.82 | -0.05 | 0.0025 | 1.21 | 0.12 | 0.0144 | -0.0060 |
| 2002-03 | 0.83 | -0.04 | 0.0016 | 1.35 | 0.26 | 0.0676 | -0.0104 |
| 2003-04 | 0.84 | -0.03 | 0.0009 | 1.20 | 0.11 | 0.0121 | -0.0033 |
| 2004-05 | 0.86 | -0.01 | 0.0001 | 1.00 | -0.09 | 0.0081 | 0.0009 |
| 2005-06 | 0.92 | 0.05 | 0.0025 | 0.92 | -0.17 | 0.0289 | -0.0085 |
| 2006-07 | 0.93 | 0.06 | 0.0036 | 0.88 | -0.21 | 0.0441 | -0.0126 |
| | $\bar{x}$ X0.87 | -0.02 | 0.0112 | $\bar{y}$ X0.12 | 0.02 | 0.1752 | -0.0399 |

We get,

$r = -0.9020$                                                          $/t/ = 4.17$

## Calculation of Correlation Coefficient of Quick Ratio and Return on total Assets

| F/Y | Quick Ratio (x) | dx = x -0.60 | dx2 | Return on total assets (Y) | dy = y-0.0457 | dy2 | dx.dy |
|---|---|---|---|---|---|---|---|
| 2001-02 | 0.68 | 0.08 | 0.0064 | 0.0690 | 0.0233 | 0.00054 | 0.00186 |
| 2002-03 | 0.84 | 0.24 | 0.0576 | 0.770 | 0.0313 | 0.00097 | 0.00751 |
| 2003-04 | 0.74 | 0.14 | 0.0196 | 0.0505 | 0.0048 | 0.00002 | 0.00067 |
| 2004-05 | 0.56 | 0.04 | 0.0016 | 0.0540 | 0.0083 | 0.00006 | 0.00033 |
| 2005-06 | 0.41 | -0.19 | 0.0361 | 0.0193 | -0.0264 | 0.00069 | 0.00501 |
| 2006-07 | 0.38 | -0.22 | 0.0484 | 0.0047 | -0.0410 | 0.00168 | 0.00902 |
| | $\bar{x}$ X0.38 | 0.01 | 0.4946 | $\bar{y}$ X0.0457 | 0.0003 | 0.00393 | 0.02375 |

We get,        $r = 0.5366$                                        $t = 1.27$

## Calculation of Correlation Coefficient of Quick Ratio and ROCE

| F/Y | Quick Ratio (x) | dx = x -0.60 | dx2 | ROCE (Y) | dy = x-12 | dy2 | dx.dy |
|---|---|---|---|---|---|---|---|
| 2001-02 | 0.68 | 0.08 | 0.0064 | 0.16 | 0.04 | 0.0016 | 0.0032 |
| 2002-03 | 0.84 | 0.24 | 0.0576 | 0.17 | 0.05 | 0.0025 | 0.0120 |
| 2003-04 | 0.74 | 0.14 | 0.0196 | 0.13 | 0.01 | 0.0001 | 0.0014 |
| 2004-05 | 0.56 | 0.04 | 0.0016 | 0.15 | 0.03 | 0.0009 | 0.0012 |
| 2005-06 | 0.41 | -0.19 | 0.0361 | 0.07 | -0.04 | 0.0016 | 0.0076 |
| 2006-07 | 0.38 | -0.22 | 0.0484 | 0.08 | -0.04 | 0.0016 | 0.0088 |
| | $\bar{x}$ X0.38 | 0.01 | 0.4946 | $\bar{y}$ X0.12 | 0.05 | 0.00393 | 0.0342 |

We get,

r = 0.5463                                                    t = 1.30

## Calculation of Correlation Coefficient between Quick Ratio and ROSE

| F/Y | QR (x) | dx = x – 0.60 | dx2 | ROSE (Y) | dy = y-0.49 | dy2 | dx.dy |
|---|---|---|---|---|---|---|---|
| 2001-02 | 0.68 | 0.08 | 0.0064 | 0.75 | 0.26 | 0.0676 | 0.0208 |
| 2002-03 | 0.84 | 0.24 | 0.0576 | 0.83 | 0.34 | 0.1156 | 0.0816 |
| 2003-04 | 0.74 | 0.14 | 0.0196 | 0.55 | 0.06 | 0.0036 | 0.0084 |
| 2004-05 | 0.56 | -0.04 | 0.0016 | 0.56 | 0.07 | 0.0049 | 0.0028 |
| 2005-06 | 0.41 | -0.19 | 0.0361 | 0.20 | -0.29 | 0.0841 | 0.0551 |
| 206-07 | 0.38 | -0.22 | 0.0484 | 0.05 | -0.44 | 0.1936 | 0.0968 |
| | $\bar{x}$ X0.60 | 0.01 | 0.4946 | $\bar{y}$ X0.49 | 0 | 0.4694 | 0.2599 |

We get,

r = 0.5394                                                    t = 1.54