CHAPTER – I

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Nepal is an underdeveloped and a landlocked country but very beautiful and rich in natural resources. It is situated in between two countries. So, ' it is a yam between two big stones'. It is a Himalayan kingdom and having different features as buffer state in the south Asia. It is very greenery. So, it is called the Switzerland of the South Asia. On the basis of total area covered, it is 22 times smaller than India and 65 times smaller than China. It lies in the 26°22' north to 30°27'north longitudes and 80°04'east to 88°12' east latitudes. It has covers 0.03% in the world and 0.3% in Asia continent. There are low numbers of educated people and dependent upon agriculture. About 74% of total population is dependent upon agriculture. Only 10% people are engaged in the industrial sector. Sufficient industries are not established in our country as being under developed.

Being Mountainous and agricultural country, Nepal has faced a lot problem in her economic development. Not a single factor is responsible for the retardation in her path of economic development. Many tremendous causes such as lack of sources of finance, transportation, education, socio economic condition, mismanagement of government rules and regulation and geographical land by nature etc, handicap the country and lead towards the low productivity and less effective result in performance operation and rolling down towards the least developed country in the world. Prospects for overall economic development will be brighter only if the present structure of the economy with predominated dependence on traditional agricultural can be gradually transferred through the process of industrialization. Business activities are negatively affected by geographical structure of Nepal. But Nepalese biodiversity and natural resources have high probability for industrial growth and development in Nepal.

The overall development of any country depends upon sound and rapid progress of the industrial, trade and commercial sectors. For the smooth operation is necessary of the private and public organization good working capital management. To develop the agricultural country, the industry based upon agriculture and forest play key role.

Such industries are established mainly for earning profit through providing product and service for the sound operation of business sector.

Industry is concerned to produce goods and provide services to get maximum profit. Being an agricultural country, agricultural based industries are needed to develop the nation. The process of producing, marketing and providing service is regarded as industry. Such agricultural products are sold in the market and consumed by the customers. Sufficient industries were not established in our country due to the following reasons:

- Unequal distribution of national income
- Landlocked county
- Developing country
- Lack of sufficient capital
- Political instability
- Mixed economy
- Higher population growth
- Depended on foreign aid
- Lack of infrastructure
- Lack of skilled man power

Working Capital is life blood of any organization. The management of working capital is not simple one, with the minor mistakes on decision making about the adequacy of the working capital, in a concern may put company into liquidation. The manufacturers should have an adequate supply of raw materials to process or adequate cash to meet wages bills otherwise it causes a serious problem in its operation.

Manufacturing public enterprises are key instruments of country's economy. What happens in economy is a part of the effects coming from that performance of public enterprises, as well as their working capital management. So, researcher has reflected brief introduction over industrialization and its development in Nepal. It is believed that in order to achieve security, stability and high standard of living the countries must be industrialized. The most important reason for embarking on a performance of industrialization is to increase the national income (Muny, D. Bryle:1969)

Historically industrial development process in Nepal began after 1936 with the establishment of Biratnagar Jute Mill. It was established under the company act 1936

which was the first Joint Stock Company of Nepal and was incorporated in 1937. During 1936-1944, a number of industries in the field of cotton, textile, sugar, match, hydropower, rice, oil, cigarettes were setup in the South Eastern Terai region. During Second World War, a group of another five joint stock company was established in the country which brings boosting in the development of the industries. After 1950's, Nepal started planned economic development effort to obtain rapid economic growth. Then the development of modern industries in the public sector started with planned economic development. In our country various manufacturing companies have been established and developed through government efforts funding from NIDC to industries under various five year development plants. At present, 12^{th} plan is running. But due to poor performance in public enterprises negative return, lack of efficiency, inefficient in management, government has emphasized on privatization. A total of 17 public enterprises have been privatized under different modalities in three phases by launching privatization process. More enterprises are in the pipeline for privatization in the government policy and programs.

So, industrialization is universally accepted as a strategy of economic development. It is the key factor in the process of achieving economic growth; prosperity has long been recognized in economic literature. It offers prospects for expansion of employment, income and generates innovations, technological changes that bring about shifts in production frontier, thereby accelerating growth and factor productivity. Industrialization by broadening the middle class and creating new industrial work force (Regmi, Govinda Pd.:1994)

Working Capital Management practice in Nepalese manufacturing enterprises provides totally a different picture. The past trend of many manufacturing companies shows emphasis in fixed asset, that’s way they are facing financial problem all the time, in resulting lower efficiency. The government policy to concentrate more on fixed assets has overloaded the financing of working capital. So in order to create the culture of risk bearing ability through commercial prudence and professionalism, the aspect of working capital should be treated in the same way as fixed capital, while deciding the structure of the manufacturing companies recently short term financial decision has never received much attention in the literature of finance. Earlier emphasis of financial management, on more long-term financial decision, led to growth and development of many useful theories concerning these decisions as compared to short-term financial decision (Pradhan, Radhe Shyam:1986)

However in recent years it has been realized that the area of working capital intricately inter woven with cusses of failure of the such situation where shortage of funds for working capital has caused many businesses to fail and is less server caused has stunted their growth (Marthn, Grass:1972)

Working capital is life blood of enterprises. The inefficient management of working capital will lead to loss of profits in the short run, and lead to downfall of the enterprises in the long run. In this sense, the cost of inadequate planning in the use of working capital is immeasurable. A deeper understanding of the importance of working capital and its satisfactory provision can lead not only to material saving as well as economic use of capital but can also assert in furthering the ultimate aim of business (Lesh, R Howard: 1971)

Maintaining the optimal level of working capital is the crux problem as it's strongly related to the trade off between risk and return. In such circumstances an outmost care should be taken in the management of such assets because inadequate investment, not only threaten the solvency of the enterprise but also affects the growth. Setting optimal level of working capital requires and exercises of determining that level of current assets, where cost, cost of liquidity and illiquidity total is minimum. The aspect of determining appropriate proportion of working capital in the structure of total assets comes under the preview of working capital policy. The unnecessary blocking of working capital, administrative negligence in day to day operation and serious liquidity problem are the main causes to failure the manufacturing companies of Nepal. Most of Nepalese manufacturing companies are operating in loss, though they are following aggressive approach of working capital management.

1.1.1 Brief introduction of Jadibuti Utpadan Tatha Prashodhan Company Limited. (JUTPCL)

Jadibuti Utpadan Tatha Prashodhan Company Limited (JUTPCL) is one of the manufacturing company which manufactures the different types of herbal products as Himalayan massages oil, Nepal oil, Anti leech oil, Sancho, Sancho herbal drink, Aromatherapy oil, Shilajeet and others medicinal extracts. It is the public enterprises with full ownership of Nepal Government. It was established in B.S. 2038 under the company act 2021 and operating now under company act 2063.It is one of the leading figures of Nepalese industrial sector. The company is located in Koteshwor of Kathmandu Municipality in Kathmandu District, Nepal .It represents the first large-

scale herb manufacturing company of Nepal. About 160 employees and 5000 herbs collectors are engaged in this company.

The company produces Essential Oils and Medicinal Extracts using Indigenous Himalayan herbs and exotic conventional vegetal materials as Raw materials. The sources of raw materials are cultivation in its own Farm, private farmers land and collection from wild sources.The company owns an area of 359 hectors in Tamagadhi Farm and 70 hectors. in Belbari Herbal Centre for cultivation of medicinal and aromatic plants. The company has been exporting the products to France, Germany, Spain, U. K. etc. in Europe and to India, Taiwan, Malaysia, Australia etc. in Asia and Pacific. At present this company is capable of exporting indigenous products like Lichen Resinoid, Sugandha Kokila Oil, Tagetes Oil and Jatamansi Oil as Well as exotic varieties such as Palmarosa Oil, Citronella Oil, Lemongrass Oil and some crude drugs to neighboring and third countries.

1.2 STATEMENT OF PROBLEMS

Working Capital Management becomes difficult in many organizations. In most enterprises the management of working capital has been misunderstood as the management of money and the managers are found over conscious about the burdening of money rather than its efficient utilization. Regarding the management of working capital sources most of the public enterprises have never been through seriously. They are usually found to depend upon Government even for overcoming the shortages of Working Capital in spite of trying to manage form depreciation fund and utilized surplus to overcome of working capital (Acharya, Dr. K.:1985). Working Capital management has been the most challenging area of modern corporate finance since the management always faces a trade off between liquidity and profitability of firm (Acharya, Dr. K. :1988)

As working capital management is important instrument for every organization for their success. They should invest available funds adequately in current assets otherwise it will seriously erode their liquidity base. In most enterprises the management of working capital has been misunderstood as the burdening of money rather than it's efficient utilization. So, they must select the type of current assets suitable for investment in proportionate percentage to raise their operational efficiency. Working capital is required to ascertain turnover of current assets that greatly determine the prodigality of the organization. A firm must have sufficient

finished products. The efficient management of working capital is useful for every organization over investment, unpredictability of firm, whereas mismanagement of current liabilities will have a negative impact on both cost of capital and risks of the organization.

Nowadays most of the companies have recognized the importance of working capital management even they are not able to obtain full advantages of working capital management. This company is also facing problem with working capital management. The working capital of the company is not satisfactory and encouraging. They are maintaining high level of current assets. Various questions arise regarding the problems relating to working capital management in this are:

- How the working capital is managed in JUTPCL?
- What is the relationship between Working Capital Management and Profitability of the Company?
- What types of Inventory Techniques are adopted by the Company?
- What Working Capital Policy is the Company following?
- What is the liquidity position of the Company?
- What are the major problems related to working capital management of Company?

1.3 OBJECTIVES OF THE STUDY

The main Objective of Working Capital Management is to maximize the cost of maintaining Current Assets. The cost of maintaining necessary Current Assets depends on the size of such Assets held. The objectives of managing Working Capital are same as the basic objective of the Firm i.e. to maximize the value of the Firm. Working Capital management is important instrument for any organization. Success or failure of any organization depends on its investment in current assets. They should invest in right percentage so that there will not be excess liquidity. The main objective of this study is to examine the working capital management of JUTPCL. The specific objectives are as follows:-

- To know the level of each Current Assets.
- To analyze the relationship between working capital management and profitability of the Company.
- To study the size of the investment in each type of the Working Capital.

- To identify the liquidity position of the Company.

1.4 SIGNIFICANCE OF STUDY

Working capital is related with the short term assets. i.e. current asset. More than half of total assets are invested in current assets. So, it is necessary to study about the working capital management in organization. The significance of the study of it is important for following reasons:-

- A large proportion of the financial management time is allocated to working capital management.
- More than half of the total assets are typically invest in current assets.
- The relation between sales growth and the current assets is close and direct.

1.5 LIMITATION OF THE STUDY

Following are the limitation for the study:

- This study has been limited to the working capital management of the company which is sample to study about the working capital.
- Data provided by the company is secondary in nature.
- This study depends upon five years data from fiscal year 2065/066 to 2069/070.
- The financial tools as well as statistical tools are taken for analyzing the working capital management of the company.
- Due to time constraints and difficult data it is only a study to fulfil the partial requirement for the MBS degree.

1.6 ORGANIZATION OF THE STUDY

This study has been spread altogether in to five chapters. A brief outline of each of these chapters has been given as follows:

1.6.1 Introduction:

It includes general background of the study, statement of problem, objective of study, significance of the study and limitation of study.

1.6.2 Review of Literature:

This chapter includes reviewed literature. The researcher has divided this chapter into two portions, first being theoretical framework and second is review of previous studies.

1.6.3 Research Methodology:

The chapter three includes research methodology, research design, nature and sources of data, data gathering procedure presentation and analysis of technique and tools. Research methodology consists of research design and research tools. Both primary and secondary data are used in this study.

1.6.4 Presentation and Analysis of Data:

Fourth chapter of this study is concern with data presentation and analysis. This is the main part of the study; obtained data are presented in the tabular and other forms. Various statistical presentations are used for analyzing the collected data from different sources. Actual results are obtained after analysis of data by using financial and statistical tools and techniques. Major findings are drawn after analysis of data.

1.6.5 Findings, conclusion and Recommendation:

This is the last chapter of study and includes, summary, conclusion, findings and some recommendations.

1.7 TERMINOLOGIES USED

a. Current Assets:

Current assets include cash and those assets which can be converted into cash within year such as marketable securities, cash, prepaid expenses, bills receivable, account receivable, inventory, book debt, sundry debtors etc.

b. Current Liabilities:

An obligation maturing within a year is included in current liabilities. Thus current liabilities include sundry creditors, Provision for taxation, bank overdraft, bills

payable, outstanding expenses, account payable, and unclaimed dividend, provision for bonus, housing and income tax etc.

c. Net Working Capital:

The term working capital refers to the company surplus balance of current assets over current liabilities or net working capital is the difference between current assets and current liabilities.

Net Working Capital=Current assets-current liabilities

d. Quick Assets:

It is a part of current assets which are considered as highly liquid. We have to reduce prepaid expenses and inventories from total current assets to find out quick assets.

e. Fixed Assets:

Fixed assets are permanent assets without which no organization is existed in the world. Such as furniture, building, plant and machinery, furniture and fixture, equipment, vehicle etc for the regular operation of the firm.

f. Total Assets:

It is the total sum of current and fixed assets.

g. Equity:

Equity is a part of net worth. It generally implies as common stock including preference share capital.

h. Debts:

Debts mean money, goods and services owing to another by virtue of an agreement expressed or imply giving right to legal duty to pay it.

i. Total fund:

Total fund implies the total long term debt as well as short term debt of the firm.

j. Inventory:

Inventories are the stock of goods which keeps meeting firm's requirement of production and sales. These are raw material, working progress, finished goods and chemicals etc.

k. Receivables:

It includes the sales debtors and other debtors only.

l. Cash and Bank Balance:

It includes the cash in hand and cash at bank.

CHAPTER – II

REVIEW OF LITERATURE

2.1 INTRODUCTION

This chapter is concerned with the review of relevant literatures available in the books, journals articles research reports, newspapers, magazines, policy documents which are published or unpublished. Every study is very much based in past knowledge study and experiences. The past knowledge or the previous studies should not be ignored as it provides foundation to the present study various thesis works have done indifferent aspects of working capital of different organization are also review for the purpose of justifying the study .

2.1.1 WORKING CAPITAL MANAGEMENT

Generally, working capital management is the management of current assets and current liabilities. Working capital is the support to the present for the future success of each and every firm. So, it is regarded as the blood of the firms.

On the other hand, we divide the managerial decision on the basis of assets and liabilities. Assets indicate the investment. So, investment upon the short-term financial management is regarded as working capital management, which typically is viewed as the management of current assets and current liabilities of the firm. As we know that a firm's value cannot be maximized in the long run unless it survives in the short run. Firms fail most often because they are unable to meet their working capital needs; consequently; sound working capital management is a requisite for firm survival. 'Working capital; management involves the administration, within policy, guidelines of current assets and current liabilities.' (Weston, J.F. and Brigham, 1996)

Working capital A firms investment in short-term assets-cash, marketable securities, inventory and accounts receivables.

'The term working capital originated with the old Yankee Peddler, who would load up his wagon with goods and then go off on his route to peddle his wares and repeat again.

Therefore the major items that are included in working capital are current assets and current liabilities. Current assets are cash, marketable securities, account receivable etc. the assets that can be easily converted into cash within a year without losing any value is termed as current assets. On the other hands, current liabilities are such which should be paid within a year.

In one word, 'Assets that will normally turned into cash within a year.' is current assets where as 'liability that will normally be repaid within in a year is current liabilities.'

Thus, working capital management is concerned with the problems that arise in attempting to manage the current assets, the current liabilities and the interrelation that exists between them.

There must be a cycle of the working capital management which can be illustrated as under

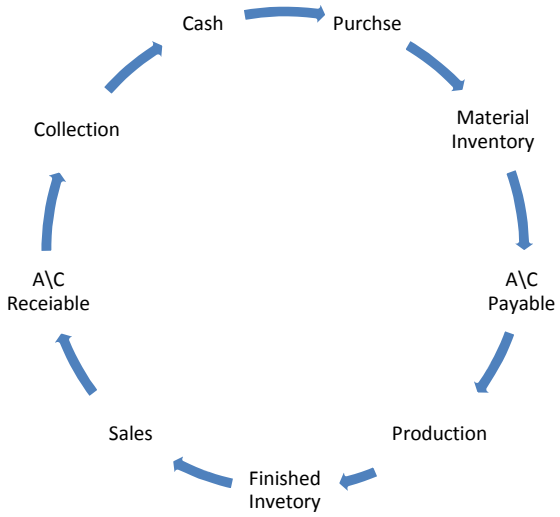


Figure No. 2.1

Cycle of the Working Capital Management

The management should try to reduce the period of operating cycle. So, this leads us to manage the key variable affecting working capital. So, as to get optimal result, the operating cycle should be managed as shorter as possible by the management for the effective management of working capital.

2.1.2 CONCEPT OF WORKING CAPITAL

There are two concepts or working capital:

a) Gross concept b) Net Concept

The term "Gross Working Capital" also referred to as working capital means the total current assets. Similarly, "Net Working Capital" can be defined in two ways: (I) the most common definition of Net Working Capital (NWC) is difference between current assets and current liabilities, (II) and alternative definition of NWC is that portion of firm's current assets which is financed with long-term funds (L.J.: Gitman:1976)

WC has to be regarded as one of the conditioning factors in the long-run operations of firm which is often inclined to treat it as an issue of short-run analysis and decision-making. WC management involves deciding upon the amount of composition of CA and how finances these assets (Kuchhalm, S.C.:1981)

There are two concepts of working capital-gross concepts and net concepts. Gross WC, simply called as Working capital, refers to the firm's investment in current assets. Current assets are the assets which can be converted into cash within an accounting year (or operating cycle) and include cash short-term securities, debtors, bills receivables and stock (inventory). Net Working Capital refers to the different between current assets and current liabilities. Current liabilities are those claims of outsiders, which are expected for payments with in an accounting year and include creditors, bills payable and outstanding expenses. Net Working capital can be positive or negative. A positive net working capital will arise when current assets exceed current liabilities. A negative net working capital will occur when current liabilities are in excess of current assets (Pandey, I.M.:1994)

The two concepts of working capital- gross and net are not exclusive; rather they have equal significance from management viewpoint. The gross working capital concept focuses attention on two aspects of current assets management, (a) optimum investment in current assets and (b) financing of current assets. The consideration of the level of investment in current assets should avoid two-danger points- excessive and inadequate investment in current assets. Investment in current assets should be just adequate, nor more not less, to the needs of the business firm. Excessive

investment in current assets should be avoided because it impairs firm's profitability, as idle investment earns nothing. On the other hand, inadequate amount of current assets can threaten solvency of the firm if it fiats to meet its current obligations. It should be realized that the working capital needs of the firm might be fluctuating with changing business activity. This may cause etches or shortage of working capital frequently. The management should be prompt to initiate an action and correct imbalances (Pandey, I.M.:1994)

The definitions described above convey in some way or other, the same meaning. They virtually represent the characteristics of the WC. It seems that there is consensus on the following special characteristics of the WC (Mathur, IQbal:1979)

- Short life: WC is characterized by assets with a life span of less than 1 year such as cash, marketable securities, accounts receivable, and inventories etc. This short life span leads to high volatilities in the level of investments required to finance WC.
- Nearness to cash or liquidity: This basic characteristic constitutes the first line of defense against technical insolvency. Cash is the most liquid assets having zero conversion time and 100 percent conversion rate. But for inventory and marketable securities two factors i.e. (I) nearness to cash or amount of time required converting assets into cash, and (II) Price realized on conversion must be considered.
- Lack of synchronization: Since the enterprise cannot produce on order only and cannot insist on cash payments there is always the problem of synchronization in cash receipts and disbursements. It is also due to the level of investments in WC that is affected by the sales volume, production policies and collection policies.
- The basic characteristics of WC as mentioned above indicate that it is a term of capital intended to be kept moving or circulation and its potential for earning comes from movements. Though the expenditure can be controlled and planned its income is usually subject to random variation and is not controllable (Golloghar, J.S.)

2.1.3 DETERMINANTS OF WORKING CAPITAL

Manufacturing enterprises need higher volume of WC as compared to public utility enterprises. But quantitative amounts of WC needed to such enterprises can hardly be set due to the following environments that affect WC needs of particular enterprises.

- Manufacturing Cycle: It has a great impact on the WC needs because the shorter the manufacturing periods and efficiency in production, the lesser the need of WC to finance in WC and vice-versa.
- Business fluctuation: The situation whether an enterprise is operating in the bloom or recession and depression period also determines the WC needs of the enterprise.
- Production Policy: The policy whether to follow uniform and level production plan or varying production plan determines the WC needs of the individual enterprises. Naturally, a firm following uniform production policy requires higher amount of WC and vice-versa.
- Credit policy and availability of credit: It's funds are readily available from banks or credit facilities or it follows conservative sales policy then such firm needs lesser amount of WC and vice-versa.
- Growth and expansion activities: The volume of assets or sales as well as expansion activities of the enterprises has direct bearing upon the needs of WC. The higher the volume and expansion activities, the higher the needs of WC and vice-versa.
- Turnover of circulating capital: How frequently and rapidly the working assets are converted into cash also determined by demand and sales policy of the particular enterprises.
- Competitive conditions: An enterprise dominating in the market without having keen competition may be in a favorable situation for keeping less amount of WC.
- Price levels change: Generally, rising price levels will required a firm to maintain higher amount of WC. Same levels of CAs will need increased investment when price increase.
- Operating Efficiency: Higher the operating efficiency lower will be WC and vice-versa.
- Others: Factors such as coordination between production and distribution activities, conservation dividend policy as well as liberal depreciation policy strengthen the WC position of the enterprise.

2.1.4 SOURCES OF WORKING CAPITAL

The working capital can be obtained from different sources. The sources are:

- Funds from operation: The major source of working capital is the funds from operation, which refer to those funds which are generated by carrying out the central operations of a business.
- Process from the sale of non-current assets: Sale of non-current assets in amount will convert non-current assets to a current asset and is a source of fund regardless of the fact whether the asset is sold for a gain or loss.
- Long-term Borrowing: Long-term borrowing such as issue of debentures and convertible bonds results in the increases of current assets (cash) and therefore an increase in the working capital in case of short term borrowing, the increase of current asset is offset by an increase in the current liabilities and therefore result is no change in working capital.
- Issue of shares for cash: Issue of share results in an inflow of current assets and is therefore a source in the case of the proprietorship and partnership concerns additional capital introduced was source of funds.
- Non-operating Income: Incomes like dividend, interest received from operations outside the framework of the central operation of a business results in an inflow of current assets and, therefore, to be shown as source.

2.1.5 APPLICATION OF WORKING CAPITAL

Purchase of Fixed Assets: The purchase of long-term assets, such as plant and equipment, either reduces current assets and or increases current liabilities. Consequently, the working capital is reduced.

- Redemption or payment of long-term debt: Repayment of a short-term debt is not considered as the uses of fund, since both current assets and current liabilities are reduced by the same amount. But the payment of a long-term debt results in the reduction of a current asset and is, therefore, use of fund.
- Redemption of preference shares or investment made: When cash is paid to redeem preference shares or to purchase securities as investment, working capital is reduced and therefore is use of fund.
- Loss from operations: Any loss from the operation results in more outflow of funds as compared to inflow of funds and is, therefore, use of funds.
- Payment of dividend, tax etc: Any dividend or tax paid in cash results in outflow of current assets, therefore, and application of funds.

The sources and application of funds are diagrammatically shown in the following figure.

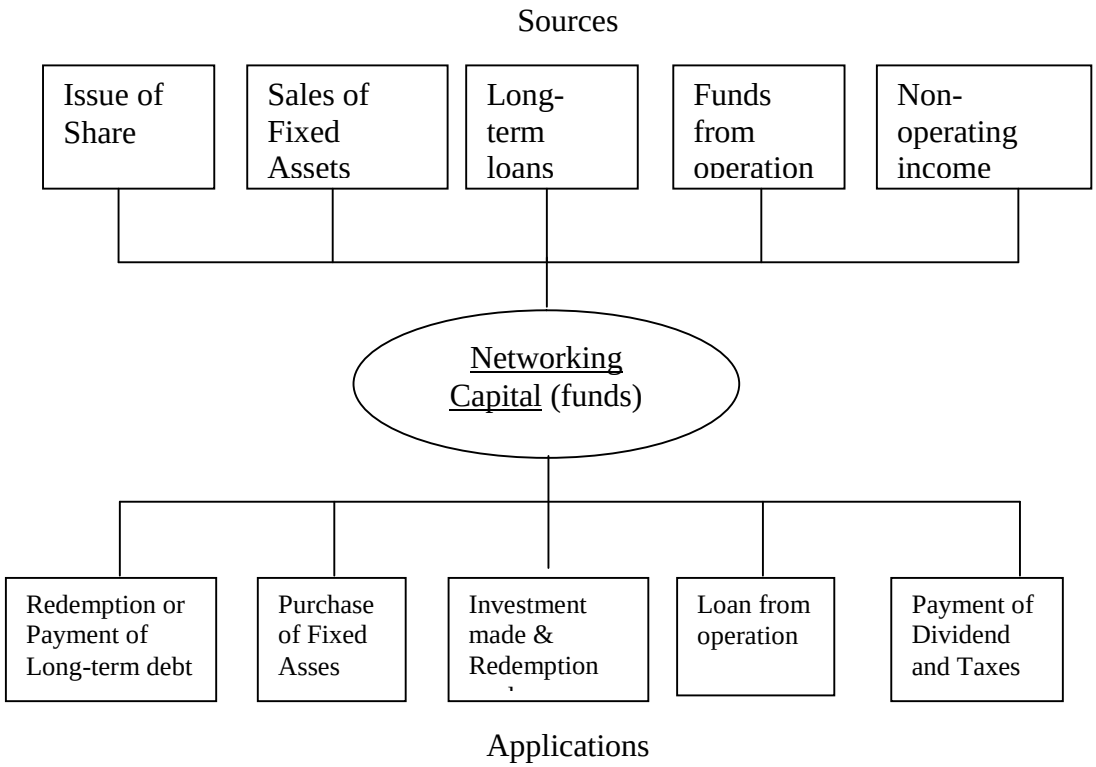


Figure No. 2.2

Sources and Application of Fund

2.1.6 WORKING CAPITAL POLICY

The components of WC constitute the current assets and they are way financing i.e. current liabilities. The term current assets refers to those assets which is the ordinary course of business can be or will be turned into cash within one year without undergoing a diminution in value and without disrupting the operation of the firm (Khan, M.Y. & Jain, P.K.:1993)

In an enterprise the level and quality of current assets and current liabilities is guided by the WC policy and management adopted by it. WC management involves all aspects of the administration of current assets and current liabilities (Western, J.F. & Brigham, E.F.)

In other word, WC management is concerned with the problems that arise in attempting to manage the current assets, the current liabilities and the interrelationships that exist between them. The crux of the problem whole formulating working capital policy is to maintain optimality on at the level of investment in cash and the financing of current assets. There should be optimum investment in the level of current assets because excessive or idle investment in current assets earns nothing to the enterprise and consequently affects the profitability. On the other hand, inadequate level of investment in current assets threatens the solvency of the enterprises if it fails to meet obligation when they become due. So, WC policy should be designed to overcome such imbalance when they arise.

Generally short term funds have lower cost of financing and are preferred to be used in current assets. But it may hold good also. Because depending upon the nature of management towards risk, liquidity and profitability, the enterprise can adopt one of the varieties of approaches to fit its particular WC financing requirements. The following are the main approaches of financing the WC need of the enterprise (Mathur, Iqbal:1979)

a) Aggressive Approach

In the approach variable as well as a portion of permanent current assets in financed through short-term borrowing. Some aggressive firms may even finance a part of their fixed assets with short financing (Pandey, I.M.:1994). Hence, this sort of mix financing increases the profitability and exposes towards risk by financing relatively larger portion of its assets lower cost short term borrowing.

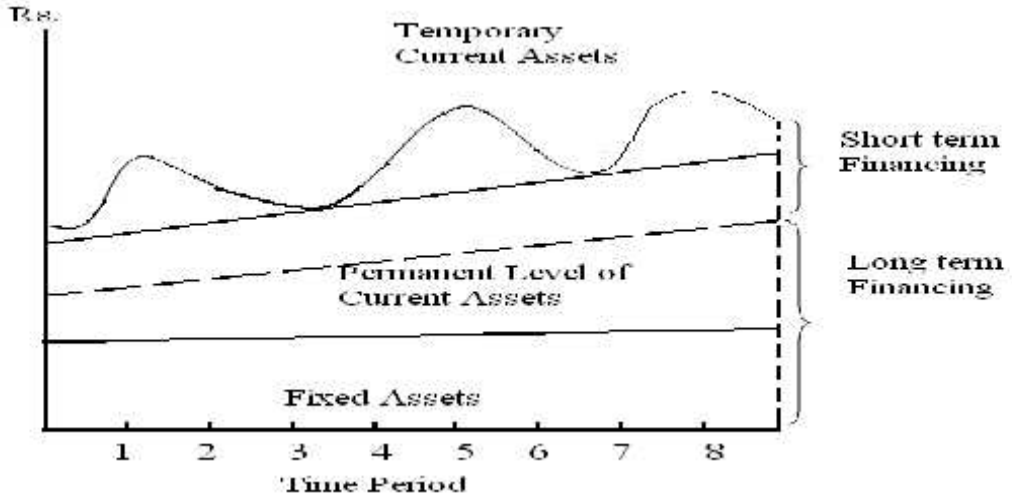


Figure No. 2.3

Aggressive Approach

b) Conservative Approach

The financing policy of the firm is said to be conservation when it depends more on long-term funds for financing needs. Under a conservative plan, the firm finances its permanent assets and a part of temporary current assets; it stores liquidity by investing surplus funds into marketable securities. The conservative plan relies heavily on long term financing and therefore, is less risky. The conservative financing policy is shown in below figure, It is less risk approach resulting lower return.

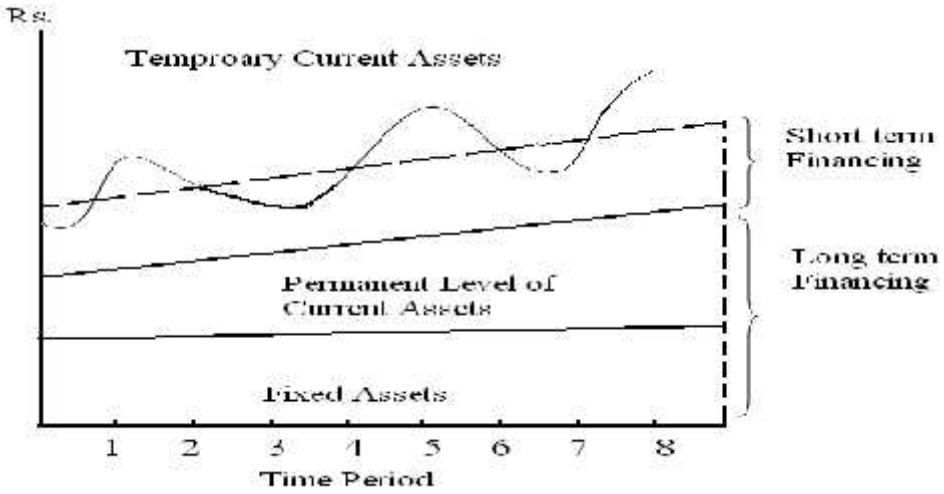


Figure No. 2.4

Conservative Approach

c) Moderate Approach

In this policy the firm finances the permanent current assets with long term financing and temporary with short term financing. It lies in between the aggressive and conservative policies. It leads to neither high nor low level of current assets and current liabilities. Below figure shows short term financing and long term by long term financing. Thus working capital is zero under this policy.

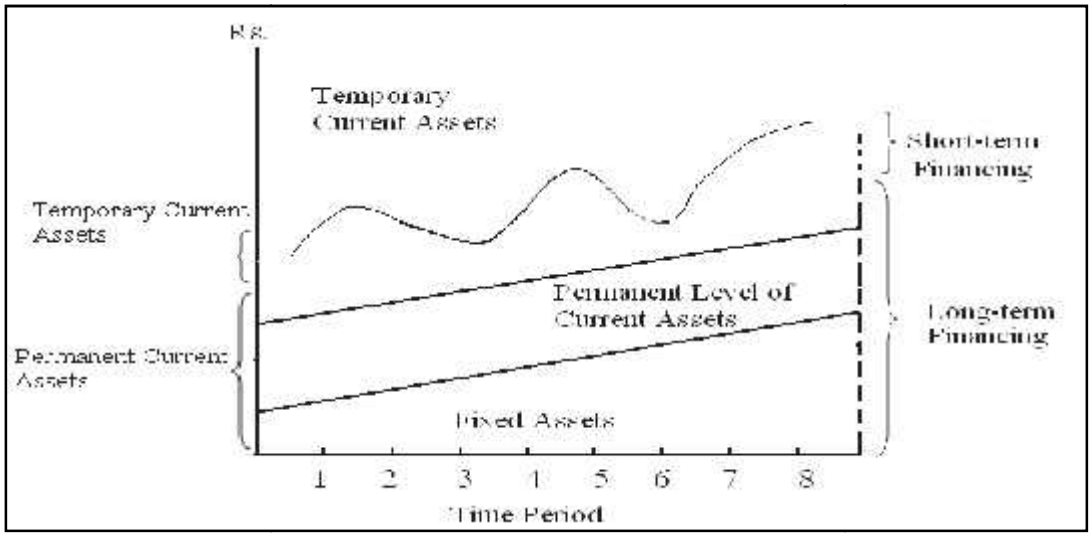


Figure No. 2.5

Moderate Approach

2.1.7 CLASSIFICATION OF WORKING CAPITAL

The working capital can be classified into two groups.

a) Permanent working capital

The capital which is not changed due to the proportional change in production and sales is known as permanent working capital. The investors invest the fixed amount in such assets such as bank and cash safety stocks. On the investment made upon these will never be zero. So, the variation into sales leads to change in permanent working capital.

b) Variable Working Capital

The capital which changes with respect to the proportional change in production and sales. Increases in sales, increases in capital and decreases in sales do not decrease

this capital. For heavy sales, the stock of materials should be high as well as higher receivable, which increases the variable working capital.

One Figure is presented below to understand better variable working capital

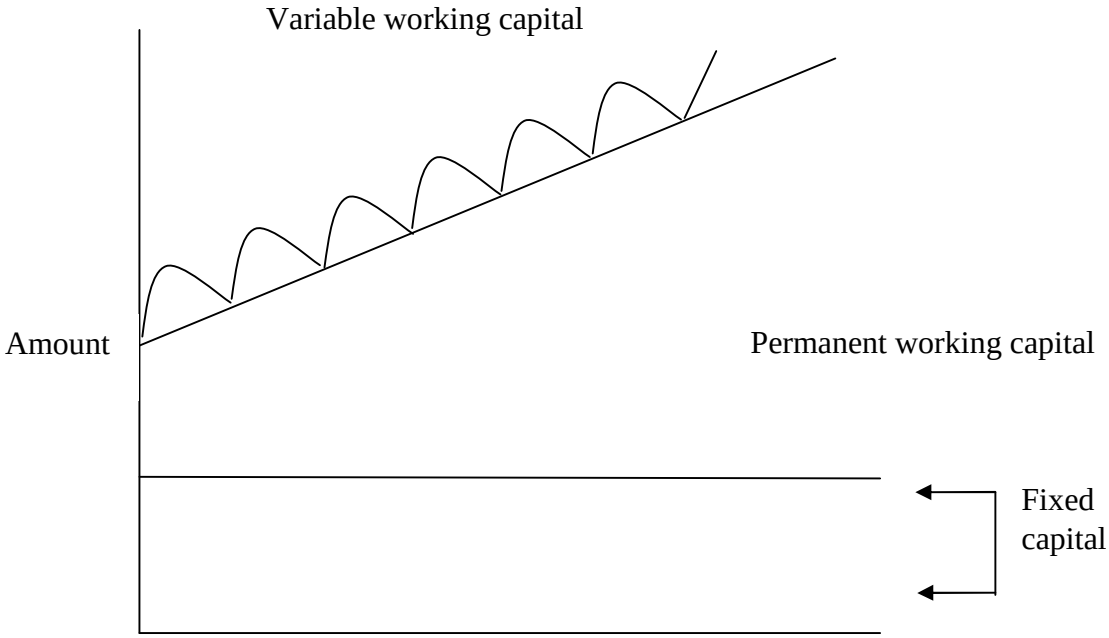


Figure No.2.6

Types of Working Capital

From the above graph, the fixed capital is not changed due to the utilization of full capacity of firm. The permanent capital is changed due to the changed into productions. But there may not be fluctuation in short period of time. At the time of peak sales, more circulating capital is needed and during slack sales, few circulating capital is needed.

2.1.8 IMPORTANCE OF WORKING CAPITAL

The need of working capital management can be proved by the following points.

- A large proportion of the financial manager's time is allocated to working capital management.
- More than half of the total assets are typically invested in current assets.

- The relation between sales growth and the need to invest in current assets is close and direct.
- Investment in fixed assets may be reduced by renting or leasing, but investment in inventories and receivables are usually unavoidable.
- Small firms may maximize their investment on fixed assets by leasing bur they cannot avoid investment in cash, receivables and inventories.
- Management of working capital increases the sales.
- Management of working capital increases the credit worthiness.

2.1.9 OPRATING CYCLE

Current assets are needed because sales do not convert into cash instinctually. There is always an operating cycle involved in the conversion of sales into cash there is different between current and fixed assets in terms of their liquidity. A firm requires many years to recover the initial investment in current asset such as invent ones and book debt (actually receivables) is realized during the firms operating cycle, which is usually less the then a year (Mayer, R.C. et al.:1984)

Operating cycle is the time duration required into inventories into cash. The operating cycle of a manufacturing company involved there phases.

- Acquisition of resource such as raw material, labor, power and fuel etc.
- Manufacture of the product which includes conversion of raw material into work-in-progress into finished goods.
- Sales of the product either for cash or on credit, credit sales, credit book, debit for collection.

These phases affect cash flow, which most of the time, are neither synchronized nor certain. They are not synchronized because cash outflows usually occur before cash inflows. They are not certain because sales and collections, which give rise to cash inflows, are difficult to forecast accurately. Cash outflows, on the other are relatively certain. The firm is therefore required to invest in current assets for a smooth, uninterrupted functioning it needs to maintain liquidity to purchase raw materials and pay expenses such as wages and salaries, other manufacturing administrative and selling expenses and taxes as there is hardly a matching between cash in also held to meet any future exigencies strolls of raw material and more - in process are wept to we sure smooth production and to guard against non-availability of raw material and

other components. The firm holds strode of finished goods to meet the demands of customers on continuous basis and sudden demand from some customers. Boole debts are created because goods are sold on credit for marketing and competitive resource. Thus a firm market adequate investments and bole debts for a smooth and uninterrupted and bole debts for a smooth and interrupted production and sale.

The length of the operating cycle of a manufacturing firm is the sum of (I) inventory conversion period (ICP) and (ii) book debts conversion period (BDCP). The inventory conversion period is the total time needed for producing and selling the product. Typically, it includes (a) raw material conversion period (RMCP) (b) work -in-process conversion (WIRCP) and (c) finished goods conversion period (FGCP). The bole debts conversion period is the time required to collected outstanding amount from customer. The total of inventory conversion period and bole debts conversion period is somatic referred to as gross operating cycle (GOC)

In practical, a firm may acquire resource on credit and temporarily postponed payment of certain expenses. Payables that the firm can defer are spontaneous sources of capital to finance, investment the length of time the firm is able to defer payment on various resource purchases. The difference between (gross) operating cycle and payable deferral period is not operating cycle (NCO). If depreciation is excluded from expenses in the computation operating cycle, the net operating cycle also represent cash conversion cycle. It is net time interval between cash collection from sale of the product and cash payment for resource acquired by the firm. It also represent time interval over which additional funds, called working capital, Should be obtained in order to carry out the firm's operations. The firm has to negotiate working capital from source such as commercial bank. The negotiated sources of working capital financing are called non-spontaneous source. If net operating cycle of a firm increases, it means further need for negotiated working capital.

2.2 REVIEW OF RESEARCH

It is also important to review the relevant research studies relating to working capital to add input in this study. In this regard the review has been arranged in two ways.

2.2.1 REVIEW OF RELATED ARTICLES/JOURNALS

Journals, articles and bulletins are of great significance for thesis writing. So, various published and unpublished articles by different experts and journals and bulletins relating to working capital have been revised.

Dr. Shrestha (1982,vol8) in his study *working capital management in public enterprises*, based on ten selected public enterprises. The sample public enterprises are national trading ltd, Raghupati Jute Mills, Birgunj Sugar Factory, JanakPur cigarette Factory, Dairy Development Corporation, Royal Drugs Ltd, Harisiddhi Brick and Tire Factory, National Construction Co. of Nepal, Nepal Cheeuri Ghee Industry Ltd., and Chandeswory Textile Ltd. In his study, especially he focused on the liquidity turn over and profitability position of those enterprises. In this analysis, he found that four public enterprises have maintained adequate liquidity position, two public enterprises have excessive and other remaining four public enterprises failed to maintain desirable liquidity position. He had also found that out of ten public enterprises only four were settling some percentage of profit and remaining six public enterprises were operating in loss. With the reference of his findings, he had brought certain policy issues such as lack suitable financing planning, negligence of working capital management; deviation between liquidity and turnover of assets and inability to shows the positive relationship between turnovers and returned on net working capital. At the end, he has made some suggestive measures to overcome form the above policy issues. These are identification of management information system, positive attitude towards risk and profit and determination of right combination of short term and long terms sources of funds to finance working capital needs.

Another articles relating to working capital management is by Dr. R. S. Pradhan(1988 vol.8). He studied on the *demand for working capital by Nepalese corporations*. For the analysis nine manufacturing public corporations were selected with the twelve years data from 1973 to1984. From the analysis the regression equation has been adopted. From the study he concluded that:

The earlier studies concerning the demand for cash and inventories by business firms did not report unanimous findings. A lot of controversies exist with respect to the presence of economies of scales, role of capital cost and capacity utilization rates and the speed with which actual cash and inventories are adjusted to describe cash and inventories respectively. The polled regression results show the presence of

economies of scale with respect to demand for working capital and its various components. The regression results suggest strongly that the demand for working capital and its components is a function of both sales and capital costs. The estimated results show that the inclusion of capital utilization variable in model seems to have contributed to the demand function of cash and net working capital only. The effects of capacity utilization on the demand for inventories, receivables and gross working capital are doubtful.

Dr. K Acharya (1985 vol.10) has published an article relating to working capital management. He has defined the two major problems i.e. operational problem and organizational problem regarding the *working capital management in Nepalese public enterprise*. The operational problems ; he found were increase of current liabilities then current assets , not allowing the current ratio 2:1 and slow turnover of inventories .Similarly change in working capital in relation to fixed capital had very low impacts over the profitability, thin transmutation of working capital employed to sales , absent of apathetic management information system , Break – even analysis, funds flow analysis and ratio analysis were either under or ineffective for performance evaluation .Finally monitoring of the proper functioning of working capital management has never been considered as managerial job.

In the second part, he has listed the organizational problems in the public enterprises. In most of the public enterprises, there is lack of regular internal and external audit system as well as evaluation of financial results. Similarly very few public enterprises have been able to present their capital requirement. Functioning of Finance department is not satisfactory and some public enterprises are even facing the underutilization of capacity.

Stephen and Elvis (2011:279-286) *Influence of Working Capital Management on Firms Profitability.* Working capital management plays a significant role in better performance of business entities. This study analyses the influence of working capital management on firm's profitability in Kenya. . For this purpose, fixed panel data of 232 firms was used. The results indicate that the average debtors day, stock turnover period and the cash conversion cycle are significantly affecting the profitability of the firm's. The manufacturing firms are in general facing problems with their collection and payment policies. Moreover, the financial leverage, ratio of current asset to current liability and firm size also has significant effect on the firm's profitability. The study also concludes that selected manufacturing firms in Kenya are following

conservative working capital management policy and the firm's are needed to concentrate and improve their collection and payment policy. The effective policies must be formulated for the individual components of working capital. Furthermore, efficient management and financing of working capital (current assets and current liabilities) can increase the operating profitability of manufacturing firm's. For efficient working capital management, specialized persons in the fields of finance should be hired by the firm's for expert advice on working capital management in the manufacturing sector.

2.2.2 REVIEW OF RELATED THESIS

Under this topic, different pioneers conclusion of research works are presented which help the study to carry on the better and scientific result. Some of the research outcomes performed by different pioneers under the heading of working capital and others are presented below:-

Acharya (2004) has carried out a research on *A study of working capital management of Bottlers Nepal Limited Balaju.* He analyzed five years published data of Bottle Nepal Limited Balaju from 1996/97 to 1999/2000 and used statistical and financial tools.

He has found that the proportion of sundry debtors is negligible in current assets. It proves that almost all its production are sold in cash basis. The current ratio of the company is 1.74 that is near to standard ratio. It proves that the company has managed current assets efficiently. Account receivable of the company is very lower it shows that the company has good management over account receivables. The quick ratio of the company is 1.15, which means standard. It reveals that the company is using current assets other than inventory efficiency. The average increment of the current assets is greater than total assets. It increases the important of working capital in the company. The profit margin of the company is not satisfactory. The company should expand sales volume and should operate marketing activities in the competitive market. The correlation between current assets and total assets is about 97% that means 100% increase in current assets result 97% increase in total assets. He found that the cash conversion cycle of the company is negative. It means that the company should not borrow additional loan for them management of the working capital.

Lohani (2004) has done a research on *A study of working capital management of Nepal Lube Oil Limited.* He analyzed five year published data of Nepal Lube Oil Limited from 2055/56 to 2059/60 and used statistical and financial tool.

He has found that the current assets to fixed assets were increasing. It means that Nepal Lube Oil Limited has applied aggressive current assets policy. Annual current ratios are higher than standard, which might cause to decrease profitability. Quick ratios are also higher than standard, which might cause to decrease profitability. The receivable turnover ratios showed that the company had better management in 2059/60 because there is higher the sales and lesser the debtors. The company had poor cash management in 2057/58 having highest conversion cycle. There is low degree of positive correlation between sales and current assets.

Dhakal (2006) *working capital management of selected listed manufacturing companies.* He analyzed five year's published data of Ram Sugar Mill, Arun Vanaspati Udhyog, Bottlers Nepal Limited, Nepal Lube Oil from 2000 to 2004 and used statistical and financial tools.

After analyzing the data, most of the companies could not manage the current asset which is due to the lack of concrete current assets management and specific working capital policy. Most of the company's inventory level and debtor level is high but payable level is not high. It means a current assets is not sufficient in the most of the companies. Liquidity position is below the standard levels, the increasing current liability is indication that negative return and negative turnover on net working capital. It means there is not good perception and fixed rule towards the working capital management. Profit level is less than the standard level of return on investment. The correlation of the variable of selected manufacturing companies are found positive that means the variables are moving towards the same direction.

Shrestha (2010) has conducted a research on *Working Capital Management of Selected Manufacturing Companies in Nepal.* The study is covered only 5 years data of 2004 to 2009. It study is based on Unilever ltd. Bottlers Nepal, Dairy Development Corporation. Nepal Tea Development Corporation, and Nepal Drugs.

He has found that the composition of working capital in manufacturing companies is appropriate. The overall selected manufacturing companies are positive on other correlation coefficients between various components of working capital with

moderate sales. Those liquidity and profitability position of all selected companies are satisfactory.

Recommendations:

- Company should have proper plan to manage their current liabilities and should determine the appropriate source of fund to finance working capital.
- These selected companied should manage receivable and inventory conversion period by applying suitable credit policy.
- These studies mention about operating cost, which must be reduced in proper way so that companies can maximize their profitability and shareholder's returns.

Shrestha (2011) has conducted a research on *A study on working capital management of Nepal Lube Oil Limited.*

The company had lesser participation of fixed assets in current assets. Cash holds of the company was relatively a small proportion total assets and inventory held largest portion indicating unsounded inventory management. The company has insufficient in collecting receivable.

Recommendation:

- Nepal Lube Oil Limited management determines certain rate of returns on its investment and setup target.
- The company should always concern about the current assets and current liabilities and regarding check should make.
- Manpower planning should avoid both under and over staffing.

Shrestha (2012) has conducted the research on *A study of selected manufacturing company in Nepal.*

Out of four companies, with respect to current assets Uni-lever Limited. Dairy Development Corporation and Dabur Nepal Limited follow conservative policy whereas Bottlers Nepal Limited follow aggressive policy to manage their current assets. Level of current assets and current liabilities both are widely varied over the study period. Examination of current assets shows that DNL and BNL have turnover below industry overall average. It is due to the higher amount of current assets and this ratio tells that current assets are not efficient to generate enough sales revenue.

Companies ULL and DDC have sound turnover due to the reason that it has relatively lower amount of current assets. The liquidity position of the DNL is high followed by ULL and DDC but BNL have less liquidity, so BNL is more risky comparing CV. The coefficient is statistically significant only for current assets to current liabilities. A positive correlation means both of the variables are moving towards the same direction but negative relation in net profit to net working capital, sales to cash and current assets to sales shows negative relation between them. The Nepalese manufacturing companies in the present context are facing certain policy issues like deficient financial planning, neglect of working capital management, deviation between liquidity turnovers etc.

The above review of literature from various books, journals and articles and dissertations related to the working capital management shows that one of the major problems in Nepalese corporations behind unhealthy and unsound situation is improper management of working capital. Since the success and failure of any enterprises is heavily dependent upon the efficient management of working capital and being a manufacturing company established in Nepal, the efficiency in the management of working capital should be analyzed. Till now, no any other study has been made for the analysis of working capital management in JUTPCL so, this study has attempted to analyze the working capital management in JUTPCL by taking five years data for observation with the help of methodology as described in the following chapter.

CHAPTER - III

RESEARCH METHODOLOGY

3.1 INTRODUCTION

In previous chapter, it has been discussed on working capital and review of related literature concerned with the working capital management. In this chapter, highlight is done on population and sample size, research design, research method, sources of data and collection strategy, analysis of data and tools used and methods of data analysis.

The main objective of this analysis is to evaluate the status of working capital management of JUTPCL. So, the systematic study needs the different research methods, which leads to better result. For the better results, systematic methodology is needed. This study is based upon secondary data which are obtained from the head office of that factory. Different types of research methodologies are used to evaluate the little and obtain better result.

3.2 POPULATION AND SAMPLE SIZE

Population or universe refers to the entire group of people, events or things of interest that the researcher wishes to investigate. For example, if a student is interested in investigating the smoking habits of employees in a factory, then all employees in that factory will form the population. 'Population may be finite or infinite.' (Wolf, H.K. and pant, P.R. 2005) A finite population is one containing a fixed number of elements. But infinite population is not countable.

Sample frame is the list of items in the universe. From which the sampling is drawn. Selecting a student among students is known as sampling. So, it is a selection from population. All financial years are the population of JUTPCL. The data analyzed from year 2066 to 2070 B.S. are only the sample.

It is very difficult to get the actual data. But audited data which are available are analyzed in this study. It is very difficult to analyze the data from the starting year and result cannot be obtained by taking consideration into the population. So, only the sample is used to analyze and give perfection to this study. It is not always possible to

study every items or elements in a universe. So, the samples from total fiscal year's data are taken due to lack of time and money.

3.3 RESEARCH DESIGN

Research design means an overall frame work on plan for the activities to be undertaken during the course of a research study. It serves as a framework for the study, guiding the collection and analysis of the data, the research instruments to be utilised and the sampling plan to be followed. So, it is arrangement of conditions for analysis of data in a manner that aims relevancy for the search purpose with economy in procedure.

Research design is the plan, structure and strategy of investigation conceived to control variance. The plan is the overall scheme or program of the research. It includes an outline of what the investigator will do from writing the hypothesis and their operational implications to the final analysis of data. The structure of the research design is more specific. It is the outline, the scheme, the paradigm of the operation of the variables. When is done the diagrams that outline the variables and their relation, can be build structural schemes for accomplishing operational research purposes. Strategy as used here is also more specific than plan. In other words, strategy implies how the research objectives will be reached and how the problems encountered in the research will be tackled.' (Wolf, H.K. and Pant, P.R.)

It is taken into consideration to the efficiency and performance regarding the working capital management of JUTPCL. This study also tries to make comparison and to establish relationship between two or more variables. By the help of secondary data, the variables of JUTPCL are analysed in this study.

3.4 RESEARCH METHODS AND DATA COLLECTION STRATEGY

Research method refers to the way of collection of the data of this Company. To conduct the good study to get better result, questionnaire and direct supervision are taken into consideration to get the better conclusion. Sources of data are collected by the focal to this factory and secondary data are used. As far as possible, the other spot study is also performed to get the better conclusion. Without the data collection

procedures, the result may not be good and result oriented. So, direct supervision and questionnaire are followed to analyse the working capital position of the JUTPCL.

3.5 NATURE OF DATA AND COLLECTION PROCEDURES

The data are divided into two groups. Primary data is obtained by directly interviewing with the concerned person of the company. These data are essential to obtain the better result. This study is primary based upon the secondary data of the factory which are published by the factory during the fiscal year.

For the study, only the audited balance sheet, P/L account and other related data, which are secondary in nature collected from the head office of this firm, are used. Manager, Accountant and other personnel of this factory helped to obtain data of JUTPCL.

3.6 TOOLS AND TECHNIQUES OF ANALYSIS

Financial as well as statistical tools have been used to analyse the gathered data and information

3.6.1 FINANCIAL TOOLS

The ratio analysis is the main tool for analyzing data under financial tools which help to interpret the financial statement of a firm to know its strength and weakness as well as its historical performance so that the current financial condition can be determined. This also helps to conclude how far financial expression is meaningful and to grab the suitable result. Financial ratio analysis is most useful tool which helps to understand the financial condition and performance of the firm.

In order to make rational decisions in keeping with the objectives of the company and its financial viability, an analysis is undertaken by every interested party such as creditors, investors and also by the company itself. Such, analysis varies according to the specific interests of party involved; this analysis is called financial analysis. There are following financial ratios, which can be analyzed to determine financial position of an organization.

3.6.1.1 Composition of Working Capital:

It is studied by analyzing the following ratios:

i) Ratio of Current Assets to Total Assets (CATA):

The ratio of current assets to total assets indicates what percentages of the company's total assets are invested in the form of current assets. It is calculated as:

$$\text{CATA X}\frac{\text{Current Assets}}{\text{Total Assets}}$$

As the ratio increases, the risk and profitability of the company would decrease. The low ratio indicates the small amount of working capital.

ii) Ratio of Current Assets to Fixed Assets (CAFA):

This ratio shows the relationship between the current assets and fixed assets and can be calculated as:

$$\text{CAFA X}\frac{\text{Current Assets}}{\text{Fixed Assets}}$$

If the ratio is large, it indicates the sound working capital.

iii) Ratio of Cash and Bank Balance to Current Assets (CBCA):

It is calculated as:

$$\text{CBCA X}\frac{\text{Cash and Bank Balance}}{\text{Current Assets}}$$

The small ratio indicates the sound management and large ratio vice-versa. The working capital is directly affected by it.

iv) Ratio of Cash and Bank Balance to Total Assets (CBTA):

This ratio is calculated as under and indicates what percentage of total assets is invested in cash and bank balance.

$$\text{CBTA X} \frac{\text{Cash and Bank Balance}}{\text{Total Assets}}$$

As the ratio increases the risk and profitability would decrease and if the ratio is greater the working capital would be greater.

v) Ratio of Inventory to Current Assets (ICA):

This ratio implies the percentage of current assets in form of inventory and derived as:

$$\text{ICA X} \frac{\text{Inventory}}{\text{Current Assets}}$$

The increase in the ratio is an indication of liberal inventory policy followed by company. If ratio increases or percentage increases means greater part is occupied by inventory.

vi) Ratio of Inventory to Total Assets (ITA):

This ratio can be calculated as:

$$\text{ITA X} \frac{\text{Inventory}}{\text{Total Assets}}$$

This ratio indicates the percentage of total assets invested in form of invest in the form of inventories. Inventory is a part of working capital so, if the percentage increased the working capital automatically increased. The increase also indicates liberal inventory policy or blocking of materials in stock.

vii) Ratio of Receivables to Current Assets (RCA):

This ratio indicates the share of receivables on current assets and is defined as:

$$\text{RCA X} \frac{\text{Receivables}}{\text{Current Assets}}$$

The low percentage indicates the greater working capital and vice-versa. If the percentage is greater, the firm is unable to collect receivables promptly.

viii) Ratio of Receivables to Total Assets (RTA):

This ratio can be calculated as:

$$\text{RTA } X\frac{\text{Receivables}}{\text{Total Assets}}$$

This ratio indicates the percentage of total assets invested in the form of receivables. The increase in the ratio indicates the liberal credit policy followed by the company.

3.6.1.2 Liquidity Ratio:

The liquidity ratio is used to measure the firm's ability to meet the short-term obligation and reflect the short-term solvency of the company. There are as follows:

i) Current Ratio (CR):

Current ratio is the relationship of current assets and current liabilities. The current assets are those assets which can be converted into cash within short period. Current assets normally includes inventories, cash in hand, cash in bank, bills receivable, account receivable, marketable securities, prepaid expenses and loan and advance whereas current liabilities consists of bills payable, account payable, outstanding expenses, cash credit, income tax payable, bank overdraft, current ratio is calculated by dividing the total current assets by total of current liabilities. Thus,

$$\text{Current Ratio (CR) } X\frac{\text{Current Assets (CA)}}{\text{Current Liabilities (CL)}}$$

It indicates the firm's current position, which should be sufficient to cover the current liabilities used by the firm. Higher current ratio shows better liquidity position. For many types of business, 2:1 is considered to be an adequate ratio. If the CR of a firm is less than 2:1, the solvency position of the firm is not good. The cash may not be available to pay current liabilities. Similarly, if the current ratio is more than 2:1, the company may have excessive investment assets that do not produce a return.

ii) Quick or Acid-test or Liquid Ratio (QR):

Quick ratio is calculated by dividing the quick assets by current liabilities. Not all current assets are equally liquid. Inventory and prepaid expenses cannot be termed to

be a liquid assets. This asset can be converted into cash immediately as per requirement of company. Therefore, liquid assets mean current assets after deducting inventory.

$$\text{Quick Ratio (QR) } X \frac{\text{Current Assets - Inventory}}{\text{Current Liabilities}}$$

$$\text{QR } X \frac{\text{Quick Assets or Liquid Assets}}{\text{Current Liabilities}}$$

Generally, the quick ratio of 1:1 of company is considered to be satisfactory.

iii) Cash Ratio:

Cash ratio is calculated by dividing cash and marketable securities by current liabilities.

$$\text{Cash Ratio } X \frac{\text{Cash and Marketable Security}}{\text{Current Liabilities}}$$

iv) Working Capital to Current Assets Ratio:

This ratio is calculated by dividing net working capital by current assets. Where, net working capital is current assets less current liabilities.

$$\text{WC to CA Ratio } X \frac{\text{Net WC}}{\text{CA}}$$

3.6.1.3 Profitability Ratio:

The main objective of the company is to earn maximum profit. It is necessary to have enough profit to meet different obligation of the firm. The position of the profitability of the company is analyzed with the help of following ratio:

i) Gross Profit Margin (GPM):

The gross profit margin ratio expresses the relationship between gross profit and sales. Gross profit is obtained by deducting cost of good sold from net sales.

$$GPM\ X\frac{\text{Gross Profit}}{\text{Sales}} \mid 100$$

The gross profit margin ratio reflects the efficiency with which company produces each unit of product. The higher percentage indicates the better efficiency of the company.

ii) Net Profit Margin (NPM):

Net profit margin is calculated by dividing net profit by sales. Net profit is obtained after deducting operating expenses and income tax from gross profit.

$$NPM\ X\frac{\text{Net Profit after Tax}}{\text{Sales}} \mid 100$$

This ratio is the overall measurement of the company's ability to earn net profit. A higher ratio is an indication of the higher overall efficiency of the business and better utilization of total resources. Poor financial planning and low efficiency is the indication of lower ratio.

iii) Operating Ratio (OR):

The operating ratio is an important ratio that explains the changes in the net profit margin ratio. It shows the relationship between operating expenses and sales. It is calculated by dividing the total operating expenses by sales.

$$OR\ X\frac{\text{Cost of Good Sold } \Gamma \text{ Operating Expenses}}{\text{Sales}} \mid 100$$

Higher ratio indicates the lower efficiency of the company and vice-versa. Higher operation ratio means small amount of operating income to meet interest, dividends, etc.

iv) Return on Assets (ROA):

Return on assets is expressed as the relationship between net profit after taxes plus interest and total assets. It measures the profitability of total fund of investment of the firm. But it is not sufficient for the analysis as profitability of different sources of fund

for financing the total assets. It is computed by dividing net profit after tax by total assets.

$$\text{ROA } X\frac{\text{Net Profit after Tax}}{\text{Total Assets}} \mid 100$$

v) Return on Net Worth (RONW):

RONW is computed by dividing net profit after tax by net worth. It is also known as capital employed.

$$\text{RONW } X\frac{\text{Net Profit after Tax}}{\text{Net Worth}} \mid 100$$

It indicates the return to the shareholders, how well the firm has used the resources of the owners. It judges whether the firm has earned of satisfactory return for its shareholders or not. Higher the ratio higher the return to the shareholder will be and vice-versa.

vi) Return on Working Capital (ROWC):

It is computed by dividing net profit after tax by current assets working capital. It measures the profit width respect to current assets.

$$\text{ROWC } X\frac{\text{Net Profit after Tax}}{\text{Current Assets}} \mid 100$$

Higher the ratio higher the utilization of current assets to earn profit and vice-versa.

3.6.1.4 Turnover Ratio:

Turnover ratio indicates the relationship between sales and assets. It is also known as activity, efficiency or assets utilization ratio. This ratio shows efficiency of asset management, i.e. how efficient the asset management is? It means how efficiently and rapidly firm can convert its assets into sales. The greater turnover ratio indicates higher utilization of assets. Thus, it measures the degrees of effectiveness in use of resources or fund by a firm. There are following turnover ratios that can be calculated.

i) Working Capital Turnover (WCT):

It is computed by dividing sales by net working capital, i.e. different of current assets and current liabilities.

$$\text{WCT X} \frac{\text{Sales}}{\text{Net Working Capital}}$$

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

ii) Inventory Turnover Ratio (ITR):

ITR measures how quickly inventory can be converted into sales. It is the test of efficient inventory management. It is computed by dividing sales by inventory. It is also computed by dividing cost of good sold by average inventory.

$$\text{ITR X} \frac{\text{Sales}}{\text{Inventory}}$$

$$\text{Or, ITR X} \frac{\text{Cost of Goods Sold (COGS)}}{\text{Average Inventory}}$$

This ratio shows the number of time inventory is replaced during the year. Higher inventory turnover indicates the good inventory management and lower turnover suggests the management should manage its inventory properly.

iii) Receivables Turnover Ratio (A/RTR):

RTR shows the relationship between credit sales and account receivables of the company. It is also known as debtor turnover ratio. It indicates the velocity of debt collection of the firm.

$$\text{A/RTR X} \frac{\text{Credit Sales}}{\text{Account Receivables}}$$

It indicates the number of times the receivables are turned over during the year. It gives the general measure of the productivity of the receivables investment. The higher ratio indicates the higher amount of working capital and lower ratio vice-versa.

For the complimentary of this ratio, there is ratio called average collection period (ACP), which indicates the number of days, it takes on an average to collect amount receivables. It is computed by dividing days in a year by receivables turnover. ACP is also known as Day Sales Outstanding (DSO).

$$\text{ACP } X\frac{\text{Days in a Year}}{\text{Receivables Turnover}}$$

$$\text{Or, ACP } X\frac{\text{Receivables}}{\text{Average Sales per Day}} X\frac{\text{Receivables} \mid 365}{\text{Sales}}$$

iv) Cash and Bank Balance Turnover Ratio:

It shows the effectiveness of management on management in case of application of cash in ordinary course of business. It measures how rapidly cash can be converted into sales in the company. It is calculated by dividing sales by cash and bank balance.

$$\text{Cash and Bank Balance Turnover Ratio } X\frac{\text{Sales}}{\text{Cash and Bank Balance}}$$

The higher ratio indicates, cash is rapidly converted in sales and good cash management whereas low ratio indicates slow, weak cash management.

3.6.1.5 Leverage Ratio:

Leverage ratio or capital structure ratio are also known as long-term solvency ratio. Leverage ratios are used to measure the financial risk and to know that how the firm fares is using its debt for the benefits of shareholders. Leverage ratio also reflects the proportion of debt in total financing. There are different leverage ratios. Out of them, only two important ratios are given below:

i) Short-term Financing (STF) to Long-term Financing (LTF) Ratio:

This ratio is computed by dividing short-term financing amount by the long-term financing. Fund raised from short-term financing can be used to increase current asset, to meet daily expenses.

$$\text{Ratio } X\frac{\text{STF}}{\text{LTF}}$$

ii) Short-term Financing (STF) to Total Financing (TF) Ratio:

This ratio shows the proportion of short-term financing out of total financing amount. This ratio is computed by dividing short-term financing by total financing. If a firm uses more short-term financing then an aggressive policy is said to be followed by the firm.

$$\text{Ratio } X\frac{STF}{TF}$$

3.6.1.6 Trend Analysis

Trend Analysis is a powerful financial tool to know the financial position of the firm. In this research work, trend percentage is calculated treating from fiscal year 2065/066 as base year.

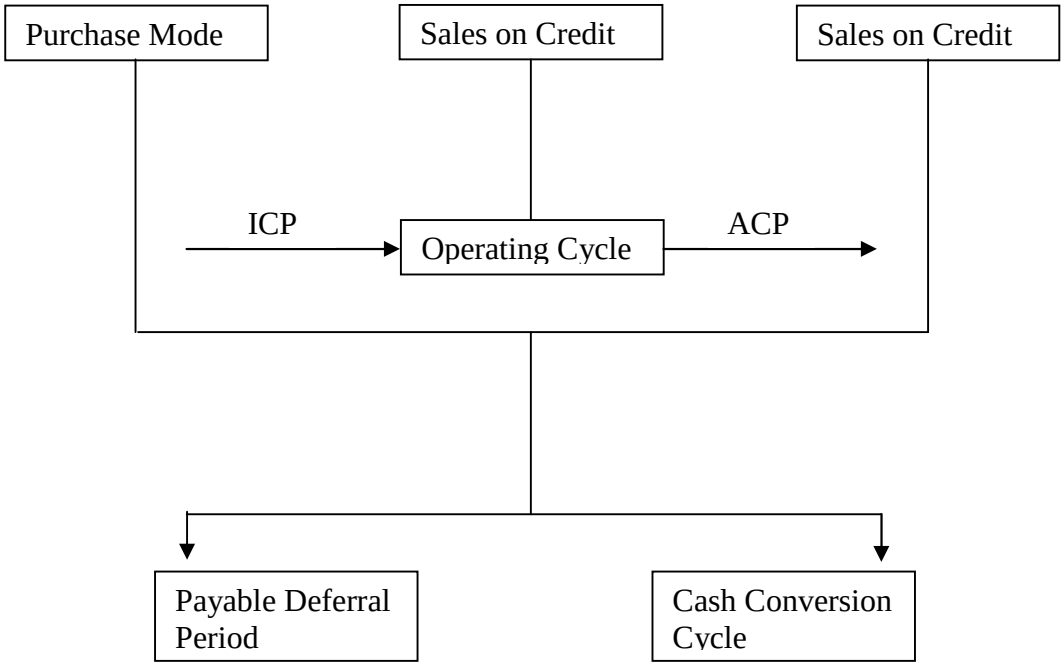
3.6.1.7 Cash Conversion Cycle Model:

A cash conversion cycle reflects the net time interval in days between actual cash expenditures of the firm on productive resources and ultimate recovery of cash.

The following figure shows the cash conversion cycle for a firm.

Figure No. 3.1

Operating Cycle of Manufacturing Firm



As shown in above, once the purchase of raw material is made, the inventory conversion period determines the numbers of days it takes to produce and sell the product. The average collection period determines the average numbers of days it takes to collect credit sales. The operating cycle this measures the number of days from purchase as to when cash is received.

Operating Cycle (OC) X Inventory Conversion Period (ICP)
Γ Receivable Conversion Peiod (RCP)

Because the raw materials typically are not paid for immediately we must also determine how long the firm defers its payment. The difference between the operating cycle and the deferral period is the cash conversion cycle.

Cash Conversion Cycle (CCC) X Operating Cycle (OC)
- Payable Deferral Peiod (PDP)

The Cash conversion cycle is a quick and convenient way to analyze the outgoing liquidity of the firm over time. We see that the cash conversion cycle approach may pick up information by other liquidity measures. The cycle shows how much of time need to collect cash.

i) Inventory Conversion Period (ICP):

ICP indicates the efficiency of the firm in selling its product. It is calculated by dividing the number of days in a year by inventory turnover. ICP is one of the important financial tools. It is a time period which shows how long the raw materials convert into finished goods and how much rapidly the inventory is turned into receivable through sales.

$$\text{Inventory Turnoever X} \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

$$\text{ICP X} \frac{\text{365 Days}}{\text{Inventory Turnover}}$$

$$\text{Or, ICP X} \frac{\text{Average Inventory}}{\text{Cost of Goods Sold}} \mid 365$$

ii) Receivable Conversion Period (RCP):

RCP indicates the number of day's debtor turnover into cash. Its analysis determines the collect ability of debtors and thus, the efficiency of collection effect in ascertaining the firm's comparative strength and advantage relative to its credit policy. Receivables turnover can be calculated by dividing total sales of the year ended balance of debtors and receivable conversion period is calculated by dividing the number of days in a year (i.e. 365 Days) by receivable turnover.

$$\text{Receivable Turnoever X}\frac{\text{Sales}}{\text{Debtors}}$$

$$\text{RCP X}\frac{\text{365 Days}}{\text{Receivable Turnover}}$$

$$\text{Or, RCP X}\frac{\text{Debts or Receivables}}{\text{Sales}} \mid 365$$

iii) Payable Conversion Period (PCP):

PCP indicates the number of day creditor's turnover each year. It is calculated by dividing the sum of account payables and outstanding expenses by the sum of cost of goods sold and general expenses and multiplies by the number of days in a year.

$$\text{PCP X}\frac{\text{Account Payable } \Gamma \text{ Outstanding Expenses}}{\text{Cost of Goods Sold } \Gamma \text{ General Expenses}} \mid 365$$

3.6.2 STATISTICAL TOOLS

Besides the financial tools various statistical tools are also used for analysis to support the objective of the research work. The tools are as follows.

3.6.2.1 Arithmetic Mean (Average)

The most popular and commonly used is average which represents the entire data by a single value. It is the value obtained adding together all items and by dividing this total by number of items observed. 'Average provides us the gist and gives a bird's eye view of the huge mass of unwieldy numerical data.'(Bajracharya, B.C, 2053)

It is can be computed by using the following formula

$$\overline{X} \text{ X} \frac{X}{N}$$

Where, $\overline{X}$ = Mean (Average) of taken items.

X = Sum of all the values of taken items.

N = no of items observed.

3.6.2.2 Bar Graphs

Bar is a statistical tool to analyze different component in one graph. It helps to find out the investment made on different assets and liabilities. In other words, it means the presentation of data in the form of graph. It tries to judge the variability of one variable in relation to the variation of another variable. Amount investment in respect to time period is under taken in the study.

Figures also tell us the relationship of various attributes which helps to conclude that the factors are related with other or not.

3.6.2.3 Correlation Analysis

Correlation is the measure of relationship between two or more characteristics of a population or a sample. It simply measures the change between the phenomenons. The correlation coefficient between two variables describes the degree of relationship between those two variables. It measures the increase or decrease in one variable due to increase or decrease in other variables .Simply stated, correlation is a statistical tool with the help of which we can determine whether or not two or more variables are correlated and if they are correlated, that is the degree and direction of correlation. Correlation analysis describes the relationship between variables i.e. positive and negative. It helps to determine the following:

- A positive or negative relationship exists
- The relationship is significant or insignificant
- Establish cause and effect relation if any

Karl Pearson's method, popularly known as Pearsonian coefficient of correlation is most widely used in practice. The Pearsonian coefficient of correlation is denoted by the symbol of 'r' and is calculated as follows:

$$`r_{xy} = \frac{XY - \frac{X.\ Y}{N}}{\sqrt{X^2 - \frac{(X)^2}{N}}\sqrt{Y^2 - \frac{(Y)^2}{N}}}$$

Where,

N = No. of observation of X and Y

∑X = Sum of the observations in series X

∑Y = Sum of the observations in series Y

∑X2 = Sum of the observations in series X

∑Y2 = Sum of the observations in series Y

∑XY = Sum of the product of the observations in series X and Y

Assumption:

i) If r = 0, there is no relationship between the variables.

ii) If r < 0, there is negative relationship between the variables.

iii) If r > 0, there is positive relationship between the variables.

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

v) If r = -1, the relationship is perfectly negative.

3.6.2.4 Probable Error (P.E.):

P.E. of r is very useful in interpreting the value of r and is worked out as under for Karl Pearson's Coefficient of Correlation.

$$P.E. X \frac{0.6745 \mid (1 - r^2)}{\sqrt{N}}$$

If r < P.E., it is not all significant, no evidence of correlation between variables.

If r > P.E., there is no correlation, but not significant.

If r > 6 |P.E. and greater than ±0.5, it is considered significant at all.

CHAPTER - IV

PRESENTATION AND ANALYSIS OF DATA

4.1 INTRODUCTION

This is the main chapter of the study. This is the most important sensitive part of this study because it consists of analysis and presentation of empirical data focus in how far the JUTPCL. is position to manage their working capital. In order to examine the working capital management of this firm, the necessary financial facts and figures as well as descriptive information has been gathered through the financial statement (annual). Questionnaire is also used to obtain further qualitative information. These collected data has been calculated using various financial and statistical tools. The major variables are current assets, current liabilities, quick assets, sales, cost of goods sold, long-term debt etc. This chapter will present the analysis of various components of working capital of this firm, which includes size, structure and utilization of current assets, liquidity and profitability position, relation between current assets and total assets as well as fixed assets, sources and application of fund and management of current assets.

4.2 ANALYSIS OF CURRENT ASSETS

The main component of the business is current assets, which are needed to run day-to-day business activities. The total sum of current asserts is known as gross working capital. The current assets are differing to the amount of working capital needed and the size of the enterprises.

The sum of cash, marketable securities, Bills receivable, inventories is the requirements of each and every organization to operate the organization's day-to-day operation smoothly. Sum of these assets are regarded as current assets. In these words, the assets or the sources of capital, which are converted into cash within an accounting period, usually a year of the business? In summary, "Those assets which are expected to be realized in cash within a relatively short period of time, usually one year are termed Current Assets." (Lynch R.M. and William R.W, 1994)

A firm needs cash to purchase raw materials, pay expenses this is because of not perfect matching between cash inflow and outflow. Cash also may be held to meet the

future expenses. The stock of raw materials is kept in order to ensure the smooth production and to protect the risk of non-availability of raw materials. To meet this obligation also cash is needed.

Any business organization aims to maximize return on shareholders' investment. In order to accomplish these objectives, the business organization should earn sufficient returns for its operation. Earning a steady amount of profit requires successful sales. So, the firm has to invest enough funds in current assets for the success of sales. As the sales do not convert into cash instantly the extra amount of working capital is needed.

The efficient management of current assets is an integral part of overall financial management and has a greater impact on maximization of owner's capital. In this context, it is necessary to have proper analysis for current assets management. The proper analysis of current assets of industrial reflects the nature of performance and operation of its management.

The management of the company should alert and conscious to invest in current assets. Through proper analysis should be needed. So, the strike attention upon current assets should be needed. So, the overall current assets are firstly analyzed.

Table No. 4.1

Analysis of Current Assets

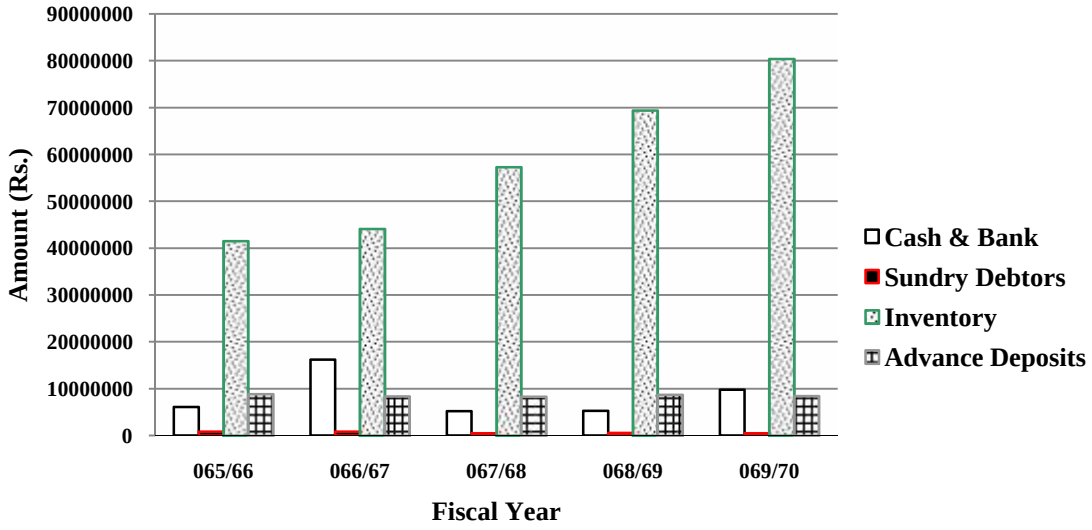
Particulars		2065/066	2066/067	2067/068	2068/069	2069/070	Average
Cash & Bank	Amount (Rs.)	6101045	16167347	5195942	5259564	9795602	
	%	10.62	23.23	7.28	6.26	9.88	11.45
Sundry Debtors	Amount (Rs.)	828780	818771	497030	517365	463548	
	%	1.44	1.17	0.67	0.62	0.47	0.87
Inventory	Amount (Rs.)	41594769	44176825	57322386	69430388	80421773	
	%	72.43	63.48	80.35	82.70	81.06	76.00
Advance Deposits	Amount (Rs.)	8901391	8432616	8348535	8746815	8526418	
	%	15.51	12.12	11.70	10.42	8.59	11.67
Total C.A.	Amount (Rs.)	57425985	69595559	71363893	83954132	99207341	
	%	100	100	100	100	100	

(Source: Appendix-25)

The above table represents current asset's position of JUTPCL. It also represents investment pattern of this firm in current assets and their fluctuation in years. As per the above table shows overall current assets items.

This can be shown in the bar graph as below.

Graph No. 4.1



From this Graph we know that the firm has invested more on inventories in all study year. At the second last and first year of study period Cash & Bank invested more on comparison with Advance Deposits. Other than Advance Deposits is 2nd position. Investment on Sundry Debtors is on last rank in all study year.

4.3 COMPOSITION OF WORKING CAPITAL (FINANCIAL RATIO) ANALYSIS

The compositions of working capital are analyzed with the following ratios:

4.3.1 Proportion of Current Assets to Total Assets:

As the necessity of current assets depends upon the nature of the business. It is required to meet the working capital, which is required to run the organization's day to day activities. The table given below represents the percentage of current assets to total assets.

Table No. 4.2

Current Assets to Total Assets Ratios

Year	Current Assets (Rs.)	Total Assets (Rs.)	Ratio (%)	Change (%)
065/66	57425985	70083149	81.94	-
066/67	69595559	81957850	84.92	2.98
067/68	71363893	94217208	75.74	-9.18
068/69	83954132	104743022	80.15	4.41
069/70	99207341	118118370	83.99	3.84
Average	76309382	93823920	81.33	-

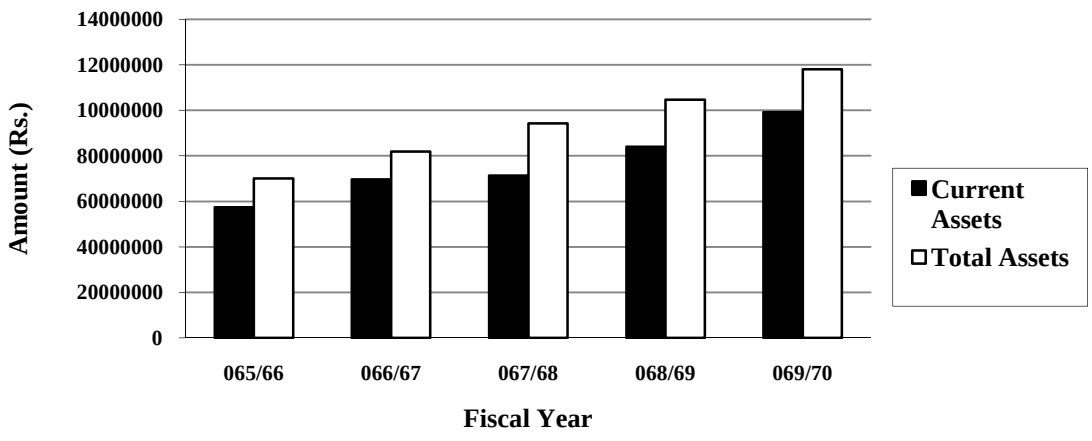
(Source: Appendix-25)

This ratio represents the proportion of current assets investment to total assets investment of JUTPCL. For selected five years study period. The above table (table-2) shows that the proportion of current assets on total assets is in fluctuating trend. Current asset is increased by 2.98% in the year 066/67, 4.41% in the year 068/69 and 3.84% in the year069/70. The increasing trend shows that the firm invests more on inventories in the increasing year and vice versa. In average 81.33% are current assets on total assets.

High level of current assets indicates good liquidity position but it adversely affects the profitability of the company because idle money can earn nothing. The trend of the relationship between current assets and total assets is generally increasing and decreasing.

This can be presented in the bar graph below.

Graph No. 4.2



In order to test relationship between current assets and total assets Karl Person's correlation coefficient (r) is computed below.

Table No. 4.3

Coefficient of Correlation between Current Assets and Total Assets

Correlation (r)	Probable Error (P.E.)
0.98	0.013

Source: Appendix-2

The above calculation shows that there is positive correlation between current assets and total assets of the firm during the five study period. Further, the value of 'r' is more than six times greater than its P.E., the relationship is considered to be significant.

4.3.2 Proportion of Current Assets to Fixed Assets:

For the purpose of success of any manufacturing concerns, firm should invest in current assets as well as fixed assets to supports a particular level of output. Therefore, the firm should determine the proper position of current assets with fixed and total assets. The level of current assets can be measured by relationship between current assets to fixed assets, which can help to find the current assets investment policy. Assuming a constant level of fixed assets, higher current assets to fixed assets ratio indicates an aggression. Current assets policy conversely lower ratio indicates the conservative current assets policy. If the firm increase the proportion of current assets there is the high probability of return as well as risk, vice-versa if decrease than it may be low risk and return. The table given below represents the percentage of current assets to fixed assets.

Table No. 4.4

Current Assets to Fixed Assets Ratios

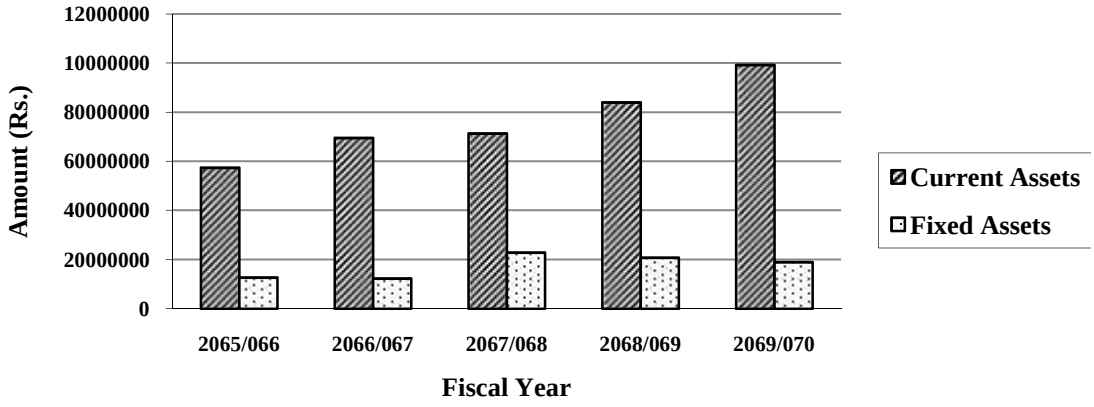
Year	Current Assets (Rs.)	Fixed Assets (Rs.)	Ratio(x)	Change(x)
065/66	57425985	12657164	4.54	-
066/67	69595559	12362291	5.63	1.09
067/68	71363893	22853315	3.12	-2.51
068/69	83954132	20788890	4.04	0.92
069/70	99207341	18911029	5.25	1.21
Average	76309382	17514537.8	4.51	-

(Source: Appendix 25)

In the above table, ratio of current assets to fixed assets of JUTPCL of five different fiscal years has been presented. During the five study year, the current assets to fixed assets are being fluctuated. The investment in fixed assets is less than that in current assets. In fiscal year 2065/066, the ratio is 4.54 times and in 2066/067 it has increased to 5.63 times which are the highest among the study year. In fiscal year 2067/068, it has decreased to 3.12 times which is the lowest ratio among five study year and again it has increased to 4.04 times in fiscal year 2068/069. In last fiscal year i.e. fiscal year 2069/070, it has increased to 5.25 times. Overall this shows that the company has adopted the more conservative current assets investment policy.

This can be presented in the bar graph as below.

Graph No. 4.3



In order to test relationship between current assets and fixed assets Karl Person's correlation coefficient (r) is computed below.

Table No. 4.5

Coefficient of Correlation between Current Assets and Fixed Assets

Correlation (r)	Probable Error (P.E.)
0.52	0.22

Source: Appendix-2

In the above calculation, correlation coefficient 'r' is positive. So, there is positive correlation between current assets and fixed assets during the study year. But, the calculated value of 'r' is not six times greater than P.E., it is not all considered to be significant.

4.3.3 Proportion of Cash and Bank Balance to Current Assets:

The main reason of holding the cash is for transaction motive, precautionary motive and speculative motive. So, to fulfill the daily business requirement such as payment of bills, purchase of raw materials, payment of debt, optimum cash balance or bank balance has to be maintained. The below table shows the proportion of cash to current assets:

Table No. 4.6

Cash & Bank Balance to Current Assets Ratios

Year	Cash & Bank Balance (Rs.)	Current Assets (Rs.)	Ratio (%)	Change (%)
065/66	6101045	57425985	10.62	-
066/67	16167347	69595559	23.23	12.61
067/68	5195942	71363893	7.28	-15.95
068/69	5259564	83954132	6.26	-1.02
069/70	9795602	99207341	9.87	3.61
Average	8503900	76309382	11.14	-

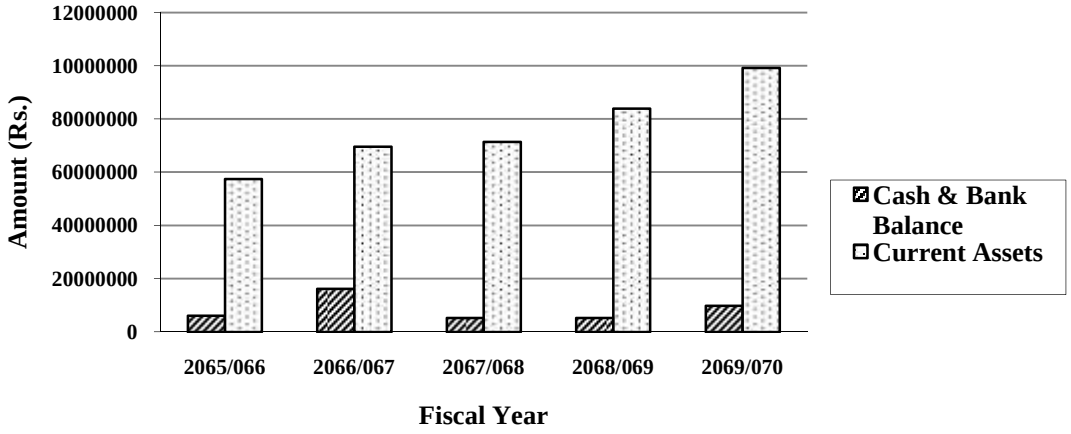
(Source: Appendix-25)

The above table shows that the proportion of cash to current assets is highest in the fiscal year 2066/67. The cash hold by the firm in this fiscal year is Rs. 16167347 and

its 23.23 % of total current assets. Likewise, the cash hold by the company in fiscal year 2068/069 is minimum of Rs. 5259564 which is 6.26 % of its total current assets. The proportion in the fiscal year 2065/066, 2067/68, and 2069/70 is 10.62 %, 7.28% and 9.87% respectively.

This can be presented in the bar graph as below.

Graph No. 4.4



In order to test relationship between cash and current assets Karl Person's correlation coefficient (r) is computed below.

Table No. 4.7

Coefficient of Correlation between Cash & Bank and Current Assets

Correlation (r)	Probable Error (P.E.)
0.05	0.30

(Source: Appendix-3)

In the above calculation, correlation coefficient 'r' is positive. So, there is positive correlation between cash and current assets during the study year. But, the calculated value of 'r' is not six times greater than P.E., it is not all considered to be significant.

4.3.4 Proportion of Cash & Bank Balance to Total Assets:

The proportion of liquid cash in comparison to the total assets shares the investment in cash out of total assets. The more ratio decrease the risk and provide nothing, the profitability would decrease. The below table shows the percentage of Cash & Bank Balance to Total Assets:

Table No. 4.8

Cash & Bank Balance to Total Assets Ratios

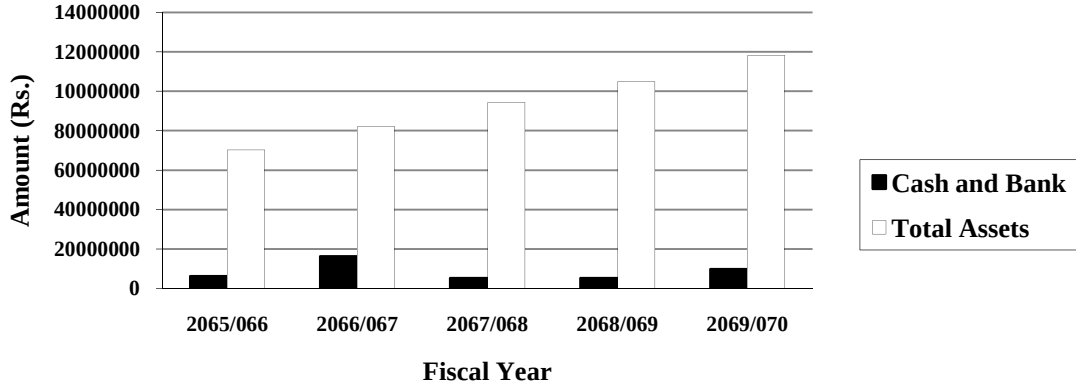
Year	Cash & Bank Balance (Rs.)	Total Assets (Rs.)	Ratio (%)	Change (%)
065/66	6101045	70083149	8.71	-
066/67	16167347	81957850	19.72	11.01
067/68	5195942	94217208	5.51	-14.21
068/69	5259564	104743022	5.02	-0.49
069/70	9795602	118118370	8.29	3.27
Average	8503900	93823920	9.06	-

(Source: Appendix-25)

The above table shows the investment in cash out of its total assets in JUTPCL during the period of study of five years. In the fiscal year 2065/066, the proportion is 8.71% which has rise to 19.72% in the next fiscal year 2066/067 which is the highest during the five study year. In fiscal year 2067/068 it has decreased to 5.51%. Again, it has decreased to 5.02% in the fiscal year 2068/069 and 8.29% in next fiscal year 2069/070. The proportion of 5.02% in fiscal year 2068/069 is the lowest among the five study year.

This can be shown in the bar graph here under.

Graph No. 4.5



In order to test relationship between cash & bank and total assets Karl Person's correlation coefficient (r) is computed below.

Table No. 4.9

Coefficient of Correlation between Cash & Bank Balance &Total Assets

Correlation (r)	Probable Error (P.E.)
-0.11	0.30

(Source: Appendix-4)

In the above table, the correlation coefficient (r) between cash & bank and total assets during the study period of the JUTPCL has shown which is negative. This shows that negative correlation between cash & bank and total assets. Since, 'r' is not six times greater than P.E., the relationship is not considered to be significant.

4.3.5 Proportion of Inventory to Current Assets:

One of the important parts of current assets is inventory. In the manufacturing company like JUTPCL, increasing of raw materials, as well as finished goods spare parts are very important. The shortage of raw materials creates irregular in production, high manufacturing cost, unfavorable labor variance, etc. On the other hand, excess inventory causes unnecessary handling of capital which earns nothing. It results high cost in inventory management. Not only the inventory of raw material, there should be proper management of finished goods or outputs, so that consumer never feels to have shortage. It arise the neither excess inventory problem nor shortage of inventory problem. The table below shows the proportion of inventory to its current assets.

Table No. 4.10

Inventory to Current Assets Ratios

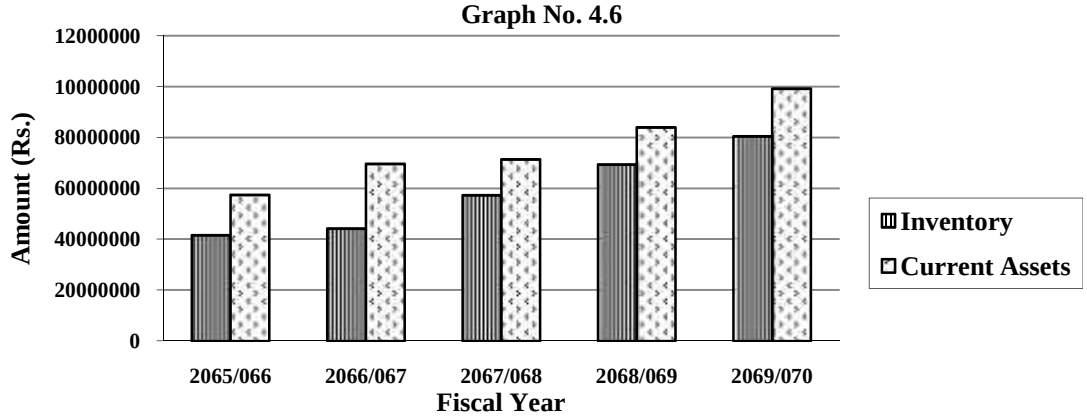
Year	Inventory (Rs.)	Current Assets (Rs.)	Ratio (%)	Change (%)
065/66	41594769	57425985	72.43	-
066/67	44176825	69595559	63.48	-8.95
067/68	57322386	71363893	80.32	16.84
068/69	69430388	83954132	82.70	2.38
069/70	80421773	99207341	81.06	-1.64
Average	58589228	76309382	76.79	-

(Source: Appendix-25)

In the above table, the proportion of inventory to current assets during the study year has been calculated. In the fiscal year 2065/066, the proportion is 72.43%. In fiscal year 2066/067, it has fallen to 63.48%, which is lowest ratio among the study year. In 2067/068, it has rise to 80.32%. And it has increased to 82.70% in fiscal year 2068/069, which is the highest among the study years. It has fallen to 81.06% in fiscal year 2069/070.

This can be shown in the bar graph here under:

Graph No. 4.6



In order to test relationship between inventory and current assets Karl Person's correlation coefficient (r) is computed below.

Table No. 4.11

Coefficient of Correlation between Inventory & Current Assets

Correlation (r)	P.E.
0.96	0.02

(Source: Appendix-5)

In the above calculation, correlation coefficient of Inventory and current assets is positive. So, there is positive correlation between them. Since, the calculated value of 'r' is six times greater than PE. So, it is considered to be significant.

4.3.6 Proportion of Inventories to Total Assets:

Inventory is one of the important parts of current assets. It will directly affect the total assets. So, it is necessary to know the proportion of Inventories and Total Assets. The below table shows the proportion of inventories and total assets:

Table No. 4.12

Inventory to Total Assets Ratios

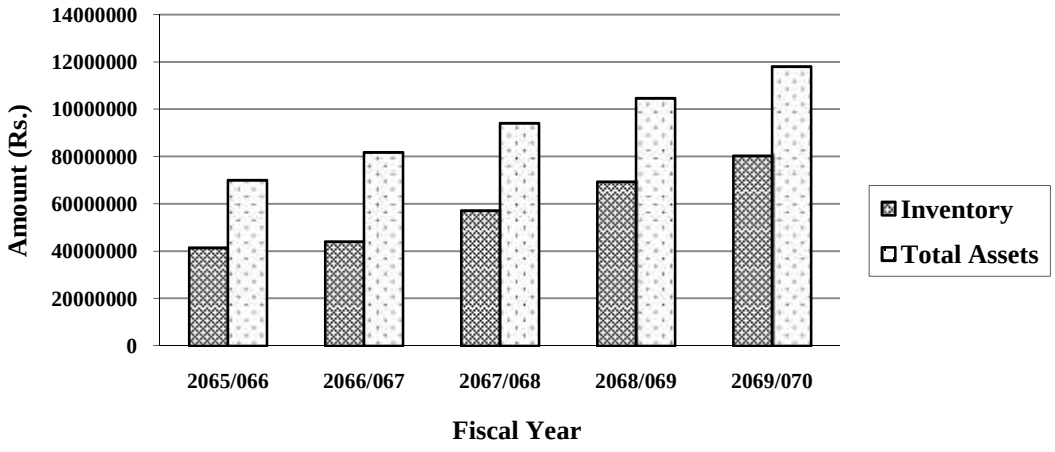
Year	Inventory (Rs.)	Total Assets (Rs.)	Ratio (%)	Change (%)
065/66	41594769	70083149	59.35	-
066/67	44176825	81957850	53.90	-5.45
067/68	57322386	94217208	60.84	6.94
068/69	69430388	104743022	66.29	5.45
069/70	80421773	118118370	68.09	1.8
Average	58589228	93823920	62.45	-

(Source: Appendix-25)

The above table shows the proportion between inventories and total assets during study year. In fiscal year 2065/66, the proportion is 59.35%. It has decreased to 53.90% in fiscal year 2066/67, which is the lowest ratio among the study years. In fiscal year 2067/68 and 2068/69, it has increased to 60.84%, 66.29% respectively. Again it has increased to 68.09%, in the fiscal year 2069/70, which is the highest ratio among the study year.

This can be shown in the bar graph here under.

Graph No. 4.7



In order to test relationship between inventory and total assets Karl Person's correlation coefficient (r) is computed below.

Table No. 4.13

Coefficient of Correlation between Inventory & Total Assets

Correlation (r)	Probable Error (P.E.)
0.98	0.01

(Source: Appendix-6)

The above calculation shows that there is positive correlation between inventory and total assets of the firm during the five study period. Further, the value of 'r' is more than six times greater than its P.E., the relationship is considered to be significant.

4.3.7 Proportion of Receivables to Current Assets:

The table below shows the proportion of receivables to current assets.

Table No. 4.14

Receivables to Current Assets Ratios

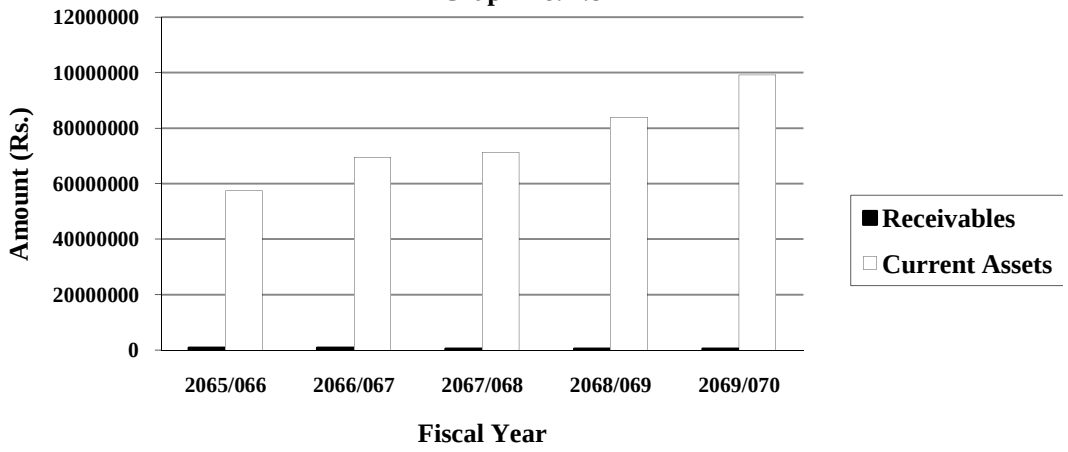
Year	Receivables (Rs.)	Current Assets (Rs.)	Ratio (%)	Change (%)
065/66	828780	57425985	1.44	-
066/67	818771	69595559	1.18	-0.26
067/68	497030	71363893	0.70	-0.48
068/69	517365	83954132	0.62	-0.08
069/70	463548	99207341	0.47	-0.15
Average	625098.8	76309382	0.82	-

(Source: Appendix-25)

In the above table, the proportion of receivables to current assets is 1.44% in fiscal year 2065/066 which is highest ratio among the study year. In year 2066/067, 2067/068 and 2068/069 it has decreased to 1.18%, 0.70% and 0.62% respectively. Again, it has decreased to 0.47% in fiscal year 2069/070 which is lowest of the study year.

This can be shown in the bar graph here under.

Graph No. 4.8



In order to test relationship between receivables and current assets Karl Person's correlation coefficient (r) is computed below.

Table No. 4.15

Coefficient of Correlation between Receivables & Current Assets

Correlation (r)	Probable Error (P.E.)
-0.75	0.13

(Source: Appendix-7)

As in the above calculation, the correlation coefficient 'r' is negative so there is negative correlation between receivables and current assets during the study period. And also 'r' is less than PE, it is considered that the relationship is not all significant.

4.3.8 Proportion of Receivables to Total Assets:

In this era of mid throat competition situation of the market, credit sales plays a vital role in the development and expansion of market, without increasing sales volume, the company can't earn profit and therefore maximize shareholder's wealth. Hence, the company should keep some provisions for credit sales. The company has to arrange some working capital for this purpose. The nature and term of credit should be determined in advance in order to avoid the company from the deficiency of working capital. Such arrangement is basically terms receivables management. The receivables should be perfect. Higher degree of receivables result unnecessary hold up of working capital, lower degree of receivables may cause negative result in sales level. The following table shows the proportion of receivables to total assets.

Table No. 4.16

Receivables to Total Assets Ratios

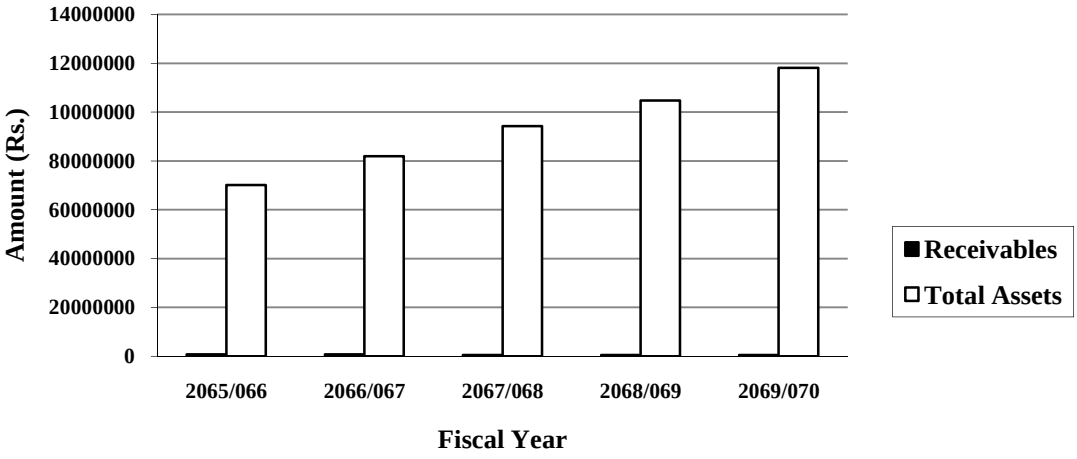
Year	Receivables (Rs.)	Total Assets (Rs.)	Ratio (%)	Change (%)
065/66	828780	70083149	1.18	-
066/67	818771	81957850	1	-0.18
067/68	497030	94217208	0.53	-0.47
068/69	517365	104743022	0.49	-0.04
069/70	463548	118118370	0.39	-0.1
Average	625098.8	93823920	0.67	-

(Source: Appendix-25)

In above table, the proportion of receivables to total assets is 1.18% in the fiscal year 2065/066, which is highest ratio among the study year. It has decreased to 1%, 0.53% and 0.49% in fiscal year 2066/067, 2067/068 and 2068/069 respectively. Again, it has decreased to 0.39% in fiscal year 2069/070, which is the lowest of the study year.

This can be shown in the bar graph here under.

Graph No. 4.9



In order to test relationship between receivables and total assets Karl Person's correlation coefficient (r) is computed below.

Table No. 4.17

Coefficient of Correlation between Receivables & Total Assets

Correlation (r)	Probable Error (P.E.)
-0.86	0.078

(Source: Appendix-8)

As in the above calculation, the correlation coefficient 'r' is negative so there is negative correlation between receivables and total assets during the study period. And also 'r' is less than PE, it is considered that the relationship is not all significant.

4.4 LIQUIDITY POTISION

Liquidity position shows the ability to pay the bills. Liquidity fulfills the current need of money. Since, the study is focused on working capital management of the company. So, liquidity position plays vital role to manage the working capital. Here, the current ratio, quick ratio, cash ratio and working capital to current assets ratio of JUTPCL. during five years period of study are observed.

4.4.1 Current Ratio:

It is the simple relationship of current assets to current liabilities current assets includes cash and bank balance, inventory, receivables and other miscellaneous current assets, whereas current liabilities include creditors, cash credit taken, provision for taxation, unclaimed dividend and other miscellaneous current liabilities. The current ratio of the firm for the period of study is calculated in the table below.

Table No. 4.18

Current Ratio

Year	Current Assets (Rs.)	Current Liabilities (Rs.)	Ratio (x)	Change (x)
065/66	57425985	44454082	1.29	-
066/67	69595559	54808892	1.27	-0.02
067/68	71363893	69709843	1.02	-0.25
068/69	83954132	89768505	0.94	-0.08
069/70	99207341	117789652	0.84	-0.1
Total	381546910	376530974	5.36	-
Average	76309382	75306195	1.07	-

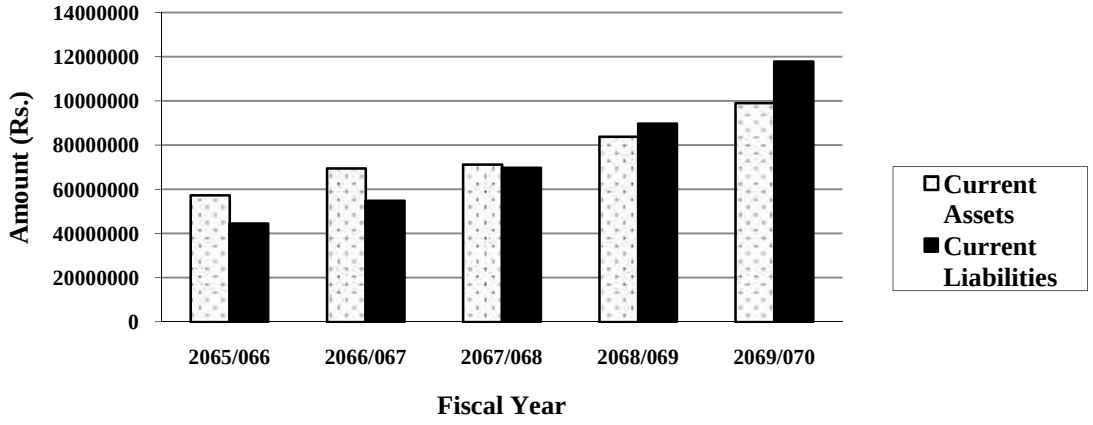
(Source: Appendix-25)

The above table shows that firm's average current ratio during study year is 1.07:1. It shows that company has not enough current assets to pay current obligations i.e. not good condition of current assets. Because the standard current ratio is 2:1 and here

average is 1.07:1 which is very poor as compared to the standard. In the fiscal year 2065/066 has 1.29:1 ratio which is highest ratio among the study period. But in fiscal year 2069/070 it has lowest ratio of 0.84:1. Current ratio less than 2;1 is typically considered low and indicates financial difficulties. JUTPCL may not be doing well due to slow-paying account receivables or slow moving inventory. Overall the firm has not maintained the standard current ratio.

This can be shown in the bar graph below:

Graph No. 4.10



In order to test relationship between current assets and current liabilities Karl Person's correlation coefficient (r) is computed below.

Table No. 4.19

Coefficient of Correlation between Current Assets & Current Liabilities

Correlation (r)	Probable Error (P.E.)
0.99	0.0045

(Source: Appendix-9)

The above calculation shows that, correlation coefficient between current assets and current liabilities 'r' during the study period is positive therefore there is positive correlation between them. Since, the calculated value of 'r' is six times more than of PE, it is considered to be significant.

4.4.2 Quick Ratio (Acid Test Ratio):

Quick ratio or acid test ratio is the relationship in between quick assets and current liabilities. It is the measurement of company's ability to convert its current assets, quickly into cash in order to meet its current liabilities. The high inventory level, which can't convert quickly into cash so, the study of quick ratio is reliable. It can be computed by dividing quick assets by current liabilities. The quick ratio of JUTPCL during the study period is presented below.

Table No. 4.20

Quick Ratio

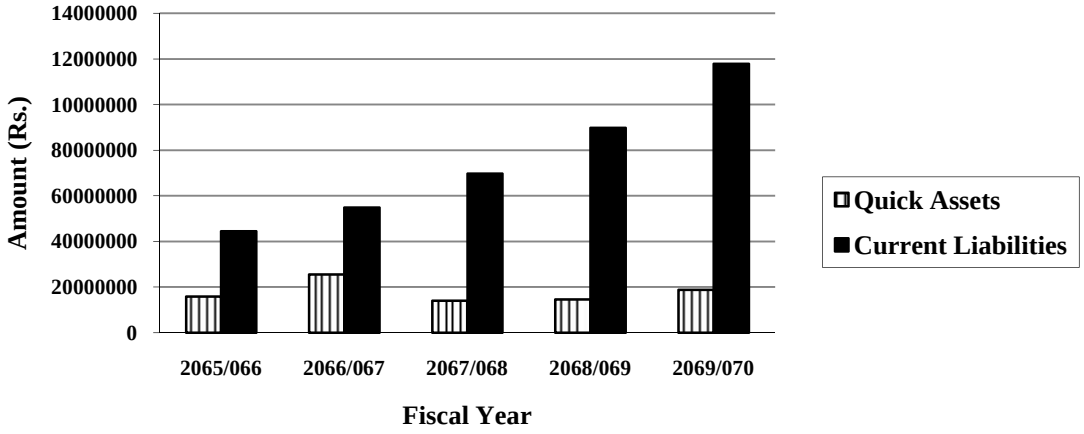
Year	Quick Assets (Rs.)	Current Liabilities (Rs.)	Ratio (x)	Change (x)
065/66	15831216	44454082	0.36	-
066/67	25418734	54808892	0.46	0.1
067/68	14041507	69709843	0.20	-0.26
068/69	14523744	89768505	0.16	-0.04
069/70	18785568	117789652	0.16	0
Total	88600769	376530974	1.34	-
Average	17720154	75306195	0.27	-

(Source: Appendix-25)

In the above table, the calculated average quick ratio is 0.27:1 which is not considered to be quite good because the perfect quick ratio is 1:1. During the five study period the quick ratio is quit fluctuating. It ranges from 0.16 to 0.46. In the fiscal year 2066/067 it has highest ratio i.e. 0.46:1. In fiscal year 2068/069 and 2069/070 it has lowest ratio of 0.16:1. The company not maintained standard of quick ratio in study year, which is not good for the firm.

This can be shown in the bar graph below.

Graph No. 4.11



In order to test relationship between quick assets and current liabilities Karl Person's correlation coefficient (r) is computed below.

Table No. 4.21

Coefficient of Correlation between Quick Assets & Current Liabilities

Correlation (r)	Probable Error (P.E.)
-0.15	0.30

(Source: Appendix-10)

As in the above calculation, the correlation coefficient 'r' is negative so there is negative correlation between quick assets and current liabilities during the study period. And also 'r' is less than PE, it is considered that the relationship is not all significant.

4.4.3 Cash Ratio:

Cash ratio is the relationship between cash and marketable securities and current liabilities. Cash is the important current assets to run any firm. So, the firm should manage the amount of cash in proper way. The following table shows the relationship between cash & marketable securities and current liabilities.

Table No. 4.22

Cash Ratio

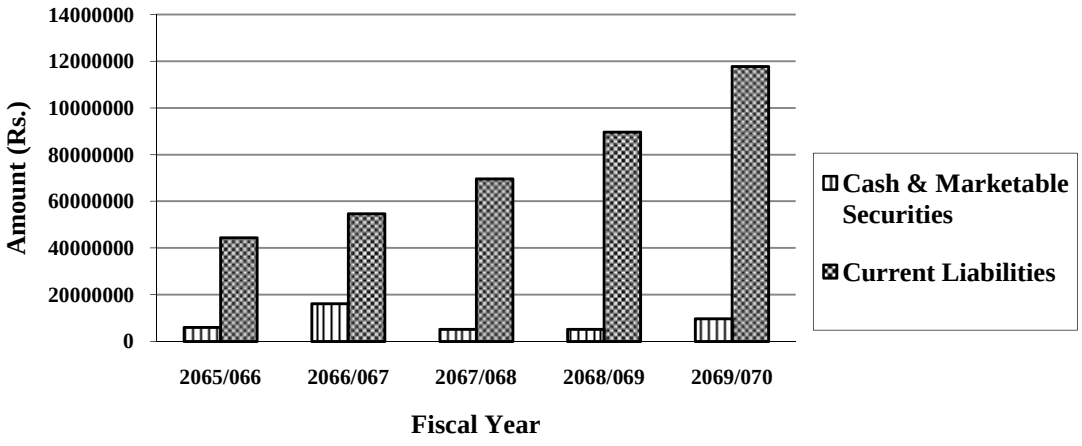
Year	Cash & Marketable Securities (Rs.)	Current Liabilities (Rs.)	Ratio (x)	Change (x)
065/66	6101045	44454082	0.14	-
066/67	16167347	54808892	0.29	0.15
067/68	5195942	69709843	0.07	-0.22
068/69	5259564	89768505	0.06	-0.01
069/70	9795602	117789652	0.08	0.02
Total	42519500	376530974	0.64	-
Average	8503900	75306195	0.13	-

(Source: Appendix-25)

The above table shows the cash ratio during five study years which are fluctuating over the years. It ranges from 0.06 times to 0.29 times. In the fiscal year 2065/066 it has 0.14. In fiscal year 2066/067 it has highest ratio of 0.29 which has fallen to 0.07 in fiscal year 2067/068. And in fiscal year 2068/069 it has lowest of 0.06 all over the study year. Next fiscal it has increased to 0.08.

This can be shown in the bar graph below.

Graph No. 4.12



In order to test relationship between cash & marketable securities and current liabilities Karl Person's correlation coefficient (r) is computed below.

Table No. 4.23

Coefficient of Correlation between Cash & Marketable Securities & Current Liabilities

Correlation (r)	Probable Error (P.E.)
0.1	0.3

(Source: Appendix-11)

In the above figure, there is positive correlation coefficient 'r', so there is positive relationship between cash & marketable securities to current liabilities. Since, 'r' is not six times greater than P.E., it is not considered that relationship is significant.

4.4.4 Working Capital to Current Assets Ratio:

This ratio shows the relationship between working capital and current assets. Here, working capital means net working capital. Net working capital is current assets less current liabilities. The table below shows the relationship between working capital and current assets.

Table No. 4.24

Working Capital to Current Assets Ratio

Year	Working Capital (Rs.)	Current Assets (Rs.)	Ratio (x)	Change (x)
065/66	12971903	57425985	0.23	-
066/67	14786667	69595559	0.21	-0.02
067/68	1654050	71363893	0.02	-0.19
068/69	-5814373	83954132	-0.07	-0.09
069/70	-18582311	99207341	-0.19	-0.12
Total	5015936	381546910	0.2	-
Average	1003187	76309382	0.04	-

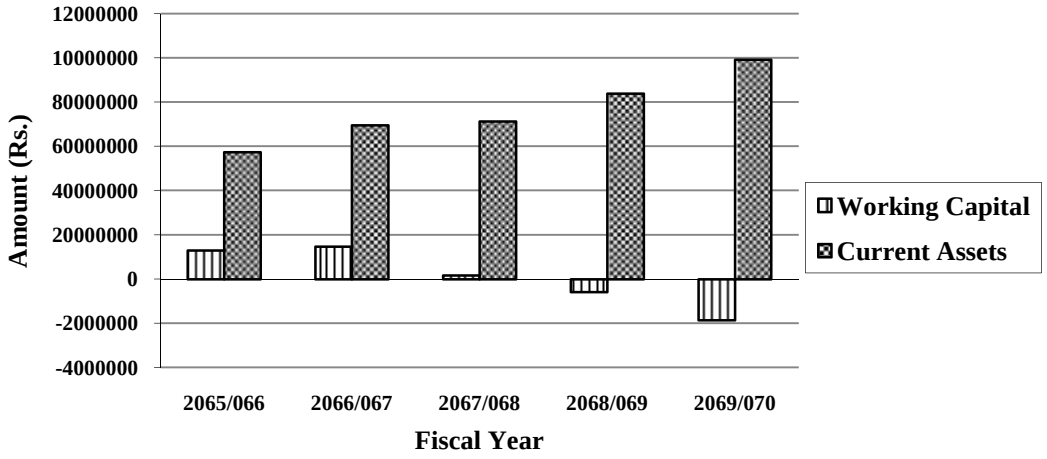
(Source: Appendix-25)

In the above table, the relationship between working capital and current assets is 0.23 times in the fiscal year 2065/066 which is highest ratio. Then it has continuously decreases to 0.21, 0.02 and -0.07 in fiscal year 2066/067, 2067/068 and 2068/069

respectively. Again, in fiscal year 2069/070 it has lowest ratio with -0.19 times among the study year.

This can be shown in the bar graph below.

Graph No. 4.13



In order to test relationship between working capital and current assets Karl Person's correlation coefficient (r) is computed below.

Table No. 4.25

Coefficient of Correlation between Working Capital & Current Assets

Correlation (r)	Probable Error (P.E.)
-0.94	0.036

(Source: Appendix-12)

In the above figure, correlation coefficient 'r' is negative. Hence, the relationship between working capital and current assets is negative. Also, 'r' is not six times greater than PE, it is not considered that the relationship is significant.

4.5 PROFITABILITY POTISION

Behind the establishment of a manufacturing company, there is objective of earning profit or getting maximum return on investment. Profitability of company is concern with all parties of the country. Effective utilization of resources to earn maximum amount profit is the basic through of company. Profitability is the measure of efficiency. To measure the profitability position of the JUTPCL, the researcher has

tried to analyze the profitability ratio, such as: gross profit margin, net profit margin, operating ratio, return on assets, return on net worth and return on working capital.

4.5.1 Gross Profit Margin (GPM):

It is the profit of excluding the deduction of operating expenses and income tax. It is obtained by deducting cost of goods sold from net sales. The ratio is the relationship between gross profits to net sales which explains that percentage return of gross profit out of total assets. The ratio measure the efficiency of company and soundness of management. Higher percentage indicates the better efficiency. The below table shows the gross profit earned by the company during period of study and sales made there off.

Table No. 4.26

Gross Profit Margin (GPM)

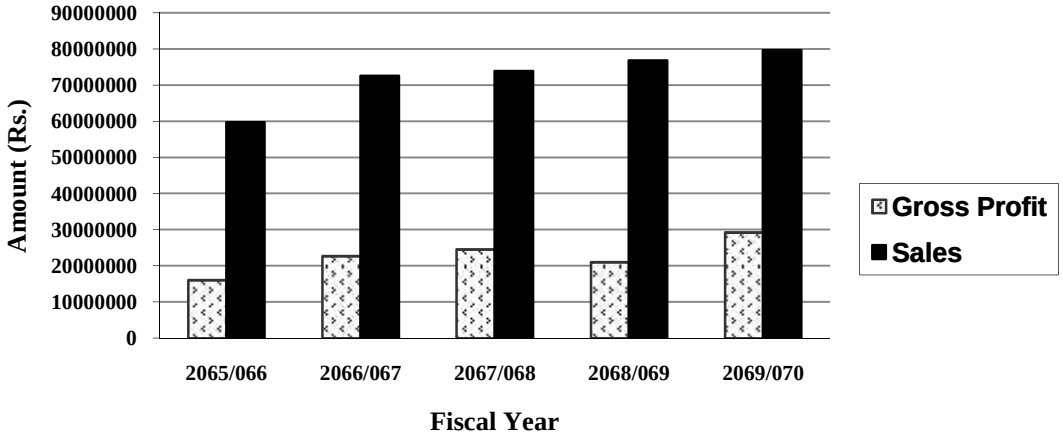
Year	Gross profit (Rs.)	Sales (Rs.)	Ratio (%)	Change (%)
065/66	16050786	59665058	26.90	-
066/67	22655123	72579743	31.21	4.31
067/68	24517622	73916865	33.17	1.96
068/69	21008301	76786861	27.36	-5.81
069/70	29254239	79653463	36.73	9.37
Total	113486071	362601990	155.37	-
Average	22697214	72520398	31.07	-

(Source: Appendix-25)

In the above table gross profit margin of the firm during the five study years are shown which is quite fluctuating. The firm has always gross profit during five years. In fiscal year 2065/066, it has gross profit margin of 26.90% i.e. gross profit, which is the lowest gross profit among the study year. In next fiscal year 2066/067, it has increased to 31.21% and further to 33.17% in fiscal year 2067/068. In fiscal year 2068/069 it has decreased to 27.36% and in the last study year in fiscal year 2069/070 it has gross profit margin of highest i.e. 36.73%. Overall it shows that the firm is in gross profit.

This can be shown in the bar graph below.

Graph No. 4.14



In order to test relationship between gross profit and sales Karl Person's correlation coefficient (r) is computed below.

Table No. 4.27

Coefficient of Correlation between Gross Profit & Sales

Correlation (r)	Probable Error (P.E.)
0.86	0.08

(Source: Appendix-13)

The above calculation shows the positive relationship between gross profit and sales because the correlation coefficient between them is positive. Hence, 'r' is six times greater than PE, the relationship is considered to be significant.

4.5.2 Net Profit Margin (NPM):

Net profit is the profit which comes after deducting operating expenses and income tax from gross profit. This ratio is the relationship on net profit after tax to sales. This ratio shows the ability of management to operate business with sufficient success. The ratio of net profit to sales essentially expresses the cost price effectiveness of the operation. The operating expenses mainly affect the net profit of company. The table below shows the net profit margin of JUTPCL. during the study period.

Table No. 4.28

Net Profit Margin

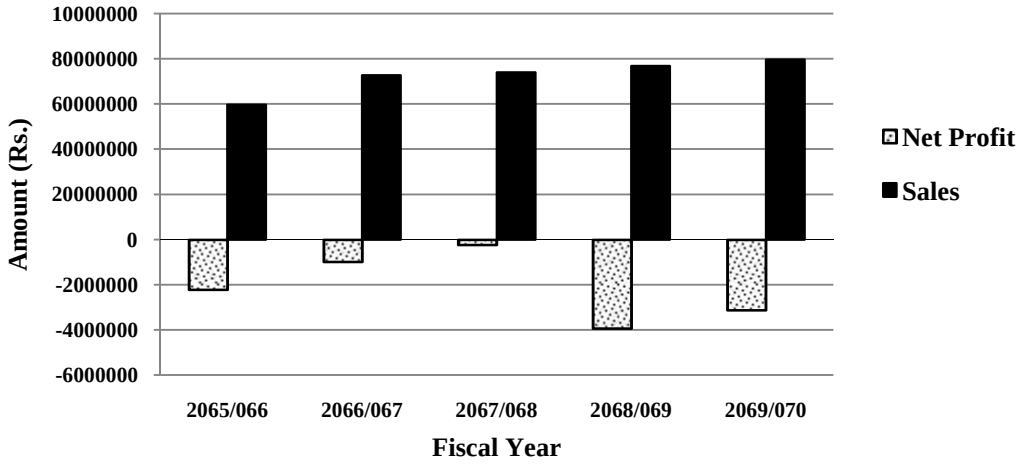
Year	Net Profit/Loss after Tax (Rs.)	Sales (Rs.)	Ratio (%)	Change (%)
065/66	-22134722	59665058	-37.10	-
066/67	-9899310	72579743	-13.64	23.46
067/68	-2359228	73916865	-3.19	10.45
068/69	-39337741	76786861	-51.23	-48.04
069/70	-31244006	79653463	-39.22	12.01
Total	-104975007	362601990	-144.38	-
Average	-20995001	72520398	-28.876	-

(Source: Appendix-25)

The above table shows the net profit margin of JUTPCL, during five study years. The average net profit margin of the firm is negative. It tells that the firm is not able to obtain profit after the payment of tax for the five study year. In fiscal year 2065/066 and 2066/067 it has -37.10% and -13.64% net profit margin respectively. It has increased to -3.19% in fiscal year 2067/068 which is lowest loss during the study year. In fiscal year 2068/069, it has to -51.23% which is the highest loss among the studied years. Again, it has increased to -39.22% in fiscal year 2069/070. Overall net profit margin of the firm is not satisfactory.

This can be shown in bar graph as below.

Graph No. 4.15



In order to test relationship between net profit/loss and sales Karl Person's correlation coefficient (r) is computed below.

Table No. 4.29

Coefficient of Correlation between Net P/L after Tax & Sales

Correlation (r)	Probable Error (P.E.)
0.08	0.30

(Source: Appendix-14)

In the above calculation, correlation coefficient 'r' between net profit after tax and sales is positive. Therefore, the relationship is positive. Hence, 'r' is not six times greater than PE, the relationship is not considered as significant.

4.5.3 Operating Ratio (OR):

The operating ratio establishes the relationship between total operating expenses and sales volume. It is an important ratio that explains the changes in the net profit margin ratio. It also measures the efficiency of the company as regards to minimizing costs. Operating ratio is an indicator of operational efficiency. The table below shows the operating ratio of the JUTPCL. during the period of study.

Table No. 4.30

Operating Ratio

Year	COGS + Operating Expenses (Rs.)	Sales (Rs.)	Ratio (%)	Change (%)
065/66	77861949	59665058	130.50	-
066/67	78526572	72579743	108.19	-22.31
067/68	71986122	73916865	97.39	-10.8
068/69	110000081	76786861	143.25	45.86
069/70	106332017	79653463	133.49	-9.76
Total	444706741	362601990	612.82	-
Average	88941348	72520398	122.56	-

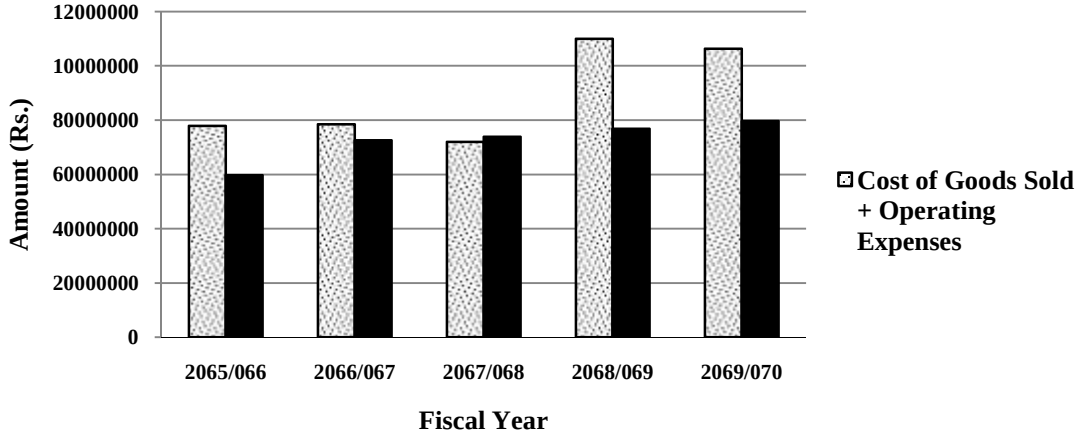
(Source: Appendix-25)

The above table shows that in the operating ratio is 130.5% and 108.19% in the fiscal year 2065/066 and 2066/067 respectively. And it has decreased to 97.39% in fiscal year 2067/068 which is the lowest ratio. Then it has increased to 143.25% in fiscal

year 2068/069 which is highest ratio satisfactory than in the other fiscal year. And in fiscal year 2069/070 it has decreased to 133.82%. Overall the operating ratio of the firm is not considered to be good one.

This can be shown in bar graph as below.

Graph No. 4.16



In order to test relationship between Cost of Goods Sold + Operating Expenses and sales Karl Person's correlation coefficient (r) is computed below.

Table No. 4.31

Coefficient of Correlation between Cost of Goods Sold + Operating Expenses & Sales

Correlation (r)	Probable Error (P.E.)
0.61	0.19

(Source: Appendix-15)

In the above calculation, the correlation coefficient 'r' is positive therefore relationship between COGS and operation expenses to sales is positive. Hence, 'r' is not six times greater the value of PE, the relationship is not considered to be significant.

4.5.4 Return on Assets (ROA):

It measures the percentage of return on the overall total assets employed for every activities of the company. It gives the profit giving efficiency of the company in

relation to total assets. The return on total assets of JUTPCL is presented below in the table during the period of study.

Table No. 4.32

Return on Assets (ROA)

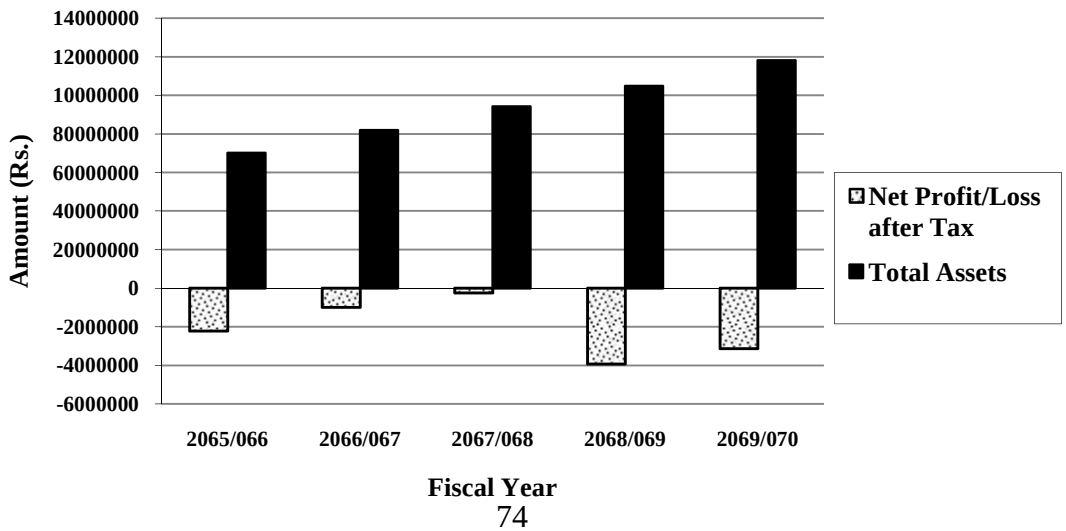
Year	Net Profit/Loss after Tax (Rs.)	Total Assets (Rs.)	Ratio (%)	Change (%)
065/66	-22134722	70083149	-31.58	-
066/67	-9899310	81957850	-12.08	19.5
067/68	-2359228	94217208	-2.50	9.58
068/69	-39337741	104743022	-37.56	-35.06
069/70	-31244006	118118370	-26.45	11.11
Total	-104975007	469119599	-110.17	-
Average	-20995001	93823920	-22.034	-

(Source: Appendix-25)

In the above table, the return on assets for five study year is shown. The average ratio is negative; it shows that the firm has not return in the total assets used. The firm has not return during the five years. In the fiscal year 2065/066 and 2066/067 it has 31.58% and 12.08% loss respectively. It has 2.5% loss in fiscal year 2067/068 which is lowest loss during the five years. It has highest loss in the fiscal year 2068/069 among the study year of 37.56%. And in fiscal year 2069/070 it has loss of 26.45%. Overall the firm is unable to return they had invested in total assets as a whole during the five study year.

This can be shown in the bar graph as below.

Graph No. 4.17



In order to test relationship between net profit/loss after tax and total assets Karl Person's correlation coefficient (r) is computed below.

Table No. 4.33

Coefficient of Correlation between Net P/L after Tax & Total Assets

Correlation (r)	Probable Error (P.E.)
-0.48	0.23

(Source: Appendix-16)

The above calculation shows that the correlation coefficient between net profit after tax and total assets is negative. So they have negative relationship. Hence, the value of 'r' is not six times greater than the value of P.E. the relationship is considered as not significant.

4.5.5 Return on Equity (ROE):

It gives the percentage return on the owner's capital invested. The conclusions drawn on the basis of preceding ratios may not give true result because they give profit in sales and total assets i.e. net worth needful to study. The table presented below shows the ratio of return on owner's capital employed during the period of study of JUTPCL.

Table No. 4.34

Return on Equity (ROE)

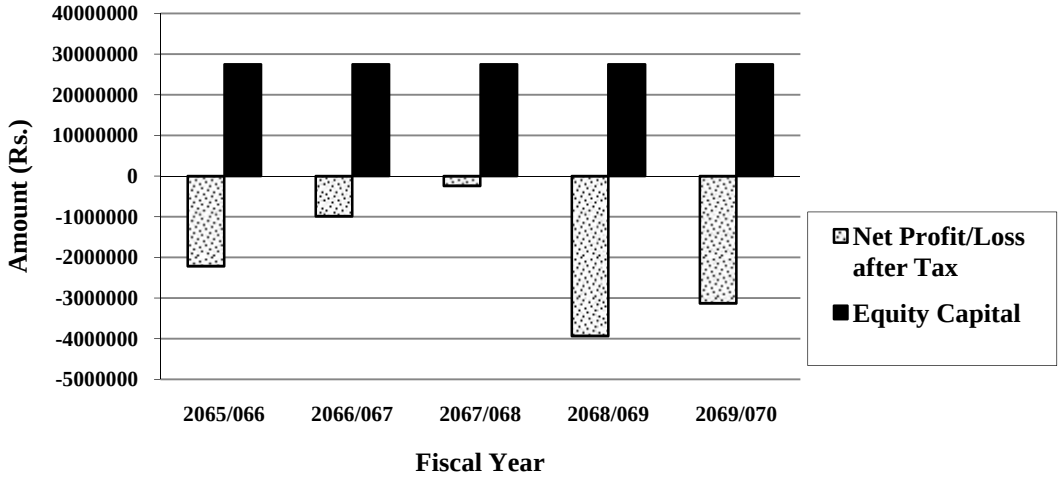
Year	Net Profit/Loss after Tax (Rs.)	Equity Capital (Rs.)	Ratio (%)	Change (%)
065/66	-22134722	27517000	-80.44	-
066/67	-9899310	27517000	-35.98	44.46
067/68	-2359228	27517000	-8.57	27.41
068/69	-39337741	27517000	-142.96	-134.39
069/70	-31244006	27517000	-113.54	29.42
Total	-104975007	137585000	-381.49	-
Average	-20995001	27517000	-76.298	-

(Source: Appendix-25)

The above table shows the relationship between net profits after tax with net worth. The firm has not return during the five years. In the fiscal year 2065/066, it has negative ratio of 80.44% which has fall down to 35.98% and 8.57% in fiscal year 2066/067 and 2067/068 respectively. Given ratio 8.57% is the lowest negative ratio which is in 2067/068. In fiscal year 2068/069, it has rise to 142.96% which is highest negative ratio. Again it has negative ratio of 113.54% in fiscal year 2069/070. Overall the calculation shows that the return on net worth ratio is not satisfactory.

This can be shown in the bar graph as below.

Graph No. 4.18



In order to test relationship between net profit/Loss after tax and equity capital Karl Person's correlation coefficient (r) is computed below.

Table No. 4.35

Coefficient of Correlation between Net P/L after Tax & Equity Capital

Correlation (r)	Probable Error (P.E.)
0	0.30

(Source: Appendix-17)

The above figure shows that the value of correlation coefficient 'r' between net profit after tax and net worth is zero. So, there is no relationship between them. Here, the value of 'r' is smaller than the value of PE, the relationship is considered as not all significant or no evidence of correlation between variables.

4.5.6 Return on Working Capital (ROWC):

This is the ratio of return on current assets on working capital employed by the firm. It measures the profit with respect to its total current assets. It gives the utilization of current assets effectiveness. The table presented below shows the relationship between net profit after tax and current assets i.e. working capital during the period of study.

Table No. 4.36

Return on Working Capital (ROWC)

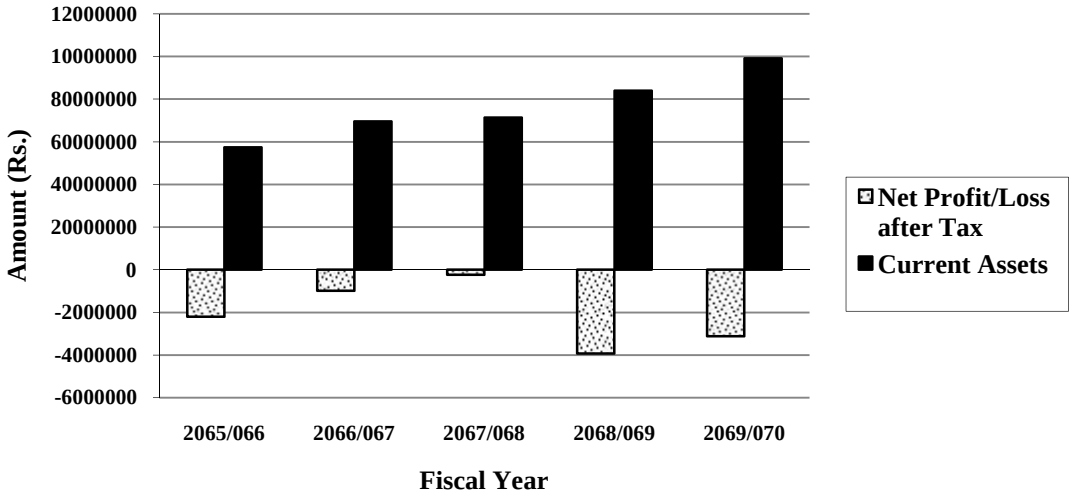
Year	NPAT (Rs.)	Current Assets (Rs.)	Ratio (%)	Change (%)
065/66	-22134722	57425985	-38.54	-
066/67	-9899310	69595559	-14.22	24.32
067/68	-2359228	71363893	-3.31	10.91
068/69	-39337741	83954132	-46.86	-43.55
069/70	-31244006	99207341	-31.49	15.37
Total	-104975007	381546910	-134.42	-
Average	-20995001	76309382	-26.88	-

(Source: Appendix-25)

The above table shows the relationship between net profit after tax and current assets is negative ratio 16.18% in fiscal year 2065/66. In fiscal year 2066/67 and 2067/68, it has fallen to 14.22% and 3.31% negative ratio respectively. Given ratio 3.31% is the lowest negative ratio among the study year. In fiscal year 2068/69, it has rise to 46.86% which is highest negative ratio during the study year. Again, it has negative ratio of 31.49% in fiscal year 2069/070. Overall the calculation shows that the return on working capital ratio is not satisfactory.

This can be shown in the bar graph as below.

Graph No. 4.19



In order to test relationship between net P/L after tax and current assets Karl Person's correlation coefficient (r) is computed below.

Table No. 4.37

Coefficient of Correlation between Net P/L after Tax & Current Assets

Correlation (r)	Probable Error (P.E.)
-0.54	0.21

(Source: Appendix-18)

The above calculation shows the correlation coefficient 'r' between net profit after tax and current assets is negative. So, there is negative correlation between them. Here, the value of 'r' is not six times greater than P.E. the relationship is considered to be not significant.

4.6 TRUNOVER RATIO

Turnover ratio indicates the relationship between sales and assets. It is also known as activity, efficiency or assets utilization ratio. This ratio measures the degree of effectiveness in use of resource or fund by a firm. Various turnover ratio has been calculated below:

4.6.1 Working Capital Turnover (WCT):

It is computed by dividing sales by net working capital. Net working capital is excess amount of current assets over current liabilities. Such working capital is the margin of

safety maintained by the company. In case of trading and financial firms, the need of working capital will be limited. But in manufacturing company like JUTPCL, the size of working capital depends upon production cycle and business cycle. The net working capital position maintained by the JUTPCL is presented below.

Table No. 4.38

Working Capital Turnover (WCT)

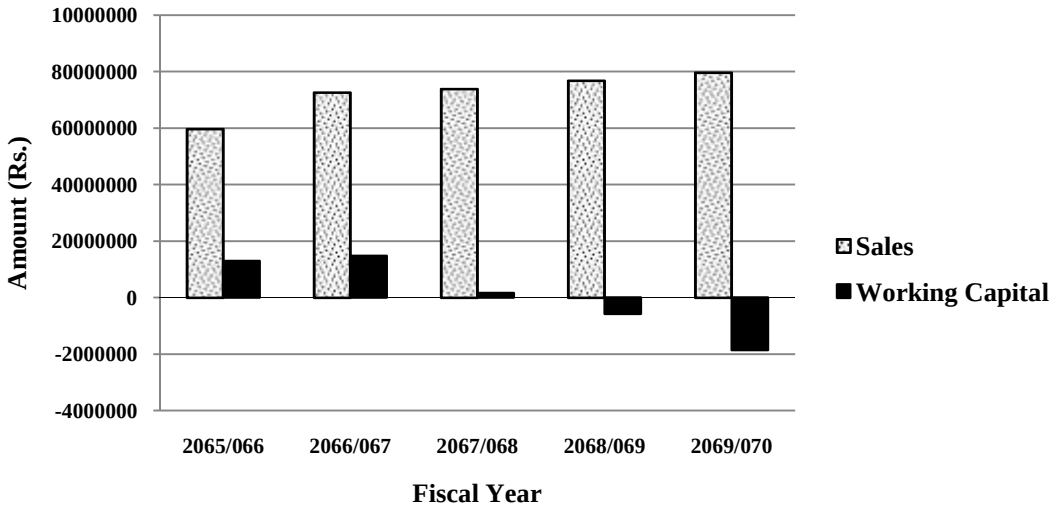
Year	Sales (Rs.)	Working Capital (Rs.)	Ratio (x)	Change (x)
065/66	59665058	12971903	4.60	-
066/67	72579743	14786667	4.91	0.31
067/68	73916865	1654050	44.69	39.78
068/69	76786861	-5814373	-13.21	-57.9
069/70	79653463	-18582311	-4.29	8.92
Total	362601990	5015936	36.7	-
Average	72520398	1003187	7.34	-

(Source: Appendix-25)

The above table shows the working capital turnover of the JUTPCL for the five study period. In fiscal year 2065/066 it has ratio of 4.6 times which is rise to 4.91 times in fiscal year 2066/067. Again it has ratio of 44.69 times in fiscal year 2067/068 which is highest among the five studied period, which is fallen to -13.21 times in fiscal year 2068/069 which is lowest among the five study year. In the last fiscal year 2069/070 it has fallen to -4.29 times. Overall it has average ratio of 7.34 times during five studied year.

This can be shown in the bar graph as below.

Graph No. 4.20



In order to test relationship between working capital and sales Karl Person's correlation coefficient (r) is computed below.

Table No. 4.39

Coefficient of Correlation between Working Capital & Sales

Correlation (r)	Probable Error (P.E.)
-0.76	0.13

(Source: Appendix-19)

The above calculation shows the correlation coefficient 'r' of sales to net working capital is negative. So there is negative relationship between them. Here, the value of 'r' is not six times greater than the value of P.E., the relationship is considered to be not significant.

4.6.2 Inventory Turnover Ratio (ITR):

Inventory is also the one component of current assets which also should be maintained effectively and efficiently. It has already been stated that working capital production and sales are correlated in general causes. The production should be increased to meet the higher level of sales target. To produce more, more raw materials will be required. The stock level of raw materials should be properly maintained to meet the raw materials requirement for higher level of production. Hence, to fulfill this requirement, the company has to increase its working capital.

The following table shows the inventory turnover position of JUTPCL during the period of study.

Table No. 4.40

Inventory Turnover Ratio (ITR)

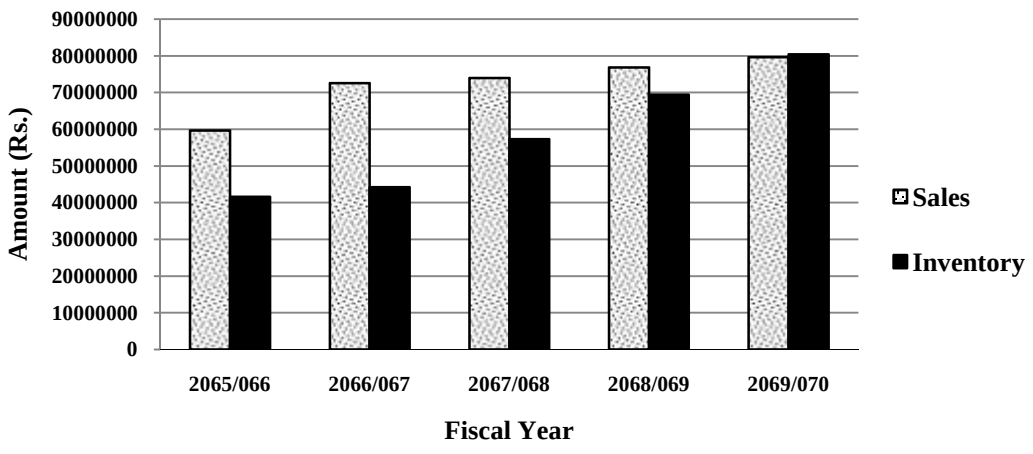
Year	Sales (Rs.)	Inventory (Rs.)	Ratio (x)	Change (x)
065/66	59665058	41594769	1.43	-
066/67	72579743	44176825	1.64	0.21
067/68	73916865	57322386	1.29	-0.35
068/69	76786861	69430388	1.11	-0.18
069/70	79653463	80421773	0.99	-0.12
Total	362601990	292946141	6.46	-
Average	72520398	58589228	1.29	-

(Source: Appendix-25)

The above table shows the inventory turnover of JUTPCL during the period of study. In fiscal year 2065/066, it has ratio of 1.43 times. 1.64 times is the highest ratio which is in the fiscal year 2066/067. In fiscal year 2067/068, it has fallen to 1.29 times. Then, it has again fallen to 1.11 times in fiscal year 2068/069. And last ratio 0.99 times is the lowest ratio during the study year which is in 2069/070 fiscal year. The firm has average inventory turnover of 1.29 times during study year.

This can be shown in the bar graph as below.

Graph No. 4.21



In order to test relationship between sales and inventory Karl Person's correlation coefficient (r) is computed below.

Table No. 4.41

Coefficient of Correlation between Sales & Inventory

Correlation (r)	Probable Error (P.E.)
0.82	0.10

(Source: Appendix-20)

As the above calculation shows that the value of correlation coefficient 'r' between sales and inventory is positive. So there is positive relationship between them. Here, value of 'r' is greater than the value of six times P.E, so the relationship is significant.

4.6.3 Receivables Turnover Ratio (RTR):

Receivables is one of the components of working capital. In order to increase the business activities the company has to increase the sales volume. The sales volume can be increased by giving products in credit to the customers. In such case, level of receivables goes up. It is also known as debtors turnover ratio. The table presented below shows the receivables turnover position and average collection period of its receivables of the JUTPCL during the study period.

Table No. 4.42

Receivables Turnover Ratio (RTR)

Year	Sales (Rs.)	Receivables (Rs.)	Ratio (x)	Change (x)	DSO
065/66	59665058	828780	71.99	-	5.07
066/67	72579743	818771	88.64	16.65	4.12
067/68	73916865	497030	148.72	60.08	2.45
068/69	76786861	517365	148.42	-0.3	2.46
069/70	79653463	463548	171.83	23.41	2.12
Total	362601990	3125494	629.6	-	16.22
Average	72520398	625098.8	125.92	-	3.24

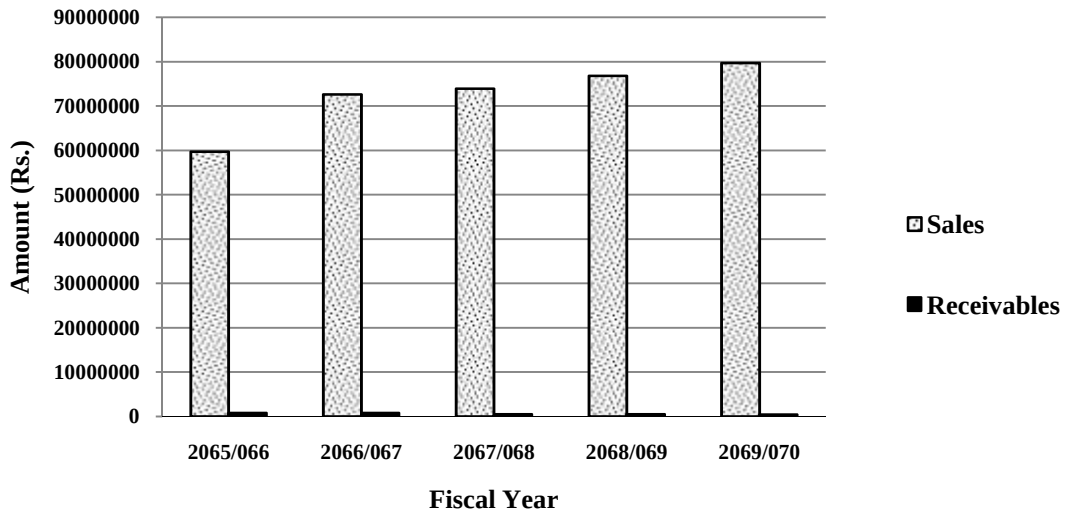
(Source: Appendix-25)

The above table shows the receivable turnover of JUTPCL during five study year and average collection period. In fiscal year 2065/066, it has ratio of 71.99 times which is the lowest among the study year. It has increased to 88.64, 148.72 and 148.42 times in fiscal year 2066/067, 2067/068 and 2068/069 respectively. Further it has increased to 171.83 times in fiscal year 2069/070 which is the highest ratio among the five studied year. Overall it has average receivable turnover ratio of 125.92 times.

The average collection period of credit sales has found to be best in fiscal year 2069/070 is only 2.12 days. It means credit sales amount are collected only within 2.12 days. In fiscal year 2065/066 it has delay collection period of 5.07 days. Overall it has average collection period of 3.24 days.

This can be shown in the bar graph as below.

Graph No. 4.22



In order to test relationship between sales and receivable Karl Person's correlation coefficient (r) is computed below.

Table No. 4.43

Coefficient of Correlation between Sales & Receivables

Correlation (r)	Probable Error (P.E.)
-0.76	0.13

(Source: Appendix-21)

The above calculation shows the relationship between sales and receivable is negative. Here, the value of 'r' is less than PE, so the relationship is considered to be not all significant.

4.6.4 Cash and Bank Balance Turnover Ratio:

It is one of the main parts of current assets which have greater value to meet the current obligations occurred in the business. It should be just adequate to run business and excess cash has no meanings as it earns nothing. So, the companies always see the risk return trade off to maintain just adequate cash balance. The table presented below shows the cash turnover position of the JUTPCL during the period of study.

Table No. 4.44

Cash and Bank Balance Turnover Ratio

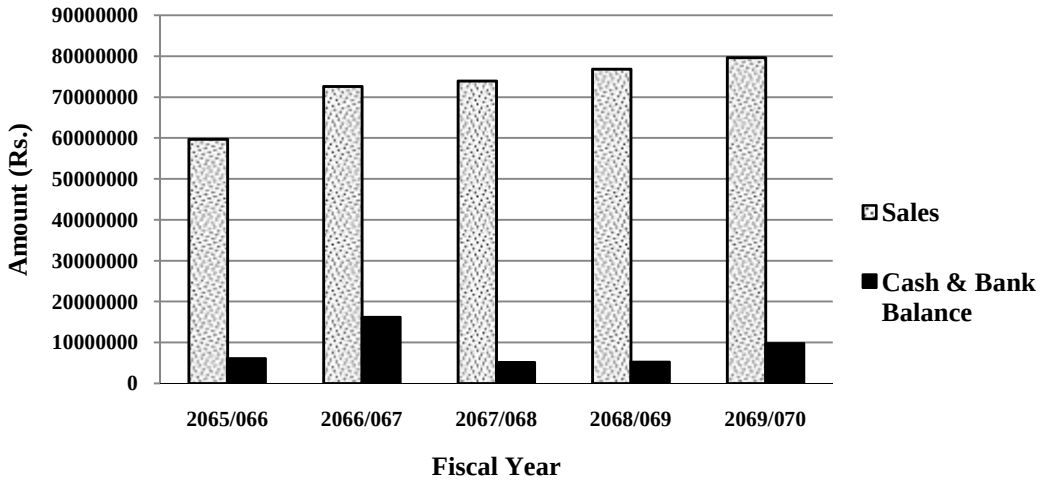
Year	Sales (Rs.)	Cash & Bank Balance (Rs.)	Ratio(x)	Change(x)
065/66	59665058	6101045	9.78	-
066/67	72579743	16167347	4.49	-5.29
067/68	73916865	5195942	14.23	9.74
068/69	76786861	5259564	14.60	0.37
069/70	79653463	9795602	8.13	-6.47
Total	362601990	42519500	51.23	-
Average	72520398	8503900	10.25	-

(Source: Appendix-25)

The above table shows the cash and bank balance turnover ratio of JUTPCL In fiscal year 2065/066 it is 9.78 times, which has reduced to 4.49 times in fiscal year 2066/067 which is lowest ratio during the study year. In the fiscal year 2067/068 it has ratio of 14.23 times, which is highest among the study year. And in fiscal year 2068/069 and 2069/070 it has ratio of 14.60 times and 8.13 times respectively. Overall average cash and bank balance turnover ratio of the firm during five study year is 10.25 times.

This can be shown in the bar graph as below.

Graph No. 4.23



In order to test relationship between sales and cash & bank balance Karl Person's correlation coefficient (r) is computed below.

Table No. 4.45

Coefficient of Correlation between Sales & Cash & Bank Balance

Correlation (r)	Probable Error (P.E.)
-0.15	0.29

(Source: Appendix-22)

The above calculated figure shows the correlation coefficient 'r' between cash and bank balance and sales is negative. It means that there is negative relationship between them. The value of 'r' is smaller than the values of P.E., therefore the relationship is considered to be not all significant.

4.7 LEVERAGE RATIO

Leverage ratio or capital structure ratio are also known as long-term solvency ratio. Leverage ratio is used to measure the financial risk and to know that how fare the firm is using its debt for the benefits of shareholders. Leverage ratio also reflects the proportion of debt in total financing. The two types of leverage ratio are shows below:

4.7.1 Short-term Financing (STF) to Long-term Financing (LTF) Ratio:

This ratio is computed by dividing short-term financing amount by the long-term financing. Fund raised from short-term financing can be used to increase current assets, to meet daily expenses. The table presented below shows this ratio.

Table No. 4.46

Short-term Financing (STF) to Long-term Financing (LTF) Ratio

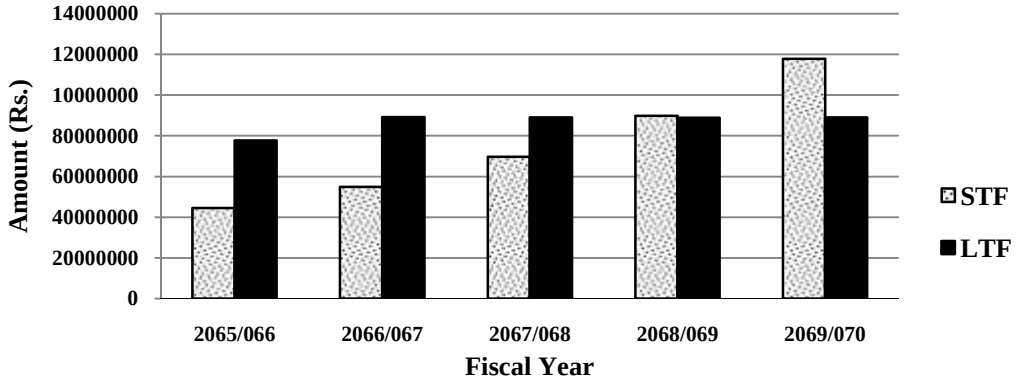
Year	STF (Rs.)	LTF (Rs.)	Ratio (x)	Change (x)
065/66	44454082	77702419	0.57	-
066/67	54808892	89121620	0.61	0.04
067/68	69709843	89014793	0.78	0.17
068/69	89768505	88924069	1	0.22
069/70	117789652	89004062	1.32	0.32
Total	376530974	433766963	4.28	-
Average	75306195	86753393	0.86	-

(Source: Appendix-25)

The above table shows the short-term financing to long-term financing of JUTPCL during the five study period. In fiscal year 2065/066, it has 0.57 times which is lowest ratio among the study year. It has ratio of 0.61 times, 0.78 times and 1 times in fiscal year 2066/067, 2067/068 and 2068/069 respectively. And the last ratio of 1.32 times in fiscal year 2069/070 is highest among the study year. Overall it has average ratio of 0.86 times.

This can be shown in the bar graph as below.

Graph No. 4.24



In order to test relationship between STF and LTF Karl Person's correlation coefficient (r) is computed below.

Table No. 4.47

Coefficient of Correlation between STF & FTF

Correlation (r)	Probable Error (P.E.)
0.58	0.20

(Source: Appendix-23)

The above calculated figure shows the correlation coefficient between STF and LTF is positive. It means that there is positive relationship between them. Also, the value of 'r' is smaller than the value of six times P.E. it is considered that the relationship is not all significant.

4.7.2 Short-term Financing (STF) to Total Financing (TF) Ratio:

This ratio shows the proportion of short-term financing out of total financing amount. This ratio is computed by total financing. If a firm uses more short-term financing then, an aggressive policy is said to be followed by the firm. The table below shows the STF to TF ratio of JUTPCL during five study period.

Table No. 4.48

Short-term Financing (STF) to Financing (TF) Ratio

Year	STF (Rs.)	TF (Rs.)	Ratio (x)	Change (x)
065/66	44454082	122156501	0.36	-
066/67	54808892	143930512	0.38	0.02
067/68	69709843	158724636	0.44	0.06
068/69	89768505	178692574	0.50	0.06
069/70	117789652	206793714	0.57	0.07
Total	376530974	810297937	2.25	-
Average	75306195	162059588	0.45	-

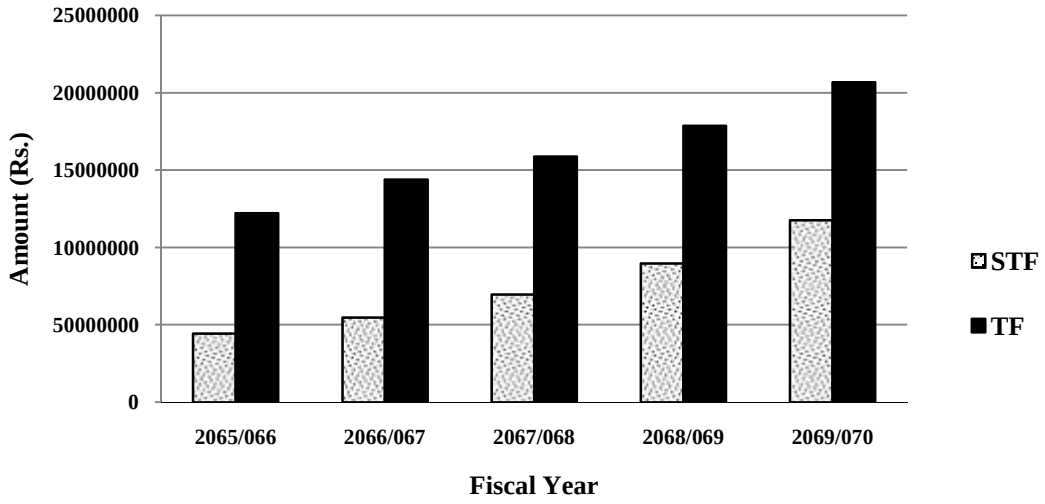
(Source: Appendix-25)

The above table shows the STF to TF ratio of JUTPCL during five study period which is 0.36 in fiscal year 2065/066 which is the lowest ratio during the study year. It has the ratio of 0.38, 0.44 and 0.50 in fiscal year 2066/067, 2067/068 and 2068/069

respectively. 0.57 is the ratio in fiscal year 2069/070 which is the highest among the study year. Overall average ratio is 0.45 times.

This can be shown in the bar graph as below.

Graph No. 4.25



In order to test relationship between STF and TF Karl Person's correlation coefficient (r) is computed below.

Table No. 4.49

Coefficient of Correlation between STF & TF

Correlation (r)	Probable Error (P.E.)
0.99	0.01

(Source: Appendix-24)

The above calculated figure shows that the correlation coefficient between STF and TF is positive. It means the relationship is positive. Also, the value of 'r' is six times greater than the value of PE, so the relationship is considered significant at all.

4.8 TREND ANALYSIS

Trend is an important financial tool to know the financial position of every organization. For the trend analysis a base year is selected and the amount of item related to base year are taken equally to 100 and index number are calculated (computed) for the further year of study period. For the proper trend analysis five year

studied data should be presented which gives the direction of changes and future trend can be made.

The following table shows the trend percentage of JUTPCL. Over a different five year period (i.e. from 2065/66 to 2069/70) the fiscal year 2065/66 is taken as base year.

Table No. 50

JUTPCL

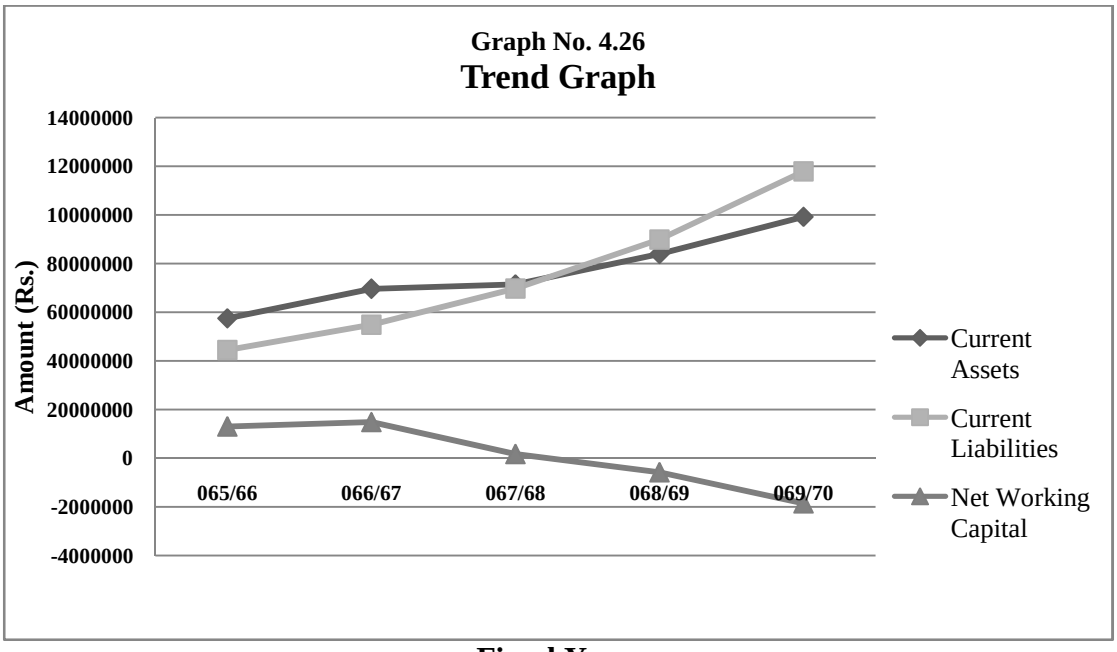
Comparative trend analysis

Year	Current Assets (Rs.)	Trend (%)	Current Liabilities (Rs.)	Trend (%)	Net Working Capital (Rs.)	Trend (%)
065/66	57425985	100	44454082	100	12971903	100
066/67	69595559	121	54808892	123	14786667	114
067/68	71363893	103	69709843	127	1654050	11
068/69	83954132	118	89768505	129	-5814373	-352
069/70	99207341	118	117789652	131	-18582311	-320
Total	381546910	560	376530974	722	5015936	-447
Average	76309382	112	75306195	144	1003187	-89

(Source: Appendix-25)

Graph No. 4.26

Trend Graph



Fiscal Year

The trend of current assets is in volatile trend. The trend of base year (i.e. 2065/66) is assumed as 100% in the year of study period. It is increased of 121 in years 2066/67 and decrease to 103 in years 2067/68. In year 2068/69 and 2069/70 it was increased and became 118 of both years, which indicates the good position in current assets or proper utilization of current assets in the firm. This situation is favorable to the firm.

The trend of current liabilities is not in good condition or it is in worse condition. This is continuously is in increase in way up to all study year (i.e. 2065/66 to 2069/70). This trend shows that the firm has more and more current liabilities in this period. It also indicates that the management is not able to manage the current liabilities. The firms need an effective management of current liabilities.

The trend of net working capital is also not in good condition. It is decrease continuously and became negative in last two years. It is 114 and 11 in the year of 066/067 and 067/68 respectively; the current liabilities are in increasing trend. In year 068/69 and 069/70 the trend of net working capital is also in decreasing trend due to the increasing in current liabilities. It is vastly decreased and became -352 in 068/69. Furthermore, the trend of net working capital is decreased and became -320 in year 069/70. This situation shows the firm will be in crisis of net working capital. So the firm should go in corrective way rapidly.

4.9 CASH CONVERTION CYCLE MODEL

A cash conversion cycle reflects the net time interval in days between actual cash expenditures of the firm on productive resources and the ultimate recovery of cash. The cash conversion cycle (net operating cycle) represents the net time gap between investment of cash and its recovery of sales revenue. It is the net time interval between cash collection from sale of product and cash payment for resources acquired by the firm.

Cash Conversion Cycle (CCC) is calculated by subtracting payable deferral period (PDP) from Operating Cycle, where as Operating Cycle is the sum of Inventory Conversion Period (ICP) and Receivable Conversion Period (RCP). The table below shows the Cash Conversion Cycle of JUTPCL during five study period.

Table No. 4.51

Cash Conversion Cycle

(In Days)

Fiscal Year	ICP	RCP	PDP	CCC
065/66				
066/67	313.54	4.12	32.58	285.08
067/68	374.98	2.45	114.33	263.10
068/69	414.72	2.46	207.09	210.09
069/70	542.63	2.12	353.38	191.34
Total	1645.87	11.15	707.38	949.61
Average	411.47	2.79	176.85	237.40

(Source: Appendix-25)

The above table shows the cash conversion cycle of JUTPCL during the study period. In fiscal year 2066/067, it has 285.08 days. This is the highest days to convert credit sales into cash. As it takes more time, this is not favorable for the firm. It has decreased to 263.10 days in fiscal year 2067/068. Again, in fiscal year 2068/069, 2069/070, it has become 210.09 and 191.34 days respectively. The average cash conversion cycle for five studied year is 237.40 days. This is a long period. So, the firm is not able to convert its sales into cash in good time.

4.10 MAJOR FINDINGS

The major findings of the study during the period of five years in JUTPCL from the analysis of primary and secondary sources are summarized below:

i) The major components of current assets of JUTPCL are cash and bank, sundry debtors, inventory and advance deposits. The total current assets during five study years from fiscal year 2065/066 to 2069/070 are Rs. 57425985, Rs. 69595559, Rs. 71363893, Rs. 83954132 and Rs. 99207341 respectively. During the study years inventory holds the major portions of. JUTPCL is current assets i.e. 76% average. The average percentage of cash and bank, sundry debtors and advance deposits are 11.45%, 0.87% and 11.67%., Because in this company no any terms are constitute as a current assets.

ii) The proportion of current assets to total assets is fluctuating during the study period. It has been fluctuated from 75.74% to 84.92%. The fiscal year 2066/067 has the highest proportion of current assets to total asset of 84.92% during the five study period. And fiscal year 2067/068 has the lowest proportion of 75.74%. It has proportion of 81.94%, 80.15% and 83.99% in fiscal year 2065/066, 2068/069 and 2069/070 respectively. Because of it changes with activity levels.

iii) The proportion of current assets to fixed assets is not so fluctuating during the study year. Higher the proportion of current assets to fixed assets higher the risk and return will be. So, in fiscal year 2066/067, the proportion of current assets to fixed assets is highest with 5.63 times, it means that during this year, risk and return is more than in other study years. And in fiscal year 2067/068, it has proportion of 3.12 times which is lowest with low risk and return than in other study year. Because of management follows consistence investment.

iv) The proportion of cash and bank balance to current assets is fluctuating during the study period. It has 10.62%, 23.23%, 7.28%, 6.26% and 9.87% proportion of cash and bank balance to current assets from fiscal year 2065/066 to 2069/070 respectively. In fiscal year 2066/067, it has maintained high cash and bank balance of Rs. 16167347 and in fiscal year 2067/068 it has maintained low of Rs. 5195942. But the firm should maintain optimum cash and bank balance; it should not be either high or low. Because of cash itself has been fluctuating.

v) The average proportion of cash and bank balance to total assets is 9.06% during the study period. Higher the proportion of cash and bank balance to total assets, lower the risk and return and vice-versa. In fiscal year 2066/067, the firm has highest ratio 19.72% among the study period, it means it has low risk and return. And in fiscal year 2068/069, it has lowest ratio 5.02% with high risk and return. Overall, the firm has followed the conservative working capital policy. Because of the firm has been following the conservative working policy.

vi) The proportion of inventory to total assets is fluctuating during the study period. The firm has 59.35%, 53.90%, 60.84%, 66.29% and 68.09% of proportion of inventory to total assets respectively from fiscal year 2065/066 to 2069/070. The firm has highest ratio in fiscal year 2069/070 and lowest in fiscal year 2066/067. Because of the major components of current assets is inventory rather than other, than it directly proportional to total assets.

vii) The average proportion of inventory to current assets is 76.79% during the study period. The proportion has been fluctuated from 63.48% to 82.70% during the study year. In fiscal year 2068/069 it has highest proportion and lowest in fiscal year 2066/067. Because more than 75% parts is taken over by inventory so that result is obtained

viii) The average proportion of receivable to total assets is 0.67% during the five study year. Higher degree of receivable result unnecessary hold up of working capital and lower degree of receivable may cause negative result in sales level. So, the firm should properly manage the level of receivable. During the fiscal year 2065/066, the firm has highest proportion of receivable to total assets and lowest during fiscal year 2069/070. Because it depends upon the total assets.

ix) The proportion of receivable to current assets is fluctuation during the study period. It has fluctuated from 0.47% to 1.44%. In fiscal year 2065/066, it has highest ratio and in fiscal year 2069/070. Because lower the total current assets higher the proportional of receivable of vice versa.

x) The average current ratio of JUTPCL is 1.07 times during the study period. This ratio is not close to the standard current ratio of 2 times. It means that the firm has not enough current assets to pay current obligations. In fiscal year 2065/066, the firm has highest ratio i.e. 1.29 times among the five study years. The firm's current asset varies from Rs. 57425985 to Rs. 99207341 and current liabilities from Rs. 44454082 to Rs. 117789652. Current assets & current liabilities are not directly proportional to the standard current ratio i.e. 2 times.

xi) The average quick ratio is 0.27 times during the study period, which is below the standard of 1 time. The quick ratio is fluctuated from 0.16 to 0.46 times. In fiscal year 2066/067, it has highest ratio among the other studied year. And in fiscal year 2068/069 & 2069/070 has lowest ratio of 0.16 times. The quick ratio didn't touch the standard, because the proportional of inventory is comparatively higher in every year than other current assets.

xii) The cash ratio is fluctuating during the study period. It has been fluctuated from 0.06 times to 0.29 times. The average cash ratio is 0.13 times during the study period. The firm has highest cash ratio during the fiscal year 2066/067 and lowest during the

fiscal year 2068/069. Because it depends upon the current liabilities & value of itself .thus its value is affected in accordance with its fluctuation.

xiii) The average working capital to current assets ratio is 0.04 times during the study period. The firm has 0.23 times, 0.21 times, 0.02 times, -0.07 times and -0.19 times of working capital to current assets from fiscal year 2065/066 to 2069/070 respectively. It has highest ratio in fiscal year 2066/066 and lower in fiscal year 2069/070. Because working capital to current ratio is directly proportional to current assets & inversely proportional to current liabilities.

xiv) Profitability is the measure of efficiency. The profitability position is analyzed from various angles. The gross profit margin of JUTPCL is in fluctuating trend of the study period. The highest gross profit margin is 36.73% in fiscal year 2069/070 and lowest is 26.90% in fiscal year 2065/066. The average net profit margin of JUTPCL during the study period is (28.876) %. It means that the firm is not able to obtain profit after the payment of tax during the study period. The firm has highest net profit margin of negative 3.19% in fiscal year 2067/068 and lowest of negative 51.23% in fiscal year 2068/069 among the five study year. The operating ratio is fluctuating during the study period. It ranges from 97.39% to 143.25%. And the average operating ratio is 122.56% during the study period. The firm has highest operating ratio in fiscal year 2068/069 and lowest in fiscal year 2067/068.

The average return on assets ratio of JUTPCL is -22.034% during the study period. So, it is not satisfactory. In fiscal year 2067/068, it has highest return on assets of -2.50% and lowest of -37.56% in fiscal year 2068/069. The return on net worth is also not satisfactory. The average return on net worth is negative 76.298%. The return on net worth during the study period ranges from negative 142.96% to negative 8.57%. The average return on working capital is also negative of 26.88%, which is not satisfactory. It is quite fluctuating during the study period. In fiscal year 2067/068, it has highest return on working capital of negative 3.31% and lowest in fiscal year 2068/069 of negative 46.86%. Because manufacturing & administrative expenses are high; whereas sales level is low.

xv) Turnover ratio measures the degree of effectiveness in use of resource or fund by a firm. The turnover position is analyzed from various angles. The working capital turnover of JUTPCL during the study period is fluctuating. It fluctuated from negative 23.33 times to 21.74 times. The average working capital turnover is 2.69 times during

the study period. The average inventory turnover ratio is 1.29 times during the five study years. The firm has highest ratio of 1.64 times in fiscal year 2066/067 and lowest of 0.99 times in fiscal year 2069/070. The inventory turnover ratio is in decreasing trend except in fiscal year 2066/067. The average receivable turnover ratio is 3.24 days. It means that the entire receivable amount is collected within 3.24 days. The firm has best receivable turnover ratio of 2.12 days in fiscal year 2069/070. It means that the receivable amount is collected within only 2.12 days. This is the fastest collection period. The cash and bank balance turnover ratio is fluctuating during the study period. It ranges from 4.49 times to 14.60 times. The average cash and bank balance turnover ratio is 10.25 times during the study period. It has lowest ratio in fiscal year 2066/067 and highest in fiscal year 2068/069. Where, working capital turnover based upon the net working capital & sales, where inventory turnover ratio based upon only inventory & sales.

xvi) The short-term financing to long-term financing ratio is fluctuated from 0.57 times to 1.32 times. The firm has highest ratio in fiscal year 2069/070 and lowest in fiscal year 2065/066. The average short-term financing to long-term financing ratio is 0.86 times during the study period. The short-term financing to total financing ratio is fluctuated from 0.36 times to 0.57 times. And the average short-term financing to total financing ratio is 0.45 times during the study period. Because long term financing constant but short term financing is fluctuate then the long term financing to short term financing & long term financing to total financing is fluctuate.

CHAPTER – V

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter has been written to summarize draw whole of the study. It also aims to draw the conclusion of the study and forward the applicable recommendations to the company related to this research.

5.1 SUMMARY

The first chapter describes the brief introduction of the study, industrialization and its role in Nepal. This chapter includes background, statement of problem, objectives of the study, and significances of the study and organization of the study as a whole. The second chapter is review of literature. This chapter deals with the general concept of the writer and thesis towards the working capital management. This includes the opinion of different writers regarding with the thesis topic. It also includes review of pervious related research studies and previous student. The third chapter is research methodology. It has included the research design. It present the nature and sources of data, data collection and processing technique and financial and statistical tools used. This chapter gives the knowledge about various ratios and Karl Pearson's Correlation Coefficient and Probable Error. The fourth chapter is presentation and analysis of data. An attempt to analyze the working capital policy and trade off between liquidity and profitability of JUTPCL, for five fiscal year (2065/066 to 2069/070) has been done. For the purpose of the analysis of composition of current assets and current liabilities, proportion of current assets to total assets and fixed assets, proportion of cash and bank balance to total assets and current assets, proportion of inventory to total assets and current assets, proportion of receivable to total assets and current assets have been analyzed. It has also analyzed the current ratio, profitability ratio, turnover ratio and leverage ratio in this chapter with the major finding from the result of calculation. And in the last chapter an attempt has been made to present summary, some suggestion for JUTPCL as recommendation and lastly conclusions about the study.

The basic objective of this study is to examine the management of working capital of JUTPCL. To accomplish these objectives set earlier in first chapter, the necessary data

as from primary and secondary source are collected from financial statements of the JUTPCL. Questionnaire distribution to chief of various departments of the firm. The secondary data has been analyzed through ratio analysis as a financial tools and correlation coefficient and trend analysis as a statistical tool. The major ratio analysis consists of composition of working capital position, liquidity position, turnover position, profitability position and leverage position. In order to test the relationship between the various variable of working capital, Karl Pearson's Correlation Coefficient (r) is calculated and analyzed.

5.2 CONCLUSION

In conclusion, it can be said that the working capital management not take seriously by JUTPCL. So the working capital of this company is not in good condition. Thus, managers must understand the factors determining working capital needs, so that such manufacturing company don't suffers from huge logs.

The proportion of current assets with respect to total assets and net fixed assets in JUTPCL shows that current assets absorb high percentage of those total assets, as the higher ratio indicates the greater amount of working capital which will decrease risk and profitability. But the company has higher proportion of inventory and lower proportion of receivables shows medium condition of company. There is positive correlation between current assets and total assets as well as statically significant and there is significant difference between two variables which could adversely affect in the firm's wealth maximization goal is the long run.

The firm's cash balance with respect to current assets and total assets are in increasing decreasing trend. The firm has excess cash balance in fiscal year 2066/67 of Rs. 16167347, lowest in fiscal year 2067/68 of Rs. 5195942 cash balance should be just adequate to run business and excess cash has no meanings as it earns nothings. So, the company should always see the risk return trade off to maintain just adequate cash balance.

Inventory management is one of the important parts of manufacturing company. It absorbs higher percentage of total current assets which means large funds tie-up of in it. So far as liquidity is concerned, it is a lease liquid current asset in itself. There is the positive correlation in between current asset and inventory. But the management of inventory is unsound. Receivable constitute an important part of assets of the firm.

So far as the JUTPCL's receivable is not concerned, it not occupies larger position of current asset and total assets with average of 0.82% and 0.67% respectively during the study period. The average receivable collection period is too short of 3.24 days about 4 days. It concludes strict credit policy. The working capital should be arranged in such a way that it should generate maximum turnover.

Though the current ratio shows the unsound liquidity position of JUTPCL with ratio of 1.07 times which is not meet the standard of 2 times and quick ratio is also low of 0.27 times than that of standard ratio of 1 times. It is because of higher percentage of liabilities and inventory. There is positive correlation between current assets and current liabilities but negative correlation between quick assets and current liabilities. This shows unhealthy liquidity position of the company.

The profitability position of the JUTPCL during the study period is not satisfactory. The firm is having heavy loss for all five studied period. It is due to less sales and high production cost and operating cost. There is also no proper utilization of resources available to the firm. It is still followed conservative working capital which reduces risk but hamper in profitability in long run. So, the firm can improve it by following appropriate working capital policy which could maximize its profitability.

If JUTPCL undertakes measure like: identification of needed funds, regular checks, development of positive attitude towards risk, profit determination, right combinations of short-term and long-term sources and funds to finance, working capital needs, appropriate combination of investment in current assets, minimizing production cost, operating cost, prepare effective sales plan, improving liquidity, speedy cash conversion, proper inventory techniques to overcome these problems and improve its financial performance as well as working capital.

5.3 RECOMMENDATION

Based on the finding of the study the following recommendations are forwarded for the improvement of the working capital management of JUTPCL.

A) Effective Working Capital Management:

The increasing trend in the current assets holding lead to conclude that JUTPCL is not examining its appropriate working capital policy due to lack of target for current assets holding in the long run. Financial situation is not so sound. So, there must be

compulsory formulation of appropriate working capital policy not only conservative. Beside this, there should be policy to prevent the holding of excessive and inadequate current assets in the firm. In JUTPCL, the most important current assets are inventory, cash, debtors which are given below:

i) Effective Inventory Management:

The investment in inventory with respect to current assets made by JUTPCL ranges from 63.48% to 82.70%. The average investment in inventory with respect to current assets is 76.79% and 62.45% with respect to total assets. Such highly fluctuated investment in inventory shows that there is no specific policy related with inventory management. Such highly varied amount in inventory shows that they are investing randomly. The effective management of working capital wholly depends upon proper management of inventory because it absorbs higher percentage of current assets. For this company should make effective sales plan which helps for immediate marketability and certainly decreases the problem of over stocking. The management must minimize the wastage, scarps, there should be good store-keeping system better material handling system and timely inspection system. Moreover the useful, the non-moving and absolute items should be discarded to avoid unnecessary blockage up of inventory.

ii) Effective Management of Cash:

The function of investment in money assets is to meet operational requirements in day to day business, to provide a reserve of liquidity for major schedule outflows of cash, to exploit opportunities, to avoid unexpected drains of cash and so on. There are many ways to effective management of cash in JUTPCL such as: maximization of cash sales, better synchronization of cash flows, slowing disbursements etc. If cash appears more than requirement, the company should invest such ideal fund in marketable securities. Such as Treasury bill, Government bond, saving certificate etc.

iii) Effective Management of Receivable:

In JUTPCL there is small investment in receivable. These policies involving receivable management not involves tradeoff between risk and return. The main determinants of the size of investment are terms of sale, the selection of customers to give credit, efficiency in collecting receivables and so on. One way to improve investment in receivable is to find out receivable as percent of sales. The other way are preparing schedule of receivable analysis credit worthiness of customers, minimizing float and so on. It should adopt a definite credit and collection policies.

The credit purchase helps for lowering the requirement of working capital but it should also have credit sales. If the credit sales increase the total sales volume and profit but it also increase collection lost, bad debt losses and administration cost management should consider the tradeoff between cost and profit adopted.

B) Improvement of Turnover Position:

The inventory turnover of company is very low because of higher amount of inventory and lower sales. So the company should maximize the sales and effective management of inventory.

C) Minimizing the Operating Cost:

During the period of study, the JUTPCL is having high operating cost of production. The management should give attention towards the purchase of raw materials, unnecessary expenses, misuse of facilities, heavy expenses on overheads and administrative expenses which are the major causes for high operating cost. To overcome this, the management should be strict for use of facilities, not only this but also right number of workers in right place providing necessary training such as how to promote growth of sales, how to manage of receivable, how to use of modern technology. This will reduce the operating cost.

D) Prepare Effective Sales Plan:

Sales directly affect the need of current assets. As the sales increase the working capital level will also increases. In the absence of sales forecast the level of current assets cannot be forecasted. But for it's market competition and production condition should also be analyze has also appointed different agent of Nepal. So, there should be proper co-operation, interaction between different sales agents, product, marketing and sales department for sales promotion. And the company can promote different activities like advertising, publicity; free sample etc. for more exports in foreign.

E) Positive Attitude towards Risk:

Since, the risk is the opportunity for company to make profit; that management should not consider it is dangerous. It is the ability to manage the current assets properly and efficiently. JUTPCL is in not risk because of adoption of conservative working capital policy. It is also the one cause of incurring not good return. When the management properly utilizes the current assets, predicts the further return and timing of cash generation, there will be self generation of funds by which company should not

depend upon permanent financing for the current assets on temporary assets. To develop the managed ability to take risk, there should be training, participation in management conferences, foreign enterprise tours, etc for the managerial level employees.

Concrete Recommendation:

1. Company should formulate appropriate working capital policy rather than conservative policy.
2. Company should decrease Inventory Conversion Period. So for this it should manage moving goods.
3. Cost managements should consider the tradeoff between cost & profit adoption.
4. The company has strict policy on sales so it changes the policy to liberal. And the company should give credit facilities to increase sales volume.
5. Management should be strict in facilities in every sector right members in right place, in providing training time to time for every subject matter such as how to growth sales, how to minimize cost, how to manage inventory.
6. Company should be promote in every sector such as co-operative & interactive between different sales agent, product, marketing & sales departments.
7. The company should reduce the current liabilities. So for this credit purchase will be reduced and less use of short term debt.
8. Managements should manage risk, i.e. there should be training participating in management conferences, foreign enterprise tours for managerial levels employees to reduce risk.

Bibliography

Books:

Acharya, Dr. K.,(1985), *Problems and Impediment in the Management of Working Capital in Nepalese Enterprises*, Kathmandu: Nepalese Development Studies.|

Acharya, Dr. K.,(1988), *The Management of Working Capital in the Public Enterprises of Nepal,* Kathmandu: Nepalese Development Studies. |

Bajracharya, B.C., *Business Statistics and Mathematics*, Kathmandu: M.K. Publisher and Distributors, 1st Edition, 2053, P. 101.

Bhattarai Ganeswor (2008) *Encyclopedia*, Kathmandu: Ashish Pustak Vandar|

Khan, M.Y., Jain, P.K., (1996), *Financial Management Text & Problems*, New Delhi: Tata McGraw Hill|

Kuchhalm, S.C., (1981), *Corporation Finance*, Allahabad: Chaitanya Publishing House, |

L.J., Gitman, (1976), *Principles of Management Finance*, New York: Harper & Raw|

Lesh, R Howard, (1971), *Working Capital its Management and Control*, London: Mc. Donald & Evans Ltd.|

Mathur, Iqbal, (1979), *Introduction to Financial Management*, New Delhi:Macmillan Publishing Co. Inc.|

Muny, D. Bryle, (1969), *Industrial Development Guide, Accelerating Economic Growth*, New York: Mc. Graw Book Company.|

Pandey, I.M., (1999), *Financial Management*, New Delhi, Vikash Publishing House Pvt. Ltd.|

Pradhan, Dr. Radhe Shyam, (1986), *Management of Working Capital*, New Delhi: National Book Organization. |

Regmi, Govinda Pd., (1994), *Industrial growth in Nepal*, New Delhi: Oxford and IBH Publishing Co. Ltd.|

Lynch, R.M. and William, R.W. (1994), *According for Management Planning and Control*, New Delhi: Tata MC Grow Hill Publishing Company Ltd. ,5th reprinted

Srivastav, R.M., (1984), *Financial Decision Making, text, Problem & Cases*, New Delhi: Sterling Publishers Pvt. Ltd., |

Weston, J. Fred, Brigham, Eugene, (1984), *Managerial Finance*, Chicago: The Dryden Press Hinsdale, New York.|

Weston, J. Fred, Brigham, Eugene, (1996), *Essentials of Managerial Finance*, New York: The Dryden Press, Hinsdale.|

Journals:

Acharya, K.(1985), *Problems and Implements in the Management of Working Capital in Nepalese Enterprises*, Kathmandu: ISDOS Bulletin, Vol. 10.

Pradhan, R.S., (1988), *The Demand for Working Capital by Nepalese Corporation: The Nepalese Management Review*: Kathmandu, Vol. 8.

Shrestha, Manohar Krishna (1982), *Working Capital Management in Public Enterprises: A Study on Financial Result and Constraint*, Kathmandu: ISDOC Bulletin, Vol. 8.

Stephen, M. and Elvis, K.(2011) *International Business Management, Influence of Working Capital Management on Firm Profitability,* A Case of SMEs in Kenya. pp 279-286.

Thesis:

Acharya, S. K. (2004) *A Study of Working Capital Management of Bottlers Nepal Limited, Balaju,* An unpublished master degree thesis of MBS, Central Department of T.U.

Lohani, M.N. (2004) *A Study of Working Capital Management of Nepal Lube Oil Limited,* An unpublished master degree thesis of MBS, Central Department of T.U.

Dhakal K.R. (2006) *Working Capital Management of Selected Listed Manufacturing Companies*, An unpublished master degree thesis of MBS, Central Department of T.U.

Sanu Babu Bartaula(2009) *Working Capital Management of Sumi Distillery limited.* An unpublished Master Degree Thesis Submitted to Faculty of Management T.U.

Shrestha S.K. (2010) *Working Capital Management of Selected Manufacturing Companies in Nepal*, An unpublished master degree thesis T.U.

Shrestha S. (2011) *A Study of Working Capital Management of Nepal Lube Oil Limited,* An unpublished master degree thesis T.U.

Shrestha K. (2012) *Working Capital Management of Selected Listed Manufacturing Companies*, An unpublished master degree thesis of MBS, Central Department of T.U.

Appendix-1

Examine the relationship between Current Assets and Total Assets

(Rs. in Millions)

Year (N)	Current Assets (x)	Total Assets (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	57.425985	70.083149	-18.88	356.45	-23.74	563.59	448.21
066/67	69.595559	81.957850	-6.71	45.02	-11.87	140.90	79.65
067/68	71.363893	94.217208	-4.95	24.50	0.39	0.15	-1.93
068/69	83.954132	104.743022	7.64	58.37	10.92	119.25	83.43
069/70	99.207341	118.118370	22.90	524.41	24.29	590.00	556.24
	$\bar{x}$ =76.309382	$\bar{y}$ =93.823920	dx =**0**	dx^2 =1008.75	dy = -0.01	dy^2 =1413.89	dx.dy =1165.6

$$\text{Now, Correlation Coefficient (r)} = \frac{dx.dy - \frac{dx.\ dy}{N}}{\sqrt{dx^2 - \frac{\sum dx^2}{N} \quad dy^2 - \frac{\sum dy^2}{N}}}$$

$$= \frac{1165.6 - \frac{0 \times (-0.01)}{5}}{\sqrt{1008.75 - \frac{\sum 0^2}{5} \quad 1413.89 - \frac{\sum (-0.01)^2}{5}}}$$

$$= \frac{1165.6}{\sqrt{1008.75 \times 1413.89}}$$

$$= 0.98$$

$$\text{Then, P.E.} = \frac{0.6745(1-r^2)}{\sqrt{N}}$$

$$= \frac{0.6745[1-(0.98)^2]}{\sqrt{5}}$$

$$= \frac{0.03}{2.24}$$

$$= 0.013$$

Appendix-2

Examine the relationship between Current Assets and Fixed Assets

(Rs. in Millions)

Year (N)	Current Assets (x)	Fixed Assets (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	57.425985	12.657164	-18.88	356.45	-4.86	23.62	91.76
066/67	69.595559	12.362291	-6.71	45.02	-5.15	26.52	34.56
067/68	71.363893	22.853315	-4.95	24.50	5.34	28.51	-26.43
068/69	83.954132	20.788890	7.64	58.37	3.27	10.69	24.98
069/70	99.207341	18.911029	22.90	524.41	1.40	1.96	32.06
	$\bar{x}$ =76.309382	$\bar{y}$ =17.514538	dx =**0**	dx^2 =1008.75	dy =0	dy^2 =91.3	dx.dy =156.93

Now, Correlation Coefficient (r) $= \dfrac{dx.dy - \dfrac{dx.\ \ dy}{N}}{\sqrt{dx^2 - \dfrac{\sum dx^2}{N} \quad dy^2 - \dfrac{\sum dy^2}{N}}}$

$= \dfrac{156.93 - \dfrac{0 \mid 0}{5}}{\sqrt{1008.75 - \dfrac{\sum 0^2}{5} \quad 91.3 - \dfrac{\sum 0^2}{5}}}$

$= \dfrac{156.93}{\sqrt{1008.75 \mid 91.3}}$

$= 0.52$

Then, P.E. $= \dfrac{0.6745(1-r^2)}{\sqrt{N}}$

$= \dfrac{0.6745[1-(0.52)^2]}{\sqrt{5}}$

$= \dfrac{0.49}{2.24}$

$= 0.22$

Appendix-3

Examine the relationship between Cash & Bank Balance and Current Assets

(Rs. in Millions)

Year (N)	Cash & bank balance(x)	Current Assets (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	6.101045	57.425985	-2.40	5.76	-18.88	356.45	45.31
066/67	16.167347	69.595559	7.66	58.68	-6.71	45.02	-51.40
067/68	5.195942	71.363893	-3.31	10.96	-4.95	24.50	16.38
068/69	5.259564	83.954132	-3.24	10.50	7.64	58.37	-24.75
069/70	9.795602	99.207341	1.29	1.66	22.90	524.41	29.54
	$\bar{x}$ =8.503900	$\bar{y}$ =76.309382	dx =**0**	dx^2 =87.56	dy =0	dy^2 =1008.75	dx.dy =15.08

Now, Correlation Coefficient (r) = $\dfrac{dx.dy - \dfrac{dx.\ \ dy}{N}}{\sqrt{dx^2 - \dfrac{\left(\sum dx\right)^2}{N}\quad dy^2 - \dfrac{\left(\sum dy\right)^2}{N}}}$

$$= \frac{15.08 - \dfrac{0 \times 0}{5}}{\sqrt{87.56 - \dfrac{(0)^2}{5}\quad 1008.75 - \dfrac{(0)^2}{5}}}$$

$$= \frac{15.08}{\sqrt{87.56 \times 1008.75}}$$

$$= 0.05$$

Then, P.E. = $\dfrac{0.6745\,(1-r^2)}{\sqrt{N}}$

$$= \frac{0.6745[1-(0.05)^2]}{\sqrt{5}}$$

$$= \frac{0.67}{2.24}$$

$$= 0.30$$

Appendix-4

Examine the relationship between Cash & Bank Balance and Total Assets

(Rs. in Millions)

Year (N)	Cash & bank balance(x)	Total Assets (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	6.101045	70.083149	-2.40	5.76	-23.74	563.59	56.98
066/67	16.167347	81.957850	7.66	58.68	-11.87	140.90	-90.92
067/68	5.195942	94.217208	-3.31	10.96	0.39	0.15	-1.29
068/69	5.259564	104.743022	-3.24	10.50	10.92	119.25	-35.38
069/70	9.795602	118.118370	1.29	1.66	24.29	590.00	31.33
	$\bar{x}$ =8.503900	$\bar{y}$ =93.823920	dx =**0**	dx^2 =87.56	dy = -0.01	dy^2 =1413.89	dx.dy = -39.29

Now, Correlation Coefficient (r) = $\dfrac{dx.dy - \dfrac{dx.\ dy}{N}}{\sqrt{dx^2 - \dfrac{\sum dx^2}{N}\quad dy^2 - \dfrac{\sum dy^2}{N}}}$

$= \dfrac{(-39.23) - \dfrac{0 \mid (Z0.01)}{5}}{\sqrt{87.56 - \dfrac{\sum 0^2}{5}\quad 1413.89 - \dfrac{\sum Z0.01^2}{5}}}$

$= \dfrac{(-39.23)}{\sqrt{87.56 \mid 1413.89}}$

$= -0.11$

Then, P.E. = $\dfrac{0.6745(1-r^2)}{\sqrt{N}}$

$= \dfrac{0.6745[1-(-0.11)^2]}{\sqrt{5}}$

$= \dfrac{0.67}{2.24}$

$= 0.30$

Appendix-5

Examine the relationship between Inventory and Current Assets

(Rs. in Millions)

Year (N)	Inventory(x)	Current Assets (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	41.594769	57.425985	-16.99	288.66	-18.88	356.45	320.77
066/67	44.176825	69.595559	-14.41	207.65	-6.71	45.02	96.69
067/68	57.322386	71.363893	-1.27	1.61	-4.95	24.50	6.29
068/69	69.430388	83.954132	10.84	117.51	7.64	58.37	82.82
069/70	80.421773	99.207341	21.83	476.55	22.90	524.41	499.91
	$\bar{x}$ =58.589228	$\bar{y}$ =76.309382	dx =**0**	dx^2 =1091.98	dy = 0	dy^2 =1008.75	dx.dy =1006.48

Now, Correlation Coefficient (r) = $\dfrac{dx.dy - \dfrac{dx.\ \ dy}{N}}{\sqrt{dx^2 - \dfrac{\sum dx^2}{N} \quad dy^2 - \dfrac{\sum dy^2}{N}}}$

$= \dfrac{1006.48 - \dfrac{0 \mid 0}{5}}{\sqrt{1091.98 - \dfrac{\sum 0^2}{5} \quad 1008.75 - \dfrac{\sum 0^2}{5}}}$

$= \dfrac{1006.48}{\sqrt{1091.98 \mid 1008.75}}$

$= 0.96$

Then, P.E. = $\dfrac{0.6745(1-r^2)}{\sqrt{N}}$

$= \dfrac{0.6745[1-(0.96^2]}{\sqrt{5}}$

$= \dfrac{0.05}{2.24}$

$= 0.02$

Appendix-6

Examine the relationship between Inventory and Total Assets

(Rs. in Millions)

Year (N)	Inventory(x)	Total Assets (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	41.594769	70.083149	-16.99	288.66	-23.74	563.59	403.34
066/67	44.176825	81.957850	-14.41	207.65	-11.87	140.90	171.05
067/68	57.322386	94.217208	-1.27	1.61	0.39	0.15	-0.50
068/69	69.430388	104.743022	10.84	117.51	10.92	119.25	118.37
069/70	80.421773	118.118370	21.83	476.55	24.29	590.00	530.25
	$\bar{x}$ =58.589228	$\bar{y}$ =93.823920	dx =**0**	dx^2 =1091.98	dy = -0.01	dy^2 =1413.89	dx.dy =1222.51

Now, Correlation Coefficient (r) = $\dfrac{dx.dy - \dfrac{dx.\ \ dy}{N}}{\sqrt{dx^2 - \dfrac{\text{f}\ dx\text{Å}}{N}\quad dy^2 - \dfrac{\text{f}\ dy\text{Å}}{N}}}$

$= \dfrac{1222.51 - \dfrac{0\ |\ (Z0.01)}{5}}{\sqrt{1091.98 - \dfrac{\text{f}0\text{Å}}{5}\quad 1413.89 - \dfrac{\text{f}Z0.01\text{Å}}{5}}}$

$= \dfrac{1222.51}{\sqrt{1091.98\ |\ 1413.89}}$

$= 0.98$

Then, P.E. = $\dfrac{0.6745(1-r^2)}{\sqrt{N}}$

$= \dfrac{0.6745[1-(0.98)^2]}{\sqrt{5}}$

$= \dfrac{0.03}{2.24}$

$= 0.01$

Appendix-7

Examine the relationship between Receivables and Current Assets

(Rs. in Millions)

Year (N)	Receivables (x)	Current Assets (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	0.828780	57.425985	0.20	0.04	-18.88	356.45	-3.78
066/67	0.818771	69.595559	0.19	0.04	-6.71	45.02	-1.27
067/68	0.497030	71.363893	-0.13	0.02	-4.95	24.50	0.64
068/69	0.517365	83.954132	-0.11	0.01	7.64	58.37	-0.84
069/70	0.463548	99.207341	-0.16	0.03	22.90	524.41	-3.67
	$\bar{x}$ =**0.**625099	$\bar{y}$ =76.309382	dx = -0.01	dx^2 =0.14	dy = 0	dy^2 =1008.75	dx.dy = -8.92

Now, Correlation Coefficient (r) = $\dfrac{dx.dy - \dfrac{dx.\ \ dy}{N}}{\sqrt{dx^2 - \dfrac{\text{f}\ dx\text{Å}^2}{N}\quad dy^2 - \dfrac{\text{f}\ dy\text{Å}^2}{N}}}$

$$= \frac{(-8.92) - \dfrac{(\text{Z}0.01)\ |\ 0}{5}}{\sqrt{0.14 - \dfrac{\text{f}\text{Z}0..01\text{Å}^2}{5}\quad 1008.75 - \dfrac{\text{f}0\text{Å}^2}{5}}}$$

$$= \frac{(\text{Z}8.92)}{\sqrt{0.14\ |\ 1008.75}}$$

$$= -0.75$$

Then, P.E. = $\dfrac{0.6745\,(1-r^2)}{\sqrt{N}}$

$$= \frac{0.6745[1-(-0.75)^2]}{\sqrt{5}}$$

$$= \frac{0.30}{2.24}$$

$$= 0.13$$

Appendix-8

Examine the relationship between Receivables and Total Assets

(Rs. in Millions)

Year (N)	Receivables (x)	Total Assets (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	0.828780	70.083149	0.20	0.04	-23.74	563.59	-4.748
066/67	0.818771	81.957850	0.19	0.04	-11.87	140.90	-2.26
067/68	0.497030	94.217208	-0.13	0.02	0.39	0.15	-0.05
068/69	0.517365	104.743022	-0.11	0.01	10.92	119.25	-1.20
069/70	0.463548	118.118370	-0.16	0.03	24.29	590.00	-3.89
	$\bar{x}$ =**0.**625099	$\bar{y}$ =93.823920	dx = -0.01	dx^2 =0.14	dy = -0.01	dy^2 =1413.89	dx.dy = -12.15

Now, Correlation Coefficient (r) $= \dfrac{dx.dy - \dfrac{dx.\ \ dy}{N}}{\sqrt{dx^2 - \dfrac{f\ dx\text{Å}}{N}\quad dy^2 - \dfrac{f\ dy\text{Å}}{N}}}$

$= \dfrac{(-12.15) - \dfrac{(Z0.01)\ |\ (Z0.01)}{5}}{\sqrt{0.14 - \dfrac{fZ0..01\text{Å}}{5}\quad 1413.89 - \dfrac{fZ0.01\text{Å}}{5}}}$

$= \dfrac{(Z12.15)}{\sqrt{0.14\ |\ 1413.89}}$

$= -0.86$

Then, P.E. $= \dfrac{0.6745(1-r^2)}{\sqrt{N}}$

$= \dfrac{0.6745[1-(-0.86)^2]}{\sqrt{5}}$

$= \dfrac{0.18}{2.24}$

$= 0.078$

Appendix-9

Examine the relationship between Current Assets and Current Liabilities

(Rs. in Millions)

Year (N)	Current Assets (x)	Current Liabilities (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	57.425985	44.454082	-18.88	356.45	-30.85	951.72	582.45
066/67	69.595559	54.808892	-6.71	45.02	-20.50	420.25	137.56
067/68	71.363893	69.709843	-4.95	24.50	-5.60	31.36	27.72
068/69	83.954132	89.768505	7.64	58.37	14.46	209.09	110.47
069/70	99.207341	117.789652	22.90	524.41	42.48	1804.55	972.79
	$\bar{x}$ =76.309382	$\bar{y}$ =75.306195	dx =**0**	dx^2 =1008.75	dy = -0.01	dy^2 =3416.97	dx.dy =1830.99

Now, Correlation Coefficient (r) = $\dfrac{dx.dy - \dfrac{dx.\ \ dy}{N}}{\sqrt{dx^2 - \dfrac{f\ dx Å^2}{N}\quad dy^2 - \dfrac{f\ dy Å^2}{N}}}$

$= \dfrac{1830.99 - \dfrac{0 \mid (Z 0.01)}{5}}{\sqrt{1008.75 - \dfrac{f 0 Å^2}{5}\quad 3416.97 - \dfrac{f Z 0.01 Å^2}{5}}}$

$= \dfrac{1830.99}{\sqrt{1008.75 \mid 3416.97}}$

$= 0.99$

Then, P.E. = $\dfrac{0.6745(1-r^2)}{\sqrt{N}}$

$= \dfrac{0.6745[1-(0.99)^2]}{\sqrt{5}}$

$= \dfrac{0.01}{2.24}$

$= 0.0045$

Appendix-10

Examine the relationship between Quick Assets and Current Liabilities

(Rs. in Millions)

Year (N)	Quick Assets (x)	Current Liabilities (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	15.831216	44.454082	-1.89	3.57	-30.85	951.72	58.31
066/67	25.418734	54.808892	7.70	59.29	-20.50	420.25	-157.85
067/68	14.041507	69.709843	-3.68	13.54	-5.60	31.36	20.61
068/69	14.523744	89.768505	-3.20	10.24	14.46	209.09	-46.27
069/70	18.785568	117.789652	1.07	1.14	42.48	1804.55	45.45
	$\bar{x}$ =17.720154	$\bar{y}$ =75.306195	dx =0	dx^2 =87.78	dy = -0.01	dy^2 =3416.97	dx.dy = -79.75

Now, Correlation Coefficient (r) = $\dfrac{dx.dy - \dfrac{dx.\ dy}{N}}{\sqrt{dx^2 - \dfrac{\sum dx^2}{N} \quad dy^2 - \dfrac{\sum dy^2}{N}}}$

$$= \frac{(-79.75) - \dfrac{0 \times (0.01)}{5}}{\sqrt{87.78 - \dfrac{0^2}{5} \quad 3416.97 - \dfrac{0.01^2}{5}}}$$

$$= \frac{(-79.75)}{\sqrt{87.78 \times 3416.97}}$$

$$= -0.15$$

Then, P.E. = $\dfrac{0.6745(1-r^2)}{\sqrt{N}}$

$$= \frac{0.6745[1-(-0.15)^2]}{\sqrt{5}}$$

$$= \frac{0.66}{2.24}$$

$$= 0.30$$

Appendix-11

Examine the relationship between Cash & Marketable Securities and Current Liabilities

(Rs. in Millions)

Year (N)	Cash & Marketable Securities (x)	Current Liabilities (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	6.101045	44.454082	-2.40	5.76	-30.85	951.72	74.04
066/67	16.167347	54.808892	7.66	58.68	-20.50	420.25	-157.03
067/68	5.195942	69.709843	-3.31	10.96	-5.60	31.36	18.54
068/69	5.259564	89.768505	-3.24	10.50	14.46	209.09	-46.85
069/70	9.795602	117.789652	1.29	1.66	42.48	1804.55	54.80
	$\bar{x}$ =8.503900	$\bar{y}$ =75.306195	dx =**0**	dx^2 =87.56	dy = -0.01	dy^2 =3416.97	dx.dy = -56.5

Now, Correlation Coefficient (r) $= \dfrac{dx.dy - \dfrac{dx.\ \ dy}{N}}{\sqrt{dx^2 - \dfrac{\left(\sum dx\right)^2}{N} \quad dy^2 - \dfrac{\left(\sum dy\right)^2}{N}}}$

$= \dfrac{(-56.5) - \dfrac{0 \times (-0.01)}{5}}{\sqrt{87.56 - \dfrac{(0)^2}{5} \quad 3416.97 - \dfrac{(-0.01)^2}{5}}}$

$= \dfrac{(-56.5)}{\sqrt{(-87.56) \times 3416.97}}$

$= 0.1$

Then, P.E. $= \dfrac{0.6745\,(1-r^2)}{\sqrt{N}}$

$= \dfrac{0.6745[1-(0.1)^2]}{\sqrt{5}}$

$= \dfrac{0.67}{2.24}$

$= 0.3$

Appendix-12

Examine the relationship between Working Capital and Current Assets

(Rs. in Millions)

Year (N)	Working Capital (x)	Current Assets (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	12.971903	57.425985	11.97	143.28	-18.88	356.45	-225.99
066/67	14.786667	69.595559	13.78	189.89	-6.71	45.02	-92.46
067/68	1.654050	71.363893	0.65	0.42	-4.95	24.50	-3.22
068/69	-5.814373	83.954132	-6.82	46.51	7.64	58.37	-52.10
069/70	-18.582311	99.207341	-19.59	383.77	22.90	524.41	-448.61
	$\bar{x}$ =1.003187	$\bar{y}$ =76.309382	dx = -0.01	dx^2 =763.87	dy =0	dy^2 =1008.75	dx.dy = -822.38

Now, Correlation Coefficient (r) = $\dfrac{dx.dy - \dfrac{dx.\ \ dy}{N}}{\sqrt{dx^2 - \dfrac{\int\ dx\AA}{N}\quad dy^2 - \dfrac{\int\ dy\AA}{N}}}$

$= \dfrac{(-822.38) - \dfrac{(Z0.01)\ |\ 0}{5}}{\sqrt{763.87 - \dfrac{\int Z0..01\AA}{5}\quad 1008.75 - \dfrac{\int 0\AA}{5}}}$

$= \dfrac{(Z822.38)}{\sqrt{763.87\ |\ 1008.75}}$

$= -0.94$

Then, P.E. = $\dfrac{0.6745(1-r^2)}{\sqrt{N}}$

$= \dfrac{0.6745[1-(-0.94)^2]}{\sqrt{5}}$

$= \dfrac{0.08}{2.24}$

$= 0.036$

Appendix-13

Examine the relationship between Gross Profit and Sales

(Rs. in Millions)

Year (N)	Gross Profit (x)	Sales (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	16.050786	59.665058	-6.65	44.22	-12.86	165.38	85.52
066/67	22.655123	72.579743	-0.04	0.0016	0.06	0.0036	-0.0024
067/68	24.517622	73.916865	1.82	3.31	1.40	1.96	2.55
068/69	21.008301	76.786861	-1.69	2.86	4.27	18.23	-7.22
069/70	29.254239	79.653463	6.56	43.03	7.13	50.84	46.77
	$\bar{x}$ =22.697214	$\bar{y}$ =72.520398	dx =**0**	dx^2 =93.42	dy =0	dy^2 =236.41	dx.dy =127.62

Now, Correlation Coefficient (r) $= \dfrac{dx.dy - \dfrac{dx.\ dy}{N}}{\sqrt{dx^2 - \dfrac{\sum dx^2}{N} \quad dy^2 - \dfrac{\sum dy^2}{N}}}$

$= \dfrac{127.62 - \dfrac{0 \mid 0}{5}}{\sqrt{93.42 - \dfrac{\sum 0^2}{5} \quad 236.41 - \dfrac{\sum 0^2}{5}}}$

$= \dfrac{127.62}{\sqrt{93.42 \mid 236.41}}$

$= 0.86$

Then, P.E. $= \dfrac{0.6745(1-r^2)}{\sqrt{N}}$

$= \dfrac{0.6745[1-(0.86)^2]}{\sqrt{5}}$

$= \dfrac{0.18}{2.24}$

$= 0.08$

Appendix-14

Examine the relationship between Net Profit and Sales

(Rs. in Millions)

Year (N)	Net Profit (x)	Sales (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	-22.134722	59.665058	-43.13	1860.20	-12.86	165.38	554.65
066/67	-9.899310	72.579743	-30.89	954.19	0.06	0.0036	-1.85
067/68	-2.359228	73.916865	-23.35	545.22	1.40	1.96	-32.69
068/69	-39.337741	76.786861	-60.33	3639.71	4.27	18.23	-257.61
069/70	-31.244006	79.653463	-52.24	2729.02	7.13	50.84	-372.47
	$\bar{x}$ = -20.995001	$\bar{y}$ =72.520398	dx = -209.94	dx^2 =9728.34	dy =0	dy^2 =236.41	dx.dy =-109.97

$$\text{Now, Correlation Coefficient (r)} = \frac{dx.dy - \frac{dx.\ dy}{N}}{\sqrt{dx^2 - \frac{\sum dx^2}{N}\quad dy^2 - \frac{\sum dy^2}{N}}}$$

$$= \frac{(-109.97) - \frac{(-209.94) \times 0}{5}}{\sqrt{9728.34 - \frac{\sum -209.94^2}{5}\quad 236.41 - \frac{\sum 0^2}{5}}}$$

$$= \frac{(-109.97)}{\sqrt{7965.35 \times 236.41}}$$

$$= 0.08$$

$$\text{Then, P.E.} = \frac{0.6745(1-r^2)}{\sqrt{N}}$$

$$= \frac{0.6745[1-(0.08)^2]}{\sqrt{5}}$$

$$= \frac{0.67}{2.24}$$

$$= 0.30$$

Appendix-15

Examine the relationship between COGS + Operating expenses and Sales

(Rs. in Millions)

Year (N)	**COGS + Operating expenses (x)**	**Sales (y)**	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	77.861949	59.665058	-11.08	122.77	-12.86	165.38	142.49
066/67	78.526572	72.579743	-10.41	108.37	0.06	0.0036	-0.62
067/68	71.986122	73.916865	-16.96	287.64	1.40	1.96	-23.74
068/69	110.000081	76.786861	21.06	443.52	4.27	18.23	89.93
069/70	106.332017	79.653463	17.39	302.41	7.13	50.84	123.99
	$\bar{x}$ =88.941348	$\bar{y}$ =72.520398	dx = **0**	dx^2 =1264.71	dy =0	dy^2 =236.41	dx.dy =332.05

Now, Correlation Coefficient (r) $= \dfrac{dx.dy - \dfrac{dx.\ \ dy}{N}}{\sqrt{dx^2 - \dfrac{\int dx\AA}{N} \quad dy^2 - \dfrac{\int dy\AA}{N}}}$

$= \dfrac{332.05 - \dfrac{0 \mid 0}{5}}{\sqrt{1264.71 - \dfrac{\int 0\AA}{5} \quad 236.41 - \dfrac{\int 0\AA}{5}}}$

$= \dfrac{332.05}{\sqrt{1264.71 \mid 236.41}}$

$= 0.61$

Then, P.E. $= \dfrac{0.6745(1-r^2)}{\sqrt{N}}$

$= \dfrac{0.6745[1-(0.61)^2]}{\sqrt{5}}$

$= \dfrac{0.42}{2.24}$

$= 0.19$

Appendix-16

Examine the relationship between Net P/L after Tax and Total Assets

(Rs. in Millions)

Year (N)	Net P/L after Tax(x)	Total Assets (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	-22.134722	70.083149	-1.14	1.30	-23.74	563.59	27.06
066/67	-9.899310	81.957850	11.10	123.21	-11.87	140.90	-131.76
067/68	-2.359228	94.217208	18.64	347.45	0.39	0.15	7.27
068/69	-39.337741	104.743022	-18.34	336.36	10.92	119.25	-200.27
069/70	-31.244006	118.118370	-10.25	105.06	24.29	590.00	-248.97
	$\bar{x}$ = -20.995001	$\bar{y}$ =93.823920	dx =0.01	dx^2 =913.38	dy = -0.01	dy^2 =1413.89	dx.dy = -546.67

Now, Correlation Coefficient (r) = $\dfrac{dx.dy - \dfrac{dx.\ \ dy}{N}}{\sqrt{dx^2 - \dfrac{f\ dx\AA}{N}\quad dy^2 - \dfrac{f\ dy\AA}{N}}}$

$= \dfrac{(-546.67) - \dfrac{(0.01)\ |\ (Z0.01)}{5}}{\sqrt{913.38 - \dfrac{f0..01\AA}{5}\quad 1413.89 - \dfrac{fZ0.01\AA}{5}}}$

$= \dfrac{(Z546.67)}{\sqrt{913.38\ |\ 1413.89}}$

$= -0.48$

Then, P.E. = $\dfrac{0.6745(1-r^2)}{\sqrt{N}}$

$= \dfrac{0.6745[1-(-0.48)^2]}{\sqrt{5}}$

$= \dfrac{0.52}{2.24}$

$= 0.23$

Appendix-17

Examine the relationship between Net P/L after Tax and Equity Capital

(Rs. in Millions)

Year (N)	Net P/L after Tax(x)	Equity Capital (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	-22.134722	27.517000	-1.14	1.30	0	0	0
066/67	-9.899310	27.517000	11.10	123.21	0	0	0
067/68	-2.359228	27.517000	18.64	347.45	0	0	0
068/69	-39.337741	27.517000	-18.34	336.36	0	0	0
069/70	-31.244006	27.517000	-10.25	105.06	0	0	0
	$\bar{x}$ =20.995001	$\bar{y}$ =27.517000	dx =0.01	dx^2 = 913.38	dy = **0**	dy^2 = 0	dx.dy = 0

Now, Correlation Coefficient (r) = $\dfrac{dx.dy - \dfrac{dx.\ \ dy}{N}}{\sqrt{dx^2 - \dfrac{\int dx\text{Å}}{N} \quad dy^2 - \dfrac{\int dy\text{Å}}{N}}}$

$= \dfrac{0 - \dfrac{(0.01)\mid 0}{5}}{\sqrt{913.38 - \dfrac{\int 0..01\text{Å}}{5} \quad 0 - \dfrac{\int 0\text{Å}}{5}}}$

$= \dfrac{0}{\sqrt{913.38 \mid 0}}$

$= 0$

Then, P.E. = $\dfrac{0.6745(1-r^2)}{\sqrt{N}}$

$= \dfrac{0.6745[1-(0)^2]}{\sqrt{5}}$

$= \dfrac{0.6745}{2.24}$

$= 0.30$

Appendix-18

Examine the relationship between Net P/L after Tax and Current Assets

(Rs. in Millions)

Year (N)	Net P/L after Tax(x)	Current assets (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	-22.134722	57.425985	-1.14	1.30	-18.88	356.45	21.52
066/67	-9.899310	69.595559	11.10	123.21	-6.71	45.02	-74.48
067/68	-2.359228	71.363893	18.64	347.45	-4.95	24.50	-92.27
068/69	-39.337741	83.954132	-18.34	336.36	7.64	58.37	-140.12
069/70	-31.244006	99.207341	-10.25	105.06	22.90	524.41	-234.73
	$\bar{x}$ = -20.995001	$\bar{y}$ =76.309382	dx =0.01	dx^2 =913.38	dy = 0	dy^2 =1008.75	dx.dy = -520.08

Now, Correlation Coefficient (r) = $\dfrac{dx.dy - \dfrac{dx.\ \ dy}{N}}{\sqrt{dx^2 - \dfrac{\int dx\text{Å}^2}{N} \quad dy^2 - \dfrac{\int dy\text{Å}^2}{N}}}$

$$= \frac{(-520.08) - \dfrac{(0.01)\ |\ 0}{5}}{\sqrt{913.38 - \dfrac{\int 0..01\text{Å}}{5} \quad 1008.75 - \dfrac{\int 0\text{Å}}{5}}}$$

$$= \frac{Z520.082}{\sqrt{913.38\ |\ 1008.75}}$$

$$= -0.54$$

Then, P.E. = $\dfrac{0.6745(1-r^2)}{\sqrt{N}}$

$$= \frac{0.6745[1-(-0.54)^2]}{\sqrt{5}}$$

$$= \frac{0.48}{2.24}$$

$$= 0.21$$

Appendix-19

Examine the relationship between Working Capital and Sales

(Rs. in Millions)

Year (N)	Sales (x)	Working Capital (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	59.665058	12.971903	-12.86	165.38	11.97	143.28	-153.93
066/67	72.579743	14.786667	0.06	0.0036	13.78	189.89	0.83
067/68	73.916865	1.654050	1.40	1.96	0.65	0.42	0.91
068/69	76.786861	-5.814373	4.27	18.23	-6.82	46.51	-29.12
069/70	79.653463	-18.582311	7.13	50.84	-19.59	383.77	-139.68
	$\bar{x}$ =72.520398	$\bar{y}$ =1.003187	dx =0	dx^2 =236.41	dy = -0.01	dy^2 =763.87	dx.dy = -320.99

Now, Correlation Coefficient (r) = $\dfrac{dx.dy - \dfrac{dx.\ \ dy}{N}}{\sqrt{dx^2 - \dfrac{\int dx\AA}{N}\quad dy^2 - \dfrac{\int dy\AA}{N}}}$

$= \dfrac{(-320.99) - \dfrac{(0)\ |\ (Z0.01)}{5}}{\sqrt{236.41 - \dfrac{\int 0\AA}{5}\quad 763.87 - \dfrac{\int Z0.01\AA}{5}}}$

$= \dfrac{(Z320.992)}{\sqrt{236.41\ |\ 763.87}}$

$= -0.76$

Then, P.E. = $\dfrac{0.6745(1-r^2)}{\sqrt{N}}$

$= \dfrac{0.6745[1-(-0.76)^2]}{\sqrt{5}}$

$= \dfrac{0.29}{2.24}$

$= 0.13$

Appendix-20

Examine the relationship between Sales and Inventory

(Rs. in Millions)

Year (N)	Sales (x)	Inventory (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	59.665058	41.594769	-12.86	165.38	-16.99	288.66	218.49
066/67	72.579743	44.176825	0.06	0.0036	-14.41	207.65	-0.86
067/68	73.916865	57.322386	1.40	1.96	-1.27	1.61	-1.78
068/69	76.786861	69.430388	4.27	18.23	10.84	117.51	46.29
069/70	79.653463	80.421773	7.13	50.84	21.83	476.55	155.65
	$\bar{x}$ =72.520398	$\bar{y}$ =58.589228	dx =0	dx^2 =236.41	dy =0	dy^2 =1091.98	dx.dy =417.79

Now, Correlation Coefficient (r) = $\dfrac{dx.dy - \dfrac{dx.\ \ dy}{N}}{\sqrt{dx^2 - \dfrac{\left(\sum dx\right)^2}{N}\quad dy^2 - \dfrac{\left(\sum dy\right)^2}{N}}}$

$= \dfrac{417.79 - \dfrac{0 \mid 0}{5}}{\sqrt{236.41 - \dfrac{(0)^2}{5}\quad 1091.98 - \dfrac{(0)^2}{5}}}$

$= \dfrac{417.79}{\sqrt{236.41 \mid 1091.98}}$

$= 0.82$

Then, P.E. = $\dfrac{0.6745(1-r^2)}{\sqrt{N}}$

$= \dfrac{0.6745[1-(0.82)^2]}{\sqrt{5}}$

$= \dfrac{0.22}{2.24}$

$= 0.10$

Appendix-21

Examine the relationship between Sales and Receivable

(Rs. in Millions)

Year (N)	Sales (x)	Receivable (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	59.665058	0.828780	-12.86	165.38	0.20	0.04	-2.57
066/67	72.579743	0.818771	0.06	0.0036	0.19	0.04	0.01
067/68	73.916865	0.497030	1.40	1.96	-0.13	0.02	-0.18
068/69	76.786861	0.517365	4.27	18.23	-0.11	0.01	-0.47
069/70	79.653463	0.463548	7.13	50.84	-0.16	0.03	-1.14
	$\bar{x}$ =72.520398	$\bar{y}$ =**0.**625099	dx =0	dx^2 =236.41	dy = -0.01	dy^2 =0.14	dx.dy = -4.35

Now, Correlation Coefficient (r) = $\dfrac{dx.dy - \dfrac{dx.\ \ dy}{N}}{\sqrt{dx^2 - \dfrac{f\ dx\AA}{N} \quad dy^2 - \dfrac{f\ dy\AA}{N}}}$

$$= \frac{(-4.35) - \dfrac{0 \mid (Z0.01)}{5}}{\sqrt{236.41 - \dfrac{f0\AA}{5} \quad 0.14 - \dfrac{fZ0.01\AA}{5}}}$$

$$= \frac{Z4.35}{\sqrt{236.41 \mid 0.14}}$$

$$= -0.76$$

Then, P.E. = $\dfrac{0.6745(1-r^2)}{\sqrt{N}}$

$$= \frac{0.6745[1-(-0.76)^2]}{\sqrt{5}}$$

$$= \frac{0.29}{2.24}$$

$$= 0.13$$

Appendix-22

Examine the relationship between Sales and Cash & Bank Balance

(Rs. in Millions)

Year (N)	Sales (x)	Cash & Bank Balance (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	59.665058	6.101045	-12.86	165.38	-2.40	5.76	30.86
066/67	72.579743	16.167347	0.06	0.0036	7.66	58.68	0.46
067/68	73.916865	5.195942	1.40	1.96	-3.31	10.96	-4.63
068/69	76.786861	5.259564	4.27	18.23	-3.24	10.50	-13.83
069/70	79.653463	9.795602	7.13	50.84	1.29	1.66	9.20
	$\bar{x}$ =72.520398	$\bar{y}$ =8.503900	dx =0	dx^2 =236.41	dy =0	dy^2 =87.56	dx.dy =22.06

Now, Correlation Coefficient (r) $= \dfrac{dx.dy - \frac{dx.\ dy}{N}}{\sqrt{dx^2 - \frac{\sum dx^2}{N} \quad dy^2 - \frac{\sum dy^2}{N}}}$

$= \dfrac{22.06 - \frac{0 \mid 0}{5}}{\sqrt{236.41 - \frac{\sum 0^2}{5} \quad 87.56 - \frac{\sum 0^2}{5}}}$

$= \dfrac{22.06}{\sqrt{236.41 \mid 87.56}}$

$= -0.15$

Then, P.E. $= \dfrac{0.6745(1-r^2)}{\sqrt{N}}$

$= \dfrac{0.6745[1-(0.15^2]}{\sqrt{5}}$

$= \dfrac{0.66}{2.24}$

$= 0.29$

Appendix-23

Examine the relationship between Short-term Financing (STF) & Long-term Financing (LTF)

(Rs. in Millions)

Year (N)	STF (x)	LTF (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	44.454082	77.702419	-30.85	951.72	-9.05	81.90	279.19
066/67	54.808892	89.121620	-20.50	420.25	2.37	5.62	-48.59
067/68	69.709843	89.014793	-5.60	31.36	2.26	5.11	-12.66
068/69	89.768505	88.924069	14.46	209.09	2.17	4.71	31.38
069/70	117.789652	89.004062	42.48	1804.55	2.25	5.06	95.58
	$\bar{x}$ =75.306195	$\bar{y}$ =86.753393	dx = -0.01	dx^2 =3416.97	dy =**0**	dy^2 =102.4	$dx.dy$ =344.9

Now, Correlation Coefficient (r) = $\dfrac{dx.dy - \dfrac{dx.\ dy}{N}}{\sqrt{dx^2 - \dfrac{\left(\sum dx\right)^2}{N}\quad dy^2 - \dfrac{\left(\sum dy\right)^2}{N}}}$

$= \dfrac{344.9 - \dfrac{(Z0.01) \mid (0)}{5}}{\sqrt{3416.97 - \dfrac{\left(\sum Z0.01\right)^2}{5}\quad 102.4 - \dfrac{\left(\sum 0\right)^2}{5}}}$

$= \dfrac{344.9}{\sqrt{3416.97 \mid 102.4}}$

$= 0.58$

Then, P.E. = $\dfrac{0.6745(1-r^2)}{\sqrt{N}}$

$= \dfrac{0.6745[1-(0.58)^2]}{\sqrt{5}}$

$= \dfrac{0.45}{2.24}$

$= 0.20$

Appendix-24

Examine the relationship between Short-term Financing (STF) & Total Financing (TF)

(Rs. in Millions)

Year (N)	STF (x)	TF (y)	$dx\ X(x-\bar{x})$	dx^2	$dy\ X(y-\bar{y})$	dy^2	dx.dy
065/66	44.454082	122.156501	-30.85	951.72	-39.90	1592.01	1230.92
066/67	54.808892	143.930512	-20.50	420.25	-18.13	328.70	371.67
067/68	69.709843	158.724636	-5.60	31.36	-3.33	11.09	18.65
068/69	89.768505	178.692574	14.46	209.09	16.63	276.56	240.47
069/70	117.789652	206.793714	42.48	1804.55	44.73	2000.77	1900.13
	$\bar{x}$ =75.306195	$\bar{y}$ =162.059588	dx = -0.01	dx^2 =3416.97	dy =**0**	dy^2 =4209.13	dx.dy =3761.84

Now, Correlation Coefficient (r) = $\dfrac{dx.dy - \dfrac{dx.\ dy}{N}}{\sqrt{dx^2 - \dfrac{\sum dx^2}{N} \quad dy^2 - \dfrac{\sum dy^2}{N}}}$

$= \dfrac{3761.84 - \dfrac{(\Sigma 0.01) \times (0)}{5}}{\sqrt{3416.97 - \dfrac{\sum \Sigma 0.01^2}{5} \quad 4209.13 - \dfrac{\sum 0^2}{5}}}$

$= \dfrac{3761.84}{\sqrt{3416.97 \times 4209.13}}$

$= 0.99$

Then, P.E. = $\dfrac{0.6745(1-r^2)}{\sqrt{N}}$

$= \dfrac{0.6745[1-(0.99)^2]}{\sqrt{5}}$

$= \dfrac{0.01}{2.24}$

$= 0.01$

Appendix-25

a) Jadibuti Utpadan Tatha Prasodhan Company Limited

Profit & Loss A/c

For the fiscal year (2065/066 to 2069/070)

(In Rs.)

Statement	FY 2065/066	FY 2066/067	FY 2067/068	FY 2068/069	FY 2069/070
Sales	59665058	72579743	73916865	76786861	79653463
Less: Cost of good sale	43614272	49924620	49399243	55778559	50399225
Gross Profit (Loss)	16050786	22655123	24517622	21008301	29254239
Add: Other business Income	148155	318288	320045	211672	322465
Less: Business expenses					
Distribution expenses	599334	1020791	495930	530703	558631
Administrative expenses	33648343	27581161	22090949	53690819	55374161
Operating Income	(18048735)	(5628542)	2250788	(33001549)	(263561)
Less: Interest	2960940	3222627	3884540	3884540	3884540
Less: Depreciation	1125047	1048141	901014 175538	2451652	1003379
Net profit before tax	(22134722)	(9899310)	(2359228)	(39337741)	(31244006)
Less: Tax	-	-	-	-	-
Net profit after tax	(22134722)	(9899310)	(2359228)	(39337741)	(31244006)
Last year Profit (Loss)	(103794927)	(125929649)	(135828959)	(138188187)	(177525928)
Adjusted Profit (Loss)	(125929649)	(135828959)	(138188187)	(177525928)	(208769935)

b) Jadibuti Utpadan Tatha Prasodhan Company Limited
Balance Sheet
For the fiscal year (2065/066 to 2069/070)

(In Rs.)

Particular	**FY 2065/066**	**FY 2066/067**	**FY 2067/068**	**FY 2068/069**	**FY 2069/070**
Fixed Assets	12657164	12362291	22853315	20788890	18911029
Current Assets:					
Inventory	41594769	44176825	57322386	69430388	80421773
Sundry Debtors	828780	818771	497030	517365	463548
Advance Deposit	8901391	8432616	8348535	8746815	8526418
Cash & Bank Balance	6101045	16167347	5195942	5259564	9795602
Total Current Assets	57425985	69595559	71363893	83954132	99207341
Total Assets	**70083149**	**81957850**	**94217208**	**104743022**	**118118370**
Share Capital	27517000	27517000	27517000	27517000	27517000
Charity	836419	710620	603793	513069	593061
Adjusted Profit (Loss)	(125929649)	(135828959)	(138188187)	(177525928)	(208769935)
Gratuitys	73856297	73856297	73680759	103576376	120094592
Long-term Loan	49349000	60894000	60894000	60894000	60894000
Current Liabilities:					
Sundry Creditors	4558131	4456725	15473136	31647258	48794306
Short term loan	39895951	50352167	54236707	58121247	68995346
Total Current Liabilities	44454082	54808892	69709843	89768505	117789652
Total Capital and Liabilities	**70083149**	**81957850**	**94217208**	**104743022**	**118118370**