STUDY ON WORKING CAPITAL ANALYSIS
OF
JANAKPUR CIGARETTE FACTORY LIMITED

A MASTER'S DEGREE THESIS

SUBMITTED BY

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VIVA-VOCE SHEET

We have conducted the viva-voice examination of the thesis

Submitted by

Ms. Rajani Jha

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"**Study on Working Capital analysis of Janakpur Cigarette Factory Limited"**

and found the thesis to be original work of the student and written according to the prescribed format. We recommend the thesis to be accepted as partial fulfillment of the requirement for the degree of Master of Business Studies.

VIVA - VOICE COMMITTEE

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DECLARATION

I, hereby declare that the work reported in this thesis entitled " Study on Working Capital Analysis of Janakpur Cigarette Factory Limited", submitted to Ramswarup Ramsagar Multiple Campus, Faculty of Management, Tribhuvan University, is my original work done in the form of partial fulfillment of the requirement for the Master's in Business Studies under the supervision of Mr Vijay Kumar Thakur, Lecturer, Ranswarup Ramsagar Multiple Campus.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATION

CA	:	Current Assets
CL	:	Current Liabilities
C&BB	:	Cash and Bank Balance
FA	:	Fixed Assets
FY	:	Fiscal Year
GP	:	Gross Profit
JCF	:	Janakpur Cigarette Factory
NPAT	:	Net Profit after Tax
NPBT	:	Net Profit before Tax
PE	:	Probable Error
QA	:	Quick Assets
SD	:	Standard Deviation
SE reg	:	Standard Error of Estimate
TCA	:	Total Current Assets
TFA	:	Total Fixed Assets
WC	:	Working Capital
WCM	:	Working Capital Management
'r'	:	Coefficient of Correlation

CHAPTER – I

INTRODUCTION

1.1 Background of the study

Nepal is agriculture based country. It is one of the least developed countries in the world economy. Agriculture is still a major source of country income. Over 80% of the population depends on agriculture for their income generation. Nepalese agriculture has suffered from lack of modernization, deterioration in fertility due to soil erosion and rapid deforestation. Nepal is second richest country in the world in the water resources but it has to depend on monsoon for its irrigation. There is no specialization and commercialization in agriculture. However agriculture alone cannot contribute in the development of the economy as a whole. Nepal is at a crossroads in its development of history. Medium-term growth, prospects are under threat due to external shocks and slow implementation of reforms. Also, poor governance, rising insecurity and political instability are hindering human development and poverty reduction. The Government has to wisely recognize the faster growth of income and employment and improving governance and public service delivery have to the integral part of the response to the current crisis. The main challenges for the government now is to implement these reforms with urgency such that it will strengthen its creditability with the people of Nepal and its development patterns and decisively accelerate Nepal's progress in reducing poverty.

It is well known fact that economy of the country depends mainly upon industrialization development. As a developing country, our country is striving to develop and modernize. But the structure of the economy is still primarily based on agriculture. So to divert and modify agro-based economy, His Majesty Government of Nepal adopted mixed economic model with implicit objective to help the state and private sector economy that complement each other in the development process from very inception of economic planning process based in 1956. The responsibility for the planned economic development ultimately rests on public sector and government and is the best instrument for ensuring equitable, social and economic system, creating basic infrastructure for economic development and guiding the nation towards a new economic direction. It is believed that in order to achieve security, stability and high standard of living, the country must be industrialized. Historically, industrial development began after 1936 with the establishment of Biratnagar Jute Mill. After 1956s

various manufacturing companies have been established and developed through government efforts. Due to poor performance, negative return, lack of efficiency, and inefficient management the government has started emphasizing on privatization so that public enterprises could be competitive, efficient and profitable. The government has started reducing its investment in public sector and has given higher priority to private sector to develop and uplift industries and has started lunching privatization process for public sector industries. Most of the public enterprises have been privatized and the rest are in the process of privatization.

Industrialization is universally accepted as a strategy of economic development. The industrial development is the backbone of economic development. It is a key factor in contributing the achievement of economic growth and prosperity. It helps in generating employment opportunities and income which in turn helps in uplifting the living standard of peoples. It generates innovations, technical change that brings about satisfactory production, frontier, then by accelerating growth and factor productivity. It is clear that industrialization has proved itself to be the most powerful instrument in speeding up the economic development of the country. For overall economic development, government should focus and give due concern in the establishment and development of different industries such as tourism, manufacture, banking, agriculture, transportation, insurance etc.

1.2 Introduction to Working Capital Analysis

The study of Working Capital behavior occupies an important place in financial management. It has never received so much attention as in recent years. The earlier emphasis of financial management was mostly on long term financial decision making which led to the development of theories concerning this decision as compared to short term financial decision. Later on when many enterprises failed or their growth restricted either due to shortage or mismanagement of working capital, the study of working capital management assumed a greater significance.

Working Capital is the lifeblood of every organization. Working Capital Management refers to the proper management of firm's current assets and current liabilities. It is concerned with all decisions and acts that influence the determination of appropriate level of current assets and their efficient use as well as choice of the methods of financing them, keeping in view of liquidity.

No area of business is so intimately related to its other areas as the area of working capital management. Working capital policies affect marketing, personnel, production and other functions. Almost every activity of business or everything that happens in the business is related to working capital decision.

The inefficient management of working capital will lead to loss of profit in short run but it will ultimately lead to the downfall of the enterprise in long run. A deeper understanding of the importance of working capital can lead not only to material savings in the economical use of capital but can also assert in furthering the ultimate aim of business. An excessive investment in working capital will lower the rate of return while inadequate investment will hamper the solvency position and growth, thereby affecting the smooth operation of the business.

1.3 Introduction of Janakpur Cigarette Factory

Janakpur Cigarette Factory Limited (JCF) established in 1964 under the techno-financial assistance of Soviet Union. It is an undertaking of Government of Nepal. It is a company with over 61% share of Nepal's cigarette market. An industry which generates 99% revenue with just 49% of tobacco consumption, as against substitute tobacco products that consume 51% of tobacco but only account for 1% of employment for 2,50,000 more, 99% of whom are Nepalese. It covers, as well, marketing and other support services, quality of life for JCF employees, and in a larger context, the country's tobacco-growing industry, and the socio-economic development of the extended community of Nepal. Working capital management is a new area emphasized for the productive utilization of their available funds created out of good cash flows, financial solvency and growth strategies. This study may enlighten the different ways and techniques of working capital management to develop the sound financial base of the Factory.

1.4 Statement of Problems

Working capital is the lifeblood of every organization. Working capital management refers to the proper management of firm's current assets and liabilities. It is concerned with all decisions and acts that influence the determination of appropriate level of current assets and their efficient use as well as choice of the methods of financing them, keeping in view-liquidity. It has become difficult in many organizations. In most of the organizations, it has

been understood as the management of money and the managers are found over conscious about the burden of money rather than its efficient utilization. It has been the most challenging area of modern corporate finance where the management always faces a tradeoff between liquidity and profitability of the firm.

The effective management of Working Capital plays a vital role to the overall success of most firms over investment. Unproductive current assets will reduce the profitability of a firm where an ineffective management of current liabilities will have a negative impact on both firm's cost of capital and risk. Also, in short run current assets and current liabilities may be may be the only items that affirm can adjust to meet changed circumstances. So, it is very essential to analyze and find out problem and its solution make efficient use of funds for minimizing the risk of loss to attain profit objective. Given a volatile economic development, it is not surprising that working capital management deserved the large portion of management time. It should be realized that the working capital needs of firm should fluctuate with the changing business activity. Most of the companies have well recognized the importance.

Following are the major problems that have been identified for the study:
  i. What is the financial position of Janakpur Cigarette Factory Limited in line with working capital management?
 ii. What is the relationship between current assets and total assets?
iii. What is the proportion of cash, inventory to current assets and total assets?
 iv. Is Janakpur Cigarette Factory Limited following appropriate working capital policy?
  v. What is the liquidity and profitability position of Janakpur Cigarette Factory Limited?
 vi. What is the relationship between working capital and profitability and its impact?

1.5 Objective of the Study

Working Capital play vital role in success or failure of every organization. The excess as well as inadequate level of working capital may cause harm to the business. The aspect of working capital management is concerned with the short term financing decision. It has never received much attention in the literature of finance.

The basic objective of study is to study and analyze the position of working capital management of Janakpur Cigarette Factory Limited and to provide the necessary suggestions

and recommendations for the improvement. The specific objectives of this study are as follows:

- To evaluate the financial position in relation to working capital management of Jankpur Cigarette Factory limited.
- To identify whether the organization is being able to adopt appropriate working capital policy.
- To examine the impact of working capital management in liquidity and profitability of the Factory.

1.6 Significance of the Study

Working capital management plays a vital role in smooth running of business. No business can run successfully without an adequate amount of working capital. Nepalese business environment is in the threshold of change. In this situation, firms have to adopt suitable strategies for their existence. They should maintain proper balance and coordinate the different functional area of business concern. The success or failure of any organization depends on its strategy, which is affected by working capital. Adequate working capital creates an atmosphere of certainty, security and confident in business. Working Capital Management assumes great significance as huge sum of money has been invested in the form of current assets. It occupies most crucial area of management. Regardless of excellent production and wide fixed assets, management faces the loss of control of its firms because of liquidity crisis. Thus, this study will diagnose the relationship of working capital management to the efficiency of enterprises as a whole. It can also prove to be helpful for the management to improve its efficiency as well as the profitability with proper management of working capital and its components.

1.7 Limitation of the Study

Following are the major limitation of the study:

- The study is entirely based on only one company, Janakpur Cigarette Factory Limited.
- The study covers the time period of five year from FY 2005/06-2009/10.
- The study is based on Secondary data.
- The study is mainly based on the annual accounting data collected basically from the balance sheet, profit and loss A/C maintained by the company and also booklets, website.

1.8 Organization of the Study

The study has been organized into five major chapters each devoted to some aspects of the study of working capital analysis, which are as follows:

Introduction

The first chapter includes Introduction, which will cover Background of the study, brief history of Janakpur Cigarette Factory Limited, introduction to working capital management, purpose and objective of Janakpur Cigarette Factory Limited and its principle, statement of problem, objective of the study and limitation of study.

Review of the Literature

The second Chapter deals with the Review of the Literature relating to working capital Analysis. The available literatures will be divided into three sections. The first section will cover the review of books; second section will cover the review of journals or articles and third will cover the review of dissertations.

Research Methodology

The Third Chapter covers the research methodology to be adopted for the study consisting introduction, research design, source of data, data processing procedure, tools and techniques of analysis and definition of the key terms.

Presentation and Analysis of Data

The Fourth Chapter deals with the presentation and analysis of data. It will fulfill the objective of study by presenting the data, analyzing them with the help of various statistical tools followed by methodology.

Summary, Recommendation and Conclusion

The Fifth Chapter will cover summary, conclusions and recommendations.

At the last, Appendixes have been included according to the test of relation in between various variables of working capital. Bibliography has also been included according to the reference books, journals and thesis reviewed.

CHAPTER-II
REVIEW OF LITERATURE

2.1 Introduction

Review of literature is basically a study of available writing in one's field of research. The literature survey is done to accomplish the knowledge of the studies of their field of research. It provides the foundation for developing comprehensive theoretical framework to conduct research writing. The main objective of this chapter is to provide an insight into Working Capital analysis of Janakpur Cigarette Factory Limited. It includes reviewing of various studies such as different financial books, reports, journal, magazine, research done by researchers. Thus, this chapter aimed at reviewing on available literature on Working Capital Analysis.

This chapter is broadly divided as follows:

2.2 Conceptual Framework

2.3 Review of various studies

2.2. Conceptual Framework

Proper financial management is the great essence for every business organization from the point of view of achieving entire success. In this respect, Working Capital Analysis plays a significant role in every organization. Simply the term Working Capital Analysis refers to the administration of all aspects of current assets and current liabilities, which greatly influence the overall day-to-day functional areas of the organization. The Current Assets are those assets including cash, which can be converted in cash within an accounting year i.e. a year span. The current assets is also called short-term assets comprises cash, inventories, marketable securities and account receivable etc. So, the amount of fund that is needed to finance the current assets of the firm is called working capital.

The Current Liabilities are those obligations, which have to be paid within an accounting year. It comprises trade creditors, account payable, short-term bank loans, and outstanding expenses. The short-term current assets and current liabilities are collectively known as Working Capital. For instance, without cash, bills cannot be paid, without receivable the firm

cannot allow timing difference between delivering goods or services and collecting the money to pay them.

The goal of Working Capital management is to manage the current assets and current liabilities of the firm to keep at satisfactory level. It helps the firm to operate day-to-day transaction without any interruption. If the firm cannot maintain the satisfactory level of working capital, it is likely to become insolvent and may even be forced to bankruptcy. Working Capital Analysis" involves deciding upon the account and composition of current assets and to finance these assets. The decision involves tradeoff between risk and profitability.

Working capital management practices in Nepalese organization provide totally a different picture. The past trend of many organizations had given emphasis in fixed assets, so they are facing financial problem all the time and the result show's lower efficiency. The government policy to concentrate more on fixed assets has overlooked 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 companies. Short-term financial decision has never received much attention in the literature of finance. More emphasis had been given to long-term financial decision.

By analyzing above concept about working capital, we concluded that all the corporate, whether public or private, manufacturing or non - manufacturing needs to have adequate working capital to serve in competitive market. The consideration of level of investment in current assets should avoid two danger points -excessive and inadequate investments in current assets. Excessive investment in current assets should be avoided as it impairs firm's profitability, as idle investment yields nothing. On the other hand, inadequate investment on working capital can threaten solvency of the firm, if it fails to meet its current obligation. It should be realized that the working capital needs of the firm might be fluctuating with changing business activity. So the effective management of working capital is must for the success of any organization, To have adequate healthy and efficient working capital, it should be properly determined, controlled, reviewed regularly. Working capital management is the process of planning and controlling the level and mix of the current assets of the firm as well as financing their assets.

It is therefore recognized fact that any mistake made in management of working capital can level to adverse effects in business and reduce the liquidity, turnover and profitability and increase the cost of financing of the enterprise. The skill of working capital management should be unique as to make efficient use of funds for minimizing the risk of loss to attain profit objective.

2.2.1 Concept of Working Capital

There are two concepts of working capital which are as mentioned below:

A. Gross Working Capital

Gross Working capital simply refers to firms' investment on current assets. Current assets are those assets which can be converted into cash within an accounting year or operating cycle and includes cash, short-term securities, debtors, bills receivable and stock. From the management point of view, the gross concept deals with the problem of managing individual current assets in day-to-day operations. The excessive investment in current assets affects profitability, as idle investment yields nothing. Similarly, inadequate investment in current assets makes it difficult to carry out day-to-day operation of the organization. It also enables a firm to plan and control funds to maximize the return on investment (Kulkarni, 1996:376).

R.S. Pradhan and K.D. Koirala express their view about concept of Gross Capital as "If all the expenses needed to run the day to day operation of business such as amount to be invested in form of cash, finished goods, receivable etc are put together it is called Working Capital". This working capital and total current assets are synonymous.

Gross Working Capital = Total Current Assets

This concept is also known as quantitative concept.

B. Net Working Capital

Net Working Capital refers to the difference between current assets and current liabilities. Current liabilities arc those claims of an outsider, which are expected for payment within an accounting year; include cash, bills payable and outstanding expenses. Net Working Capital can be negative or positive. 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. Net working capital can be more useful for the analysis of the tradeoff between profitability and risk.

Now a day, the net concept has overcome to gross concept because the gross concept is narrow in terms of working capital, as it does not indicate the firm's liquidity correctly as it does not compare the current assets with the current liabilities of the firm. Sufficient procurement of funds in business cannot be made without having current liabilities.

From management point of view, gross working capital deals with the problem of managing individual current assets in the day-to-day operation. But for having long run view of working capital, we have to concentrate on the net value of current assets. The gross concept is important to newly established companies where liabilities have not been acquired immediately, but the net concept is important for both newly established and operating concerns where some amount of current liabilities are maintained for the payment of different creditors, income taxes, bills payable, secured and unsecured loans etc.

Besides, the gross working capital and net working capital there is another concept called 'Zero Net Working Capital' in which the firm maintains the balance between sum of inventories and receivables with the amount of account payables. It means accounts payable are maintained through inventories and receivables and reduces the need of external financing. (Poudel, Baral, Gautam, Dahal and Rana, 2005)

The definition described virtually represents the characteristics of working capital. Following are the characteristics of working capital:

a. Short life

The working capital is characterized by assets with a life span of less than one year such as cash, marketable securities, account receivable etc. This short life span leads to high volatility in the level of investment.

b. Nearness to cash or liquidity

This basic characteristic constitutes the first line of defense against technical insolvency. Cash is the liquid assets having zero conversion time and 100% conversation rate but for

inventory and marketable securities two factors -nearness to cash or amount of time required converting assets into cash and price realized on conversion must be considered.

c. Lack of synchronization

Since the enterprise cannot produce on order only and cannot insist on cash payment, there is always the problem of synchronization in cash receipts and disbursements. It is also due to the level of investments in working capital that is affected by the sales volume, production policies and collection policies.

The basic characteristics of working capital as mentioned above indicate that it is a term of capital intended to be kept moving or circulating and its potential for earning comes from movements. Though the expenditures can be controlled and planned, its income is usually subject to random variation and is not controllable.

2.2.2 Need for Working Capital

The need for working capital to run day-to-day business activities cannot be underestimated. It helps to achieve entire goal of the business and maximize the wealth of shareholders. Business firm generally hold cash for these three purposes. They arc as:

a.   The transaction motive

The transaction motive refers to the holding of cash to meet day-to-day requirement of the business. It helps business to run smoothly and uninterrupted basis.

b.   Precautionary motive

The precautionary motive refers to the holding of cash to meet the random and unforeseen fluctuations in cash flow i.e unpredictable change in demand and supply, strikes, unexpected slow down in collection of account receivable.

c.   Speculative motive

The speculative motive refers to the desire of a firm to take advantage of opportunities, which present themselves at unexpected moment, they can make purchases at favorable price or reduce price on payment of immediate cash, speculative interest rate etc.

2.2.3 Types of Working Capital

There are two types of Working Capital which are as mentioned below:

a) Permanent Working Capital

Permanent Working Capital refers to that level of current assets which is required on continuous basis over the entire year. Organization cannot operate its regular operation and sales functions in the absence of this portion of working capital. It includes the amount of cash, receivable and inventory mentioned as current assets to carry operations at any time. Therefore, manager holds certain minimum amount of working capital to ensure uninterrupted production and sales function. This portion of working capital is directly related to the firm's expansion of operation capacity.

b) Variable Working Capital

Variable working capital is also known as temporary seasonal and fluctuate working capital. It represents that portion of working capital, which is required over permanent working capital. If the nature of production and sales of a firm directly related to seasonal variation, it should stock extra raw material, work in process and inventory of finished goods. Therefore this portion of working capital depends upon the nature of firms' production, relation between labour and management. Figure-1 clearly shows about the portion of working capital. If firm has sound management of this portion of working capital, it can easily win the other competitors in the cutthroat of the market.
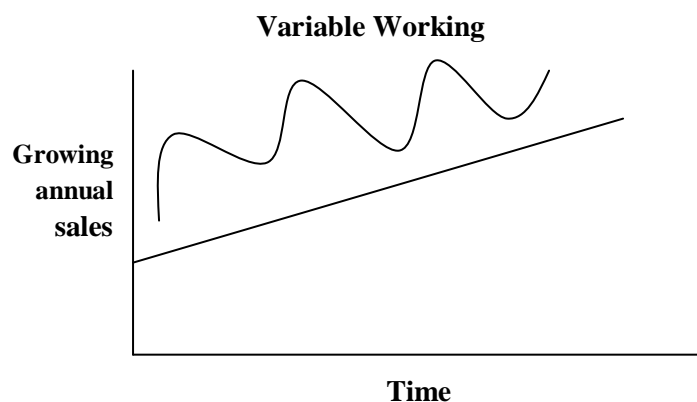
Figure -1: Variable working capital

2.2.4 Determination of Working Capital Policy

There are no set rules to determine the working capital requirement of a firm. The firm itself should manage working capital in proper way by considering the need of the business. The total working capital requirement is determined by a wide variety of factors and these factors

could affect different enterprise differently and they do vary from time to time. The following factors affect the working capital requirement of the organization.

a) Nature of Business

Working Capital requirement of a firm are basically related to the nature of the business. Trading and financial firm needs large sum of money to be invested in working capital. Public organization need limited working capital only for the use of cash sales and supply services. Working capital for the manufacturing concern falls between the two extreme requirement of trading firm and public enterprises.

b) Manufacturing cycle

Shorter the manufacturing period (cycle), the lesser will be the need of working capital to finance and vice versa.

c) Production Policies

Production policies are also another factor, which affects in determining the working capital requirement. For instance, if a firm produces seasonal goods, then it will be sold in certain month of the year and inventories will be kept at minimum level, this increases working capital. If the work of business is done manually, the requirement of working capital will be more.

d) Business fluctuation

Business situations and business cycle also affects the need of working capital. Time and cycle fluctuation effects demand of the products that in turn affect the temporary and variable working capital need. In boom period when sales increases, the firm need its investments in purchasing inventories, additional funds may be required to invest in plant and machinery to meet the increased demand. At the time of boom, more investment has to be made in stock and the need for working capital increases but during the time of recession and depression low amount of working capital is enough.

e) Growth and Expansion of Business

The volume of assets, sales as well as expansion activities of the enterprises has direct bearing upon the needs of working capital. The business firms having the program of expansion, development and modernization have to manage more working capital. It might

also need working capital to utilize its full production and operation capacity of fixed assets. Higher the volume and expansion of activities of the enterprises, the higher will be the need of working capital and vice versa.

f) Credit Policy

The firm may adopt liberal credit policy or the tight credit policy. A firm with liberal policy gives longer credit period to the customer. It results in the higher receivables thereby increasing the need for the working capital. On the other hand, a firm having tight credit policy gives shorter credit policy that decreases the investment in account receivables thereby reducing the need for working capital.

g) Price level change

The fluctuations in price level have greater influence in determining the need of working capital. The firm requires maintaining high amount of working capital if the price level rises due to increase in cost of inputs.

h) Sales Volume

The fluctuation in demand and supply of the product affects the level of working capital. The higher the volume to sales, the higher will be the need of working capital. . It is because; the firm needs additional inventories to support the payment of additional labor that is needed to support the increased sales.

i) Cash Conversion Cycle

Working capital is also called a circulating capital. The larger the cash conversion cycle, the larger will be the need for working capital and vice versa.

j) Others

Factors such as coordination between production and distribution activities, conservative dividend policy as well as liberal depreciation policy strengthen the working capital position of the organization.

2.2.5. Working Capital Policy

Working capital refers to the firm's basic policies relating to the target level of each category of current assets and how current assets to be financed. Deciding how much current assets to

be maintained and how to finance them are crucial issues of working capital management because the level of current assets and financing them have direct impact on the firm's profitability, liquidity and risk. Basically there are two policies of Working Capital to examine the above two issues:

A. Current Assets Investment Policy

B. Current Assets Financing Policy

A) Current Asset Investment Policy

Current assets investment policy refers to the policy regarding the total amount of current assets to be carried out to support the given level of sales. How much a firm is to invest in current assets will depend on its operating cycle. There are three alternative current assets investment policy-relaxed, moderate and restricted. Under each policy, a different amount of working capital is carried to support each level of sales.

i) Relaxed Current Assets Investment Policy

Relaxed current assets investment policy is also called conservative, flexible, and fat cat policy. In this, the organization holds relatively large amount of current assets i.e. cash, marketable securities, inventory and receivables to support the given level of sales. In addition the company is motivated to sale by applying liberal credit policy. Therefore, this policy creates the longer receivable collection period. It is also used to create longer inventory and cash conversion cycle. Thus the policy provides the lowest expected return on investment with lower risk.

ii) Restricted Working Capital Investment Policy

It is also called as tight, lean and mean, aggressive policy. Under this the organization has high control in current assets. The company holds minimum level of inventory, marketable securities, receivable and cash to support given level of sales; -this policy tends to reduce the inventory, receivable, cash conversion period. The company follows tight credit policy and bears the risk of losing sales.

iii) Moderate Working Capital Investment Policy

In this policy, a company holds the amount of current assets in between the relaxed and restricted policies. The ratio of current assets to sales is neither too high nor too low under this policy. Both the risk and return are moderate in this policy.
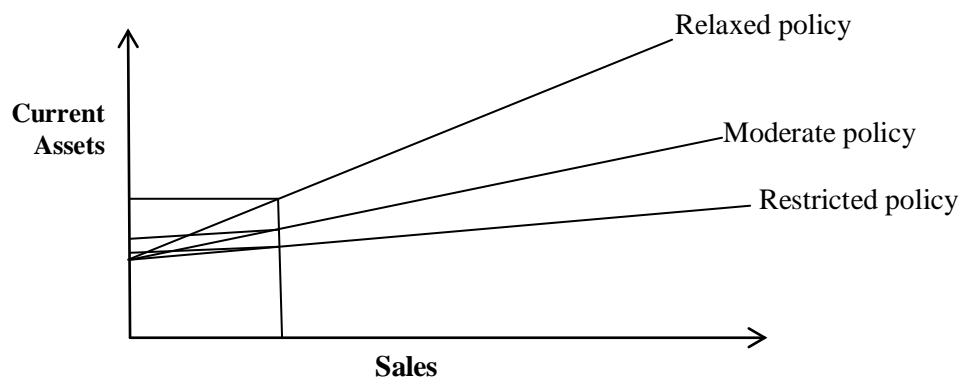
Figure- 2: Relaxed, Moderate and restricted working capital

A) Current Assets Financing Policy

Current assets financing is one of the concerning topic of working capital management. Working capital management involves deciding upon the amount and composition of current assets and how to finance these assets. This decision involves tradeoff between risk and profitability. The financing of current assets through short-term and long-term sources is different regarding the cost and flexibility. Therefore, business enterprises have to identify the way to apply financing mix on current assets financing.

i) Aggressive Financing Policy

The aggressive financing policy is quite risky leading to high profitability and low liquidity. Under this policy, firm finances its entire temporary current assets and a part of permanent current assets from short term financing and permanent requirement by long-term sources. Some extremely aggressive firms may even finance a part of their fixed assets with short term financing. The relatively more use of short term financing makes the firm more risky. There is higher risk, higher return and low liquidity position under this aggressive policy.
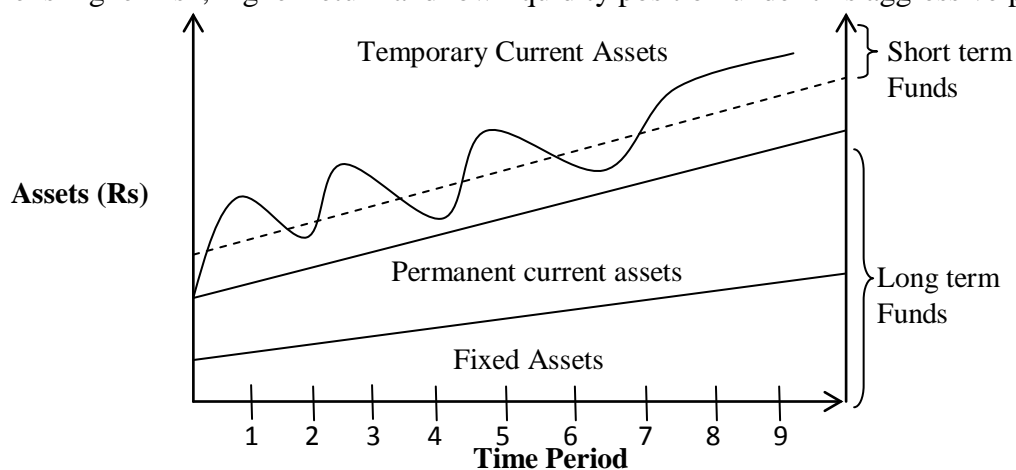
Figure-3: Aggressive Financing policy

ii) Conservative Financing Policy

The financing policy of a firm is said to be conservative when it depends more on long- term funds for financing needs. Under this policy, the firm finances its permanent current assets and a part of temporary current assets through long-term funds. While short term funds are reserved for use in the event of an emergency. This policy has kept a large amount of current assets with long conversion period, low level of current liabilities and higher interest. When the firm does not need temporary current assets, the idle long-term fund can be invested on marketable securities. This policy is less risky leading to profitability and high liquidity. Thus risk and return are lower than aggressive policy and liquidity position is higher than aggressive policy. So, the policy is also known as very safe financing policy.
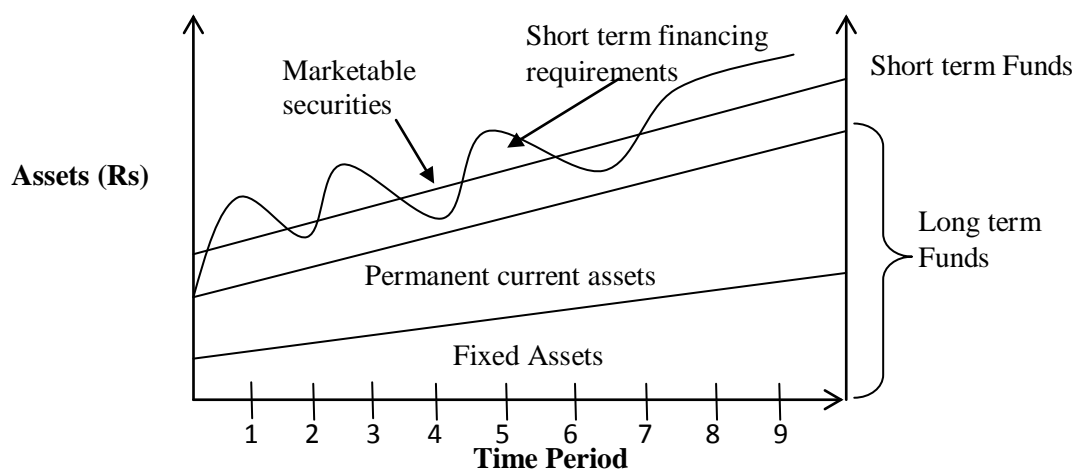
Figure-4: Conservative financing policy

iii) Moderate Financing Policy

This approach lies between aggressive and conservative policy. It is neither too risky nor least risky. It lies between a low liquidity, high profitability case and high liquidity low profitability case. Under this policy, the firm finances its permanent current assets with long-term financing and temporary current assets with short term financing. It aims at achieving a tradeoff between profitability and liquidity. In other words, a firm adopts that financial plan, which matches assets and liabilities, maturates, so it is also called maturity matching policy. This approach is also called self-liquidating approach.
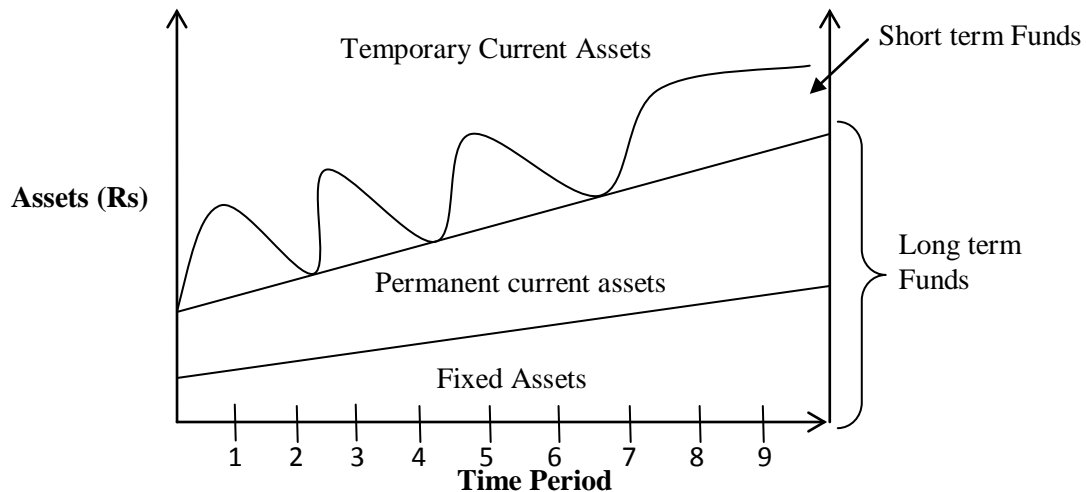
Figure-5: Moderate financing policy

2.2.6 Goals on Working Capital Management (Hampton, 1998)

The firm's policies for managing its working capital should be designed to achieve three goals.

a) Adequate Liquidity

If a firm lacks sufficient cash to pay its bills when due, it will experience continual problems. The most important goal is to achieve liquidity for conducting day-to-day operations.

b) Minimization of Risk

In selecting its sources of financing payables and other short-term liabilities may involve relatively low cost. The firm must ensure that these near term obligations do not become expensive compared to the current assets on hand to pay them. The matching of assets and liabilities among current account is a task of minimizing the risk of being unable to pay bills and others.

c) Contribution on Maximizing Firm's Value

The firm holds working capital for the same purpose as any other assets, which are to maximize the present value of common stock and value of the firm. It should not hold idle cash any more than it should have idle fixed assets. The investment of excess cash, minimizing of inventories, seedy collection of receivables and elimination of unnecessary and costly short-term financing all contribute for maximization of the firm's value.

2.2.7 Adequacy of Working Capital

The proper functioning of business operation will be ensured only when the management would maintain the right amount of working capital on continuous basis. Both excessive and as well as inadequate working capital positions are dangerous from the firm's point of view which is reflected below (Pandey , 1999:825)

The dangers of excessive working capital are:

  i. It results in unnecessary accumulation of inventories. Thus, chances of inventory mishandling, waste, theft and losses increase.
 ii. It is an indication of defective credit policy and stock collection period. Consequently, higher incidence of bad debts results, which adversely affects profit.
iii. Excessive working capital makes management co-placement, which degenerates into managerial inefficiency.
 iv. Tendencies of accumulating inventories tend to make speculative profit grow. This may tend to make dividend policy liberal and difficult to cope with in future when the firm is unable to make speculative profits.

The dangers of inadequate working capital

  i. It stagnate growth. It becomes difficult for the firm to undertake profitable projects for non-availability of working capital funds.
 ii. It becomes difficult to implement operating plans and achieve the firm's profit target.
iii. Operating inefficiencies creep in when it becomes difficult even to meet day-to-day commitments.
 iv. Fixed assets are not efficiently utilized for the lack of working capital funds. Thus, the firm's profitability would deteriorate,
  v. Paucity of working capital funds render the firm unable to avail attractive credit opportunities etc.
 vi. The firm loses its reputation when it is not in a position to honor its short-term obligations.

2.3 LITERATURE REVIEW

2.3.1 Review of Articles/Journals

Different analysts have approached Working Capital Analysis in different ways. A review/ of these approaches is important in order to develop an approach that can be employed in the context of selected organization. Various Articles, journals, bulletins have been reviewed.

Prof. Dr. Manohar K. Shrestha (1983) in his study has conducted an empirical observation of ten-selected PEs. He has focused on the liquidity, turnover and profitability position of sampled enterprises. He also states that the managers often lack basic knowledge of working capital and its overall impact on the operative efficiency and financial viability of public enterprise. In his analysis, he focused that four PEs had maintained sufficient liquidity position, two PEs is excessive and the remaining four had failed to maintain desirable liquidity position. On the turnover side, two PEs had negative working capital turnover, four had adequate turnover, one had high turnover and the remaining three had not satisfactory turnover on net working capital. He has also found that out of ten PEs, six were operating in losses while only four were getting same percentage of profit. Based on Prof. Dr. Mohan K. Shrestha has brought certain policy issues such as lack of suitable financial planning, negligence towards working capital management, deviation between liquidity and turnover of assets and inability to show positive relationship between turnover and return on net working capital. He has also suggested the measures to overcome above policy issues like identification of needed funds, regular checks, and development of management information system, positive attitude toward risk and profit and determination of right combination of short term and long term sources of funds to finance working capital.

Prof. Radhe Shyam Pradhan and Kundan Dut Koirala (1983) had jointly published a article on 'Working Capital Management in Nepalese Corporation'. This article aims to find out the difficulties, problems and importance to current assets management and also aims to find the motive for holding cash and inventory. They have focused on evaluation of the working capital position of selected manufacturing and non Manufacturing Corporation of Nepal. They have sampled five manufacturing and six non-manufacturing public enterprises. This study is concentrated on the size of investment, trend of investment and need to control the investment in current assets, significance of current assets management. Major findings of this study are as follows:

1. Investment in total assets had declined over a period of time in both manufacturing and non-manufacturing corporations. However, the manufacturing companies had consistently more investment in cash and receivable as compared to non- manufacturing corporations.

2. Management of working capital was more difficult than that of fixed capital. They found the high level of inventory in manufacturing ones.

3. Inventory management was a great significance in manufacturing corporations and the management of cash and receivable was a great significance in non- manufacturing corporations.

4. The major motive for holding cash in Nepalese corporation was to provide a reserve for routine not outflows of cash to keep on the production process and sales.

Prof. R. S. Pradhan (1988) published an article on "the demand for working capital by Nepalese Corporations". For the analysis he had selected nine manufacturing public corporations with the 12 years data from 1973 to 1984. In earlier studies concerning the demand for cash and inventories by business firms didn't report unanimous findings. A lot of controversies exist with respects to the presence of economies of sales, role of capital cost, capacity utilization rate and the speed with which actual cash and inventories are adjusted to describe cash and inventories respectively. The pooled regression result shows that the demand for working capital and its components is a function of both sales and their capital cost.

Dr. K. Acharya (1985) has published his article regarding 'Problems and implements in the management of working capital in Nepalese enterprise'. He has described operational and organizational problems as a two major problems faced by the Nepalese PEs regarding working capital management. In his study, it has been found that the gross efficiency exists in the operation of public enterprise. He states- most of the Nepalese enterprises has misunderstood the management of working capital as the management of money, and mangers are found conscious about receiving money rather than its efficient utilization. Thus, existing problems in the finance are mostly directed toward the management of working capital rather than in any area. Lack of regular evaluation of financial result as well as regular internal and external audit system, most of PEs being unable to present their capital requirements with proper justifications, functioning of finance department was not satisfactory, some PEs are facing the problem of under utilization of capital.

He has stressed on high cost of production, which have left their PEs in less secured position. He further added that the cost reduction is only possible reassure for smooth operation and long-term existence of the public enterprises in Nepal. The cost reduction program is highly associated with the optimization of working capital. Increase of Current liabilities than current assets, not following the current ratio 2:l, slow inventory in PEs, change in working capital in relation to fixed capital had very low impacts over the profitability. PE have not followed the conventional proportional of debt to equity as 1:1, very thin transmutation of capital employed into sales, absent or inefficient information management system, ineffective use of performance evaluation tools and techniques, and working capital management has never been considered as a managerial job. He has suggested avoiding the system of crisis decision, which prevailed frequently in the operation and also to strictly follow the set system and method of decision making to achieve set objective.

Joseph A. Mauriello (1962) has presented the article on "Working capital concept". This article proposes a simple yet comprehensive restatement of principles with respect to current assets and current liabilities. The working capital is measure of liquidity of a concern, working capital is as important to management as a measure of the fluidity of capital and as an indicator of balance in the assets and liability structure in the company. Banks and the other short-term creditors are vitally interested in the amount of working capital from the standpoint of evaluating the prospect of repayment of their claims against the company.

Md. Sayaduzzaman (2006) explains that the efficiency of working capital management of British American Tobacco Bangladesh Company Ltd. is highly satisfactory due to the positive cash inflows, planned approach in managing the major elements of working capital. Applications of multi-dimensional models of current assets mix may have positive impact on the continuous growth & development of this multinational enterprise. This depends on co-operation of the stakeholders and business environment in the context of globalization.

M. A. Zariyawati, M. N. Annuar, H. Taufiq, A.S. Abdul Rahim (2009) presented in their paper that the Working Capital has always been disregarded in financial decision making since it involve investment and financing in short term period. However, it is an important component in firm financial management decision. An optimal working capital management is expected to contribute positively to the creation of firm value. To reach optimal working capital management firm manager should control the tradeoff between profitability and

liquidity accurately. The intention of their study was to examine the relationship between working capital management and firm profitability. Cash conversion cycle is used as a measure of working capital management. The study reveals that reducing cash conversion period results to profitability increase. Thus, in purpose to create shareholder value, firm manager should concern on shorten of cash conversion cycle till optimal level is achieved.

Dr. D. Mukhopadhyay in his study recommends that the management should follow the principles of "THREE Es" to manage liquidity, solvency, profitability, survival and growth of the business. Following are the messages of "THREE Es":
(i) E1 stands for Economy i. e. at what minimum cost it can produce the goods.
(ii) E2 stands for Efficiency i. e. to do the thing right and finally
(iii) E3 represents Effectiveness i.e. to do the right thing only.
Working Capital Management should not be treated as an isolated management function but it is the part and parcel of overall corporate management functions and impact of corporate management policy and strategy effects working capital management practice of the firm. It is thus necessary to work out and analyze cause-effect relationship of every function of the management to assess its impact on the working capital management.

Vedavinayagam Ganesan (2007) in his study has analyzed that the working capital management efficiency of firms from telecommunication equipment industry. The relationship between working capital management efficiency and profitability is examined using correlation and regression analyses. Using a sample of 443 annual financial statements of 349 telecommunication equipment companies covering the period 2001-2007, this study found evidence that even though the working capital is negatively related to the profitability, it is not significantly impacting the profitability of firms in telecommunication equipment industry.

Fred Shelton (2002) in his study points out the use of working capital in construction industry. An understanding of working capital is crucial to understanding and analyzing the financial position of construction contractors. Shelton explains that working capital, an important liquidity indicator, has historically been a major benchmark of the surety and credit-granting institutions. In today's environment, because of the tight bond and credit markets, both institutions are scrutinizing the amount and quality of working capital more than ever. The

fewer resources that need to be invested in working capital, after recognizing liquidity risk, the better.

2.3.2 REVIEW OF THESIS

Few previous thesis relating to working capital analysis were reviewed for the study.

Mr. Ramesh Manandhar (December 2006) has carried out a study on "Working Capital Management of Manufacturing Companies listed in NEPSE". For this study he had selected five manufacturing companies of Nepal for five years (2057/5/-2061/62). The selected companies' were-Unilever Nepal Limited, Bottlers Nepal Limited, Nepal Lube Oil Limited, Shree Bhrikuti Pulp and Paper Limited and Gorakhkali Rubber Udhyog Limited. The main objective of the study was to understand the working capital policy followed by manufacturing companies and its influence on liquidity and profitability position. He had also focused on the issues and gaps in working capital management of listed manufacturing companies. Besides this the study also tried to know the impact of sales and net profit on working capital and to assess the relationship of working capital, sales and net profit.

The major findings of the study are as follows:

- The liquidity position of most of the manufacturing companies is weak and is below the standard level. The overall position of manufacturing companies is hardly covering short-term liabilities by short-term assets.

- The most of the manufacturing companies are moving downwards financially due to lack of specific investment in current assets in long run and unavailability of sources of financing.

- The overall profitability of the Nepalese manufacturing companies is negative due to excessively loss in some companies in comparison to profit of other companies. And some are facing from huge loss due to administrative negligence, unskilled manpower, unsystematic handling of raw material etc.

- Most of the companies are not being able to fully utilize the working capital due to the higher variation and lower turnover ratio.

- The productivity power of assets is not satisfactory and profitability on sales is also negative.

- Credit terms and standards are too much liberal in Nepalese manufacturing companies.

Mr. R. Manandhar has forwarded some suggestion and recommendation for the improvement. Due to the maximum fluctuation in working capital and to overcome it he has suggested to determine certain proportion from component of current assets in order to manage working capital in future. According to his findings, management should compulsorily formulate the working capital plan and policy for effective working capital management. Inventory is the major component of current assets. It should be kept adjustable to sales and production and should reduce the problems of over stock. Definite credit and collection policy should be adopted for effective management of working capital. Cash is important part of working capital management and there should be minimization of cost, better synchronization of cash flow, slow disbursement. Target sales and production plan should be prepared beforehand to overcome the problem of perpetual loss situation. The overall manufacturing companies are in loss position. The management should give attention towards the minimization of administrative and operating expenses. They should give attention to manpower planning, over staffing and suggested to hire only competent staff. He has focused to employ modern tools and techniques of financial analysis to improve effectiveness. Management of information system should be developed within and outside the analysis for effective flow of necessary and corrected information.

Mr. Uttam Kumar Mahato (November 2006) has carried out a study on "Working Capital Management of Nepal Lever Limited". The main objective of his study was to analyze the working capital policy and trade off between liquidity and profitability of Nepal Lever Limited for five year (2000/21-2004/05). He has used financial tools, correlation coefficient as statistical tools as the major tools for his analysis. Nepal Lever Limited has affiliation with Mother Company, which is out of the kingdom. It imports various raw materials from different countries so company total current assets and total current liabilities are always high. In his study, he found that all the components of Current assets of Nepal Lever Limited are highly fluctuating. The CA/FA is highly fluctuating in increasing trend. The ratio indicates the investment in current asset is greater than fixed assets. From this it can he said that the company has adopted more conservative current assets investment policy, which indicates that there is no clear vision about the investment in current assets to fixed assets. Inventory and miscellaneous current assets is covering largest portion of total current assets.

The level of maintaining largest inventory should be reduced. In this regard management is advised to improve its marketing policy and should be integrated with credit policy, which has high influence on sales. Inventory turnover, receivable turnover, total assets turnover cash and bank balance turnover ratios are quite fluctuating. This shows that Nepal Lever Limited is taking high risk. In general its correlation coefficient of liquidity ratio and net profit margin is significant. The significant relationship between liquidity and net profit margin implies that there is tradeoff between liquidity and profitability. The specific financing policy should be fixed to avoid the risk related liquidity of the company.

Nepal Lever Ltd is facing the problem to manage its tax provision due to the changeable economic policy and strategies of the country. Due to the company marketing scenario of this modern business age and globalization concept the company is making outflow of their goods in credit and eventually facing great problem in collection of debtors. Nepal Lever Ltd is still following aggressive working capital management policy which increases the risk of the company to achieve high gain. It helps to achieve business goal by wealth maximizing of the shareholders.

Bishnu Prasad Aryal has carried out study on "A Study on Working Capital Management of Nepal Telecommunication Corporation 2002"'. The major objectives of this study were to know how far NTC is able to utilize its current assets properly. He has used various financial tools for his calculation to fulfill his objectives. He has found that the size of working capital affects the tradeoff between risk and profitability of NTC. His analysis showed that there is a high liquidity in corporation. Main current assets of the corporation are cash and bank balance, account receivable, and inventory, miscellaneous current assets. Cash and bank balance holds large amount of current assets. He has found that the company has used long-term fund to finance in working capital and it has followed conservation financing policies. In addition, he has found that the company has reduced external financing by using its internal fund. The current assets with respect to total assets and net sales are in increasing trend. According to him, this increment is due to the high investment on current assets.

The turnover ratio of the company sales have been increasing year after year but increment in sales is lower than increment of working capital. Therefore, he has notified that the company has the lack of efficient management. He has observed that the profitability position of NTC is not satisfactory because of low return in comparison to the investment in current assets.

The liquidity condition of the company is favorable. According to him, large proportion of the fund has been used in current assets. He has suggested that the company should optimize its liquidity position, concentrated in the collection period. Again, he has given advice to apply in cash management for the optimal cash balance and excess cash can be invested in marketable securities.

Pathak P.K (1994) has carried out a study on "An Evaluation of Working capital Management of Nepal Lube Oil Limited (NLOL)". The main objective of his study is to apprise the working capital management of NLOL and to study the relationship between sales and different variables of working capital. To achieve these objectives, he has taken five - year study period and applied the secondary data. He has used ratio analysis, Karl Pearson coefficient of correlation and t-test as a major tool for the analysis and findings.

Anil Kumar Agrawal carried out a study on "Working Capital Management of Cigarette Industry in Nepal with special reference to Janakpur Cigarette Factory". The main objective of his study was to evaluate the performance of management of working Capital of JCF. He had carried his study on the basis of data covered from 2050/2051 to 2059/60. He has adopted the financial techniques like ratio analysis, trend analysis, and funds flow analysis and cash conversion cycle.

2.4 RESEARCH GAP
Working Capital is the controlling nerve centre for any type of organization. It is more important for the manufacturing company like Janakpur Cigarette Factory Limited.

At present many changes have taken place in our country. There have been drastic changes in economical and political situation of the country and has followed the policy of liberalization, privatization and globalization. As a result, every business organization is also affected. Many more companies have been established after the changes and many more studies have been conducted. These previous studies on this topic may not coordinate with the present scenario. Therefore, it is necessary to bring out new fresh study on working capital management of trading business to suggest the possible ways for the improvement of this sector.

The objective of this study is to analyze the financial position in relation to working capital management of Janakpur Cigarette Factory Limited, policy of working capital that are adopted by the organization and finding out the impact of working capital management in liquidity and profitability of the company. To achieve their objective, researchers have tried to see the Working Capital from different angles using different statistical and financial tools. Thus to fulfill this gap between previous and present scenario, this research work has been undertaken.

CHAPTER-III
RESEARCH METHODOLOGY

Research methodology is the process of arriving to the solution of the problem through planned and systematic dealing with collection, analysis and interpretation of facts and figure. It is a way to systematically solve the research problem. It may be misunderstood as a science of studying how research is done scientifically. In this we study the various steps that are generally adopted by a researcher in studying the research problem along with the logic behind them. It is inquiry into any subject matter, which is an endeavor to discover or find out valuable fact, which would be useful for future application or utilization. (Micheal, 2002). A systematic research study needs to be followed to achieve predetermined objectives.

The main objective of this study is to measure the degree of financial soundness and performance of Janakpur Cigarette Factory Limited i.e. analyzing the working capital analysis. This chapter includes the entire research methodology used and followed in the study. It includes research design, nature and sources of data, data processing procedures, and financial and statistical tools analysis.

3.1 Research Design

Research design is the arrangement of the condition for the collections and analysis of data in a manner that aims to combine relevance to the research purpose. It can be defined as the plan, structure and strategy of investigation concerns so as to answer the research questions and to control variants. It is the overall operational pattern of framework of the project that stipulates what information to be collected, from which sources and by what procedures. Thus, it is not possible for the researcher to conduct a research work without a research design. In this study, descriptive as well as analytical research approach is followed to analyze the present structure, constraints and future potentiality of Janakpur Cigarette Factory Limited. The research also includes various financial, statistical and qualitative aspects and these aspects are described in detail where it is necessary.

3.2 Nature and Sources of Data

Nature and Sources of Data plays a vital role on research work. Without proper information and data, research study cannot be made effective. Here, the research is based on secondary

data. The most of the study is based upon the secondary data provided by the organization. The secondary data are collected from journals, booklets, balance sheet published, official records, previous literatures etc.

3.3 Data processing Procedure

Data processing procedure depends upon one's study. Here, secondary data collection procedures are applied. Secondary data are collected directly from the organization, mainly from its office located at Janakpur, annual reports, bulletins, journals, booklets and unpublished official records and also from web site of finance ministry of Nepal. And some are collected from different library including Central Library, TU, RRM Campus Library and Mibhawan Campus library. The collected secondary data are properly arranged, tabulated and computed in accordance with the requirement of the study

3.4 Tools and Techniques of Analysis

Financial as well as the statistical tools are used to make the analysis more convenient, reliable and, authentic. For data analysis, different items from the balance sheet and other statements are tabulated. Their ratios, means, standard deviation, and coefficient of correlations of different variables, regression analyses are then calculated and presented in the tables. Likewise, trend analysis is also used to know the trend of various ratios. Following are the brief introduction of the financial and statistical tools used in the study:

I. Financial Tools

The most widely used tool for the financial analysis is the ratio analysis. Ratio analysis is a widely used tool for financial analysis which establishes the numerical or quantitative relationship between two items i.e. variables form the financial statement. It helps to ascertain the financial condition of the organization. The management may be able to judge their financial stability by using various ratios. With the help of the financial ratio calculation, the organization could easily know the financial situation, performance and take suitable and corrective actions to relieve from arising problems. The ratios are simply calculated by dividing one component to another to show their corresponding relationship with each other. Following are the financial ratios, which can be analyzed to determined financial position of an organization:

i. Current Assets to Total Assets Ratio

This ratio measures what percentage of company's total assets is invested in the form of current assets. In other words it indicates what percentage of the company's total assets are current assets. It is calculated as follows:

$$\text{Current Assets to Total Asset Ratio} = \frac{\text{Current Assets}}{\text{Total assets}}$$

Higher ratio indicates decrease in the risk and profitability of the company as it holds sound working capital position. But a high ratio gives the business freedom to adapt to changing circumstances.

ii. Current Assets to Fixed Assets Ratio

This ratio represents the relationship between the current assets and fixed assets. It can be calculated by using following formula:

$$\text{Current Assets to Fixed Assets Ratio} = \frac{\text{Current Assets}}{\text{Fixed Assets}}$$

If the ratio is greater than 1, it represents more investment in current assets than fixed assets. If the ratio equals to 1, it represents the equal proportion of current assets and fixed assets.

iii. Cash and Bank Balance to Total Assets Ratio

This ratio shows the portion of cash and bank balance in Total assets. It is calculated by using following formula:

$$\text{Cash and Bank Balance to Total Assets} = \frac{\text{Cash and Bank Balance}}{\text{Total Assets}}$$

Here, increase in the ratio would decrease both risk and return.

iv. Cash and Bank Balance to Current Assets Ratio

This ratio measures the relationship between cash and bank balance to current assets i.e. it shows the portion of cash and bank balance in current assets. It is calculated by following formula:

$$\text{Cash and Bank Balance to Total Assets} = \frac{\text{Cash and Bank Balance}}{\text{Current Assets}}$$

Higher the ratio, the more liquid will be the current assets group. A large ratio may be taken as a sign of poor cash management. The low ratio indicates the sound management and higher ratio vice versa. The working capital of organization is directly affected by it.

v. Inventory to Current Assets Ratio

This ratio indicates the relationship of inventory to current assets i.e. it represents the portion of inventories to current assets. It is calculated by using following formula:

$$\text{Inventory to Current Assets Ratio} = \frac{\text{Inventory}}{\text{Current Assets}}$$

Higher ratio measures greater part of current assets occupied by the inventory (blocking of material in stock). It indicates the weak working capital management of the company.

vi. Inventory to Total Assets Ratio

This ratio indicates the relationship of inventory to total assets i.e. it represents what percentage of total assets is in the form of inventories. It is calculated by using following formula:

$$\text{Inventory to Total Assets Ratio} = \frac{\text{Inventory}}{\text{Total Assets}}$$

Higher ratio measures greater part of total assets occupied by the inventory (blocking of material in stock). It indicates the weak working capital management of the company.

Liquidity Position

Liquidity ratio is used to measure the firm's ability to meet the short-term obligation. The consequences of inadequate short term liquidity are very serious and therefore measures of such liquidity have been attached greater importance. Net Working Capital itself is one of the measures of determining liquidity. An enterprise with more net working capital is considered to be more liquid than one with less net working capital.

i) Current Ratio

Current Ratio is the relationship between current assets and current liabilities. The current ratio measures a firm's liquidity position i.e. the ability to meet current obligation. It shows the short-term solvency and financial strength of the firm. It measures the extent to which short-term assets cover the claims of short-term creditors. It indicates the availability of current assets for every unit of current liability. It can be calculated by using following formula:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

The standard measurement of current ratio is 2:1. If the current assets are two times of current liabilities i.e. 2: l, there will be no adverse effect on daily operation. If the ratio is less than 2,

the difficulties may arise while paying current liabilities. If the ratio is more than 2, it is very comfortable for the creditors but on the other hand it indicates the idle fund in business that does not produce return.

ii) Quick Ratio

Quick Ratio helps to test the ability of the firm to make immediate payment of current liabilities. Not all the current assets are equally liquid, the inventory and prepaid expenses cannot be termed to be a liquid assets. It can be calculated by using following formula:

$$\text{Quick Ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

Where, Quick Assets = Current Assets – Inventory, Prepaid expenses

Generally, the quick ratio of 1:1 is considered to be ideal for any business organization.

Profitability Position

Profitability ratio measures the efficiency of the organization. It indicates the degree of success in achieving desired profit. Various profitability ratios are calculated to measure the operating efficiency of the business enterprises. Through profitability ratios, the investors and lenders can decide whether to invest in a particular business is good or not. In addition, the adequate return, to its shareholders also depends on profitability. Generally, the profitability position of the company is analyzed with the help the following ratios.

i) Return on Total Assets Ratio (ROA)

This ratio measures the overall profitability of all financial resources invested in the firm's assets. It is calculated as follows:

$$\text{ROA} = \frac{\text{Net profit after tax}}{\text{Sales}}$$

Here, higher ratio indicates the better utilization of the total assets and high efficiency of the company.

ii) Return on Current Assets Ratio

This ratio helps to analyze the earning power of the current assets of the company. It measures the effective utilization of current assets. It is calculated by using following formula:

$$\text{Return on Current Assets Ratio} = \frac{\text{Net profit after tax}}{\text{Net sales}}$$

iii) Gross Profit Margin Ratio

The gross profit margin ratio expresses the relationship between gross profit and sales. It indicates the productivity and efficiency of the organization. It is calculated as:

$$\text{Gross profit Margin ratio} = \frac{\text{Gross profit}}{\text{Net sales}}$$

Where Gross Profit = Net sales - Cost of Goods sold.

A high gross profit margin ratio indicates better profitability position and also implies ratio that the firm is able to produce at low cost. A low gross profit margin may reflect higher cost of goods sold due to the firm's inability to purchase goods at favorable terms.

iv) Net Profit Margin Ratio

This measures the relationship between net profit and sales of the enterprise. It measures the overall profitability of firm's ability to earn net profit. It is calculated by following formula:

$$\text{Net profit margin Ratio} = \frac{\text{Net profit after tax}}{\text{Net sales}}$$

Higher ratio indicates the overall efficiency of the firm and better utilization of total resources. Lower ratio indicates the poor financial planning and low efficiency of the firm.

Turnover Ratio

Funds are invested in various assets in a business to make sales and to earn profit from it. The efficiency with which assets are managed directly affects the volume of sales. Thus an activity ratio measures the efficiency or effectiveness with which a company manages its resources or assets. These ratios are called turnover ratio. The relationship between sales and assets are indicated by the turnover ratios. It is also known as efficiency of the business concern in inventory management. The higher turnover ratio indicates better utilization of assets. Thus it measures the degree of effectiveness in use of resources by firm. Following are the turnover ratio calculated in the study:

i)   Current Assets Turnover Ratio

This ratio shows the relationship between current assets and sales. It indicates the number of times the average current assets are turned over during a year. It shows how far the company can effectively utilize its current assets. It is calculated by using following formula:

$$\text{Current Assets Turnover Ratio} = \frac{\text{Sales}}{\text{Current Assets}}$$

Higher turnover ratio shows the efficient utilization of current assets. It reflects the adequacy of current assets. Lower ratio indicates greater volume of working capital.

ii) Inventory Turnover Ratio

The inventory turnover ratio measures how quickly inventory can be converted into sales. It is the test of efficient inventory management. It establishes the relationship between cost of goods sold during the given period and average amount of inventory for the period. It can be calculated by using following formula:

$$\text{Inventory Turnover Ratio} = \frac{\text{Net Sales}}{\text{Average Inventory}}$$

Where,

$$\text{Average Inventory} = \frac{\text{Operating stock} + \text{Closing stock}}{2}$$

High inventory turnover ratio indicates the good inventory management of the company. Whereas lower inventory turnover ratio shows excessive inventory levels and suggests the management to manage its inventory properly.

iii) Net Working Capital Turnover Ratio

This ratio shows the number of times the working capital is turned over during a year. It is calculated as:

$$\text{Net Working Capital Turnover Ratio} = \frac{\text{Net Sales}}{\text{Net working Capital}}$$

Where, Net Working Capital = Current Assets - Current Liabilities
Here, higher net working capital turnover ratio indicates effective utilization of working capital.

iv) Cash and Bank Balance Turnover Ratio

This ratio shows the number of times the average cash balance is turned over during a year in relation to its sales. Generally, it measures how rapidly cash can be converted into sales. It is calculated as:

$$\text{Cash Turnover Ratio} = \frac{\text{Net Sales}}{\text{Cash and bank balance}}$$

The higher ratio indicates how cash is rapidly converted into sales and shows company's good cash management. The lower ratio indicates slow, weak cash management.

v) Total Assets Turnover Ratio

This ratio shows the relationship between sales and total assets. This ratio indicates how much total assets is being used to generate sales. It can be calculated by using following formula:

$$\text{Total assets Turnover Ratio} = \frac{\text{Net Sales}}{\text{Total Assets}}$$

Higher ratio indicates the effective utilization of total assets and vice versa.

II. Statistical Tools

With the help of statistical tools, we can measure the relationship between two or more variable. In this study the following statistical tools are used:

i) Mean

It is the most popular and widely used to present the given data. The value is obtained by adding together all the items and by dividing its total by the number of items. It represents the entire data, which lies almost between the two extremes. It can be calculated by using following formula:

$$\text{Mean}(\bar{x}) = \frac{\Sigma x}{N}$$

Where,

Σx = Sum of values of all term

N = number of terms

ii) Standard Deviation

The standard deviation is an important and widely used measure of dispersion. The standard deviation measures the absolute dispersion (or variability) of distribution. The measurement of the scatterness of the mass of figures in a series about in an average is known as dispersion. The high amount of dispersion reflects high standard deviation where as lower standard deviation means a high degree of uniformity of the observation as well as homogeneity of the observations. It is denoted by Sigma (σ). It can be calculated as:

Standard deviation S.D $(\sigma) = \sqrt{\dfrac{\sum(x - \bar{x})}{N}}$

Where, x = value of observation

$\bar{x}$ = Mean of observation

N = Number of observation

iii) Coefficient of Correlation

The Coefficient of Correlation measures the degree of relationship between two sets of figure. Coefficient of correlation analysis is the statistical tools generally used to describe the degree to which one variable is linearly related to other variables. But it does not study about the cause and effect relation. The result of coefficient of correlation must lie between +1 and -1.

There are different types of measures to study the correlation between the variables. Here, Karl Pearson's Correlation coefficient is used to find out the relationship between the variables of Janakpur Cigarette Factory Limited.

$$r = \dfrac{\sum xy}{\sqrt{x^2}\sqrt{y^2}}$$

Where, x = the first variable

y = the second variable

N= No. of observations

The Correlation (r) must always lies between +1 and -1. Thus +1 and -1 are the limits of coefficient.

If r = +1, the relationship is perfectly positive

If r = -l, the relationship is perfectly negative

If r = 0, there is no relationship between the variable

Lf r < 0, there is negative relationship between the variable

If r > 0, there is positive relationship between the variable

iv) Probable Error (P.E)

The probable error of the correlation coefficient is applicable for the measurement of reliability of the computed value of the correlation coefficient. It also enables us to find the limits within which 'r' is expected to lie. It is denoted by P.E.

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

Where, r = correlation of coefficient

       N = number of observations

The probable error is used to test whether the calculated value of correlation is significant or not. If r < 6P.E, the value of 'r' is not significant so, there is no evidence of correlation

If r> 6 P.E, the value of 'r' is significant, i.e ., correlation is certain

v) Trend analysis

A trend analysis or a time series is a sequence of observation of variable made at regular points or intervals of time and arranged in chronological order. Trend Analysis is an analysis of financial ratio over time used to determine the improvement of determination of its financial situation. Time series analysis is one of the quantitative methods used to determine patterns in data collected over time. It helps to forecast the future behavior of variables under the study, which is essential for business and economic planning. It also helps to evaluate the present accomplishment by comparing the actual performance with the expected performance and analyze the clause of variation. For future estimation or prediction, management can use the information which are gathered from the past behavior data. Such data are collected, observed or recorded at successive intervals of time.

There are many methods for analyzing the trend. Among them least square method is used in this study for trend analysis. The least square method is used to fit a straight line trend to forecast the trend value of future. The straight line trend is represented by the equation:

$\hat{Y}$= a + bx

Where, $\hat{Y}$ = Trend Value of Y variable

      b= slope of the trend line

      x = Time i.e. independent variable

      a = Y intercept

The following two simultaneous equation has to be solved to find out the value of a and b and then only trend equation estimation can be done.

$\Sigma y = na + b\Sigma x$

$\Sigma xy = n\Sigma x + b\Sigma x^2$

$$a = \frac{\Sigma y}{N}$$

$$b = \frac{\sum xy}{\sum x^2}$$

In this study trend analysis of Working Capital, Sales, Cash and Bank Balance, Net Profit after Tax are analyzed.

vi) Regression Analysis

Regression analysis is used as a tool of determining the strength of relationship between two variables. It is a statistical tool with the help of which we can estimate or predict the value of one variable when the value of other variable is known. The unknown variable which we have to be predicted is called dependent variable and the variable whose value is known is called independent variable. The analysis used to describe the average relationship between two variables is known as simple liner regression analysis. In other words it indicates the cause and effect relationship between two variables.

If x and y are two variables, the algebraic expression of regression equations are called regression equation of y on x which describe the variation in the value of y for given change in the value of x.

Regression equation of y on x is given by:

$\hat{Y}$= a + bx --------------- (i)

Where,

Y = dependent variable

x = Independent variable

a = Value of y when x = 0

b = regression coefficient of y on x

In other words, a and b are constants to be determined to find the position of the line completely. The parameters a and b of equation is obtained by solving the normal equation of least square method:

$\Sigma y = na + b\Sigma x$ ----------------(ii)

$\Sigma xy = a\Sigma x + b\Sigma x^2$ -------------(iii)

Where, n= no. of years

By solving the equations (ii) and (iii), we get 'a' and 'b'. Substituting the values of a and b in equation (i) or (ii), we get the equation of line of regression of y on x.

vii) Standard Error of the Estimate

Standard error of the estimate is a measure of the accuracy of predictions made with a regression line. Here, smaller the values of the standard error of estimate, greater will be the accuracy of the estimated values. If standard error of estimate is zero then the estimated values coincides with the actual values. In this case, all the data points would lie directly on the regression line, and no pints would scattered around it. Thus, with the help of the standard error of estimate, it is possible to ascertain how good and representative the regression is to describe a relationship between two variables. It can be calculated by using following formula:

$$\text{Standard error of estimate for regression (SE reg)} = \sqrt{\frac{\sum(Y - \hat{Y})^2}{n - 2}}$$

viii) Coefficient of Determination

Coefficient of determination measures how well the line fits the data. In other words it is simply the squared value of the correlation coefficient. It tells what proportion of the variation between the data points is explained or accounted for by the best fit line fitted to the points. It indicates how close the points are to the line.

CHAPTER-IV
PRESENTATION AND ANALYSIS OF DATA

4.1 Introduction

As mentioned in introductory chapter, the main objective of this study is to analyze the working capital management of Janakpur Cigarette Factory Limited. To achieve the set objective, data are presented and analyzed. The major variables for this study are current assets, current liabilities, total assets, sales, inventory, and net working capital. It includes composition of net working capital, relationship between current assets to total assets as well as fixed assets, liquidity position, profitability position, turnover position, correlation analysis, trend analysis, regression analysis. Simply presenting the variables is not sufficient; so various financial and statistical tools have been used for further analysis.

4.2 Composition of Working Capital

Management of working capital is a crucial aspect of financial management that determines to a large extent the success and failure of an organization. The effective analysis of working capital enables management to detect trend and take corrective measure. For day-to-day operation of business activities, working capital is needed. Different kinds of assets are required such as current assets, fixed assets, tangible and intangible goods. The composition of working capital of Janakpur Cigarette Factory Limited is analyzed below:

4.2.1 Position of Current Assets

Business Organization requires long-term as well as short-term resources. Utilization of resources plays vital role on success or failure of any business. In order to run day-to- day business activities more efficiently, appropriate level of current assets (gross working capital) should be maintained. The requirement of current assets depends upon the nature and size of business. Current assets should be properly managed to achieve set objective. If it is not properly managed, the set objective to earn maximum profit and ultimately shareholders wealth cannot be achieved. If the firm increases the proportion of current assets, there is high profitability return as well as risk.

The position of current assets of Janakpur Cigarette Factory Limited during five year, FY 2005/06 - 2009/10 are as follows:

Let's assume the FY 2005/06 as 100 in index to find out the percentage change we get,

Table-1: Position of Current Assets

Fiscal Year (FY)	Current Assets (million rupees)	Index	% Change
2005/2006	309.8	89.84919	_
2006/2007	327.6	95.01	5.16
2007/2008	318.3	92.31	-2.70
2008/2009	280.3	81.29	-11.02
2009/2010	219.5	63.66	-17.63
Total	1455.5		

(Source: balance sheet of JCF)

The above table shows the position of Current Assets of Janakpur Cigarette Factory Limited. The position of Current assets is in decreasing trend up. But in FY 2006/07, the amount has increased by 5.16% We can observe in FY 2009/10, there has been decrement in the amount of Current Assets by -17.63% and has reached to 219.5 million rupees as compared to FY 2005/2006 which had 309.8 million rupees.
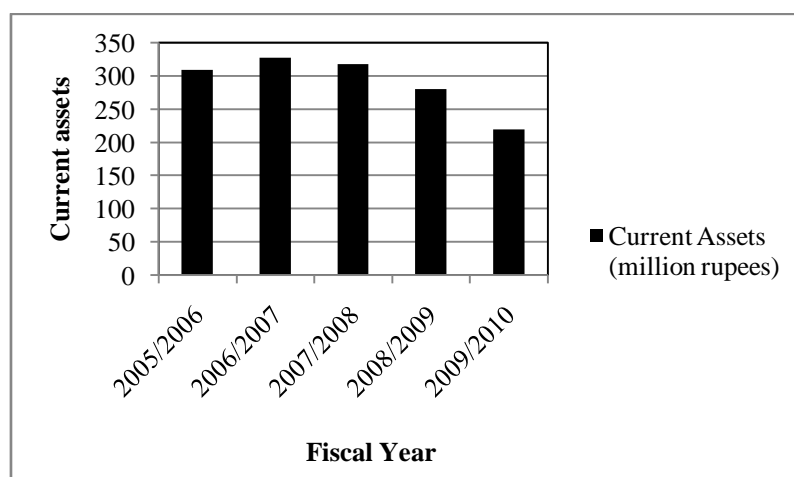
Figure-6: Position of Current assets

Above Bar diagram clearly shows the position of Current Assets during FY 2005/06 - 2009/10. It has a fluctuating trend initially but has a gradual decline in the later years. From above analysis we can see that the current assets hold larger portion of total assets.

4.2.2 Position of Current Liabilities

The Current Liabilities are those obligations, which have to be paid within an accounting year. It comprises trade creditors, account payable, short-term bank loans, and outstanding expenses. The short-term current assets and current liabilities are collectively known as Working Capital. For instance, without cash, bills cannot be paid, without receivable the firm

cannot allow timing difference between delivering goods or services and collecting the money to pay them. Following table shows the position of current liabilities of Janakpur Cigarette Factory Limited for the five-year period from FY 2005/06 - FY 2009/10. Let's assume the FY 2005/06 as 100 in index to find out the percentage change we get,

Table-2: Position of Current Liabilities

Fiscal Year (FY)	Current Liabilities (million rupees)	Index	% Change
2005/2006	291.4	162.520915	_
2006/2007	281.3	156.887897	-5.63
2007/2008	230.7	128.667038	-28.22
2008/2009	251.3	140.156163	11.49
2009/2010	213.5	119.074177	-21.08
Total	1268.2		

(Source: balance sheet of JCF)

Above table shows the position of current liabilities for the five-year study period. The position of current liabilities has a fluctuating trend. In FY 2005/06 it is 291.4 million and has declined to 230.7 million rupees by a change of -28.22% in FY 2007/08 and has again increased by 11.49% in FY 2008/09 and has declined by -21.08% in FY 2009/10 and has reached to 213.5 million rupees.
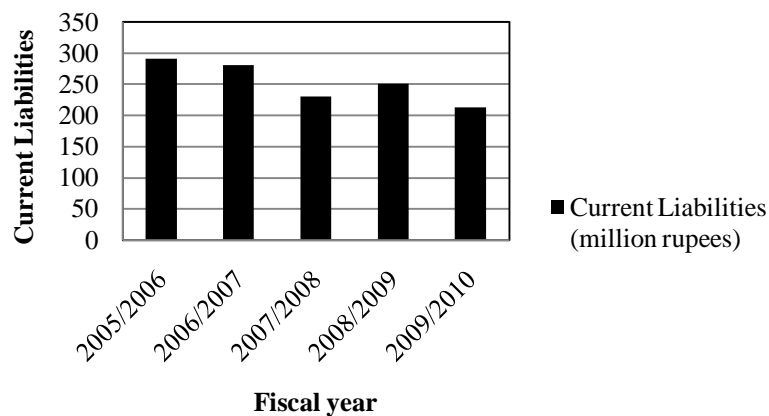
Figure-7: Position of current liabilities

4.2.3 Proportion of Current Assets to Total Assets

The need of Current Assets depends upon the nature and size of the business. It is required to meet the working capital, which is required to run the day-to-day operation of the business. If the firm increases the proportion of Current assets, there is high profitability of return as well as risk and vice versa. The following table shows the proportion of Current Assets to Total Assets:

Table-3: Proportion of Current Assets to Total Assets

Fiscal Year (FY)	Current Assets (million rupees)	Total Assets (million rupees)	Ratio	% change
2005/2006	309.8	359	0.86	_
2006/2007	327.6	377.5	0.87	1
2007/2008	318.3	364.1	0.87	1
2008/2009	280.3	328.4	0.85	-2
2009/2010	219.5	259.5	0.85	-1
Total	1455.5	1688.5		
Average	291.1	337.7	0.86	

(Source: balance sheet of JCF)

The above table illustrates the ratio of Current Assets to Total Assets of Janakpur Cigarette Factory Limited. It represents the proportion of current assets investment to total assets investment. During the study period, the proportion of current assets to total assets is almost constant. In FY 2005/06 the ratio is 0.86 and it has increased to 0.87 in FY 2006/07. It has again decreased to 0.85 in the later two years. The average ratio of current assets to total assets is 0.86. It shows that the Janakpur Cigarette Factory Limited holds relatively large amount of current assets in total assets. From this analysis we can say that the organization has adopted relaxed current assets investment policy and which also gives the business freedom to adapt to changing circumstances.

4.2.4 Current Assets to Net Fixed Assets

Every organization should properly invest in Current Assets and Fixed Assets to support a particular level of output. The organization should determine the proper proportion of Current Assets with Fixed Assets. The level of Current Assets can be measured by relationship between current assets to fixed assets, which can help to understand the current assets investment policy of the organization.

Assuming a constant level of Fixed assets higher current assets to fixed assets ratio indicates an aggressive current assets policy, lower ratio indicates a conservative current assets policy. The two goals of financial management, profitability and liquidity are directly linked with the management of current assets. With a decrease in the volume of current assets, the profitability increases but the liquidity declines and vice versa. The following table shows the proportion of Current Assets to Net Fixed Assets:

Table-4: Proportion of Current Assets to Net Fixed Assets

Fiscal Year (FY)	Current Assets (million rupees)	Fixed Assets (million rupees)	Ratio	% change
2005/2006	309.8	49.2	6.30	_
2006/2007	327.6	49.9	6.57	4
2007/2008	318.3	45.8	6.95	6
2008/2009	280.3	48.1	5.83	-16
2009/2010	219.5	40	5.49	-6
Total	1455.5	233		
Average	291.1	46.6	6.23	

(Source: balance sheet of JCF)

From above table we can see the ratio of current assets to fixed assets is decreasing during the study period. It varies from 6.95 to 5.49 times. In FY 2005/06, investment in current assets is 6.3 times higher than that of fixed assets. It increases to 6.95 in FY 2007/08, which is the highest one during the five years period. But in FY 2006/07, there has been increase in the ratio by 4% and has reached to 6.57 times. In FY 2007/08, there has been slight increment in the ratio and has increased by 6% than that of previous year. In FY 2008/09, there is a decrement by -16% and the ratio has reached to 5.83 But in FY 2009/10, there has been decrement in the ratio and has reached to 5.49 times. The changes are due to the more investment in current assets in comparison to Fixed assets. The average ratio is 6.23. It shows that the investment in current assets is higher than that of fixed assets.

4.2.5 Inventory to Current Assets Ratio

Inventory is the stock of the product a company holds for the sale. The shortage of inventory may hamper the sales. So, the optimum position of inventory should be maintained. This ratio indicates the relationship of inventory to current assets i.e. it represents the portion of inventories to current assets. Table-5 shows the proportion of inventory to current assets of Janakpur Cigarette Factory Limited from FY 2004/05-2008/09.

Table-5: Inventory to Current Assets Ratio

Fiscal Year (FY)	Inventory (million rupees)	Current Assets (million rupees)	Ratio	% change
2005/2006	115.3	309.8	0.37	_
2006/2007	117.6	327.6	0.36	-4
2007/2008	102.2	318.3	0.32	-11
2008/2009	118.2	280.3	0.42	31
2009/2010	90	219.5	0.41	-3
Total	543.3	1455.5		
Average	108.66	291.1	0.38	

(Source: balance sheet of JCF)

Inventory to current assets ratio is 0.37 in FY 2005/06 and has been gradually decreasing and has reached to 0.32 times in FY 2007/08 and it has decreased by -11%. But in FY 2008/09 the ratio has been increased to 0.42. This analysis shows that the company has started adopting the policy to hold optimum level of inventory. The average inventory to current assets ratio is 0.38. It shows the inventory holds greater portion of current assets, which indicates idle cash. The level of maintaining largest inventory level should be reduced.

4.3 Liquidity Position

4.3.1 Current Ratio

Current Ratio measures the Firm's liquidity position i.e. ability to meet current obligation. It indicates the availability of current assets for every unit of current liabilities. The current ratio of Janakpur Cigarette Factory Limited is presented in the following table:

Table-6: Current Ratio

Fiscal Year (FY)	Current Assets (million rupees)	Current Liabilities (million rupees)	Ratio
2005/2006	309.8	291.4	1.06
2006/2007	327.6	281.3	1.16
2007/2008	318.3	230.7	1.38
2008/2009	280.3	251.3	1.12
2009/2010	219.5	213.5	1.03
Total	1455.5	1268.2	
Average	291.1	253.64	1.15

(Source: balance sheet of JCF)

The current ratio is acceptable if it is 2:1. The above table shows that the company average current ratio is 1.15:1 which shows that the company does not have enough current assets to meet its current obligations. During all the study period, the ratio is lower than 2:1 which shows the difficulty of the company to meet its obligation.

4.3.2 Quick Ratio

Quick ratio establishes a relationship between quick or liquid assets and current liabilities. Quick ratio helps to test the ability of the Firm to make immediate payment of current liabilities. Not all the current assets are equally liquid, the inventory and prepaid expenses

cannot be termed to be a liquid assets. The following table shows the Quick ratio of Janakpur Cigarette Factory Limited.

Table- 7: Quick Ratio

Fiscal Year (FY)	Quick Assets (million rupees)	Current Liabilities (million rupees)	Ratio
2005/2006	195.238	179.3	1.09
2006/2007	210.975	291.4	0.72
2007/2008	214.551	281.3	0.76
2008/2009	160.832	230.7	0.70
2009/2010	130.235	251.3	0.52
Total	911.831	1234	
Average	182.3662	246.8	0.74

(Source: balance sheet of JCF)

Quick ratio includes cash and bank balance, sundry debtors, advance and deposit. The quick ratio is considered as perfect when the ratio is 1:1. Here, the average quick ratio is 0.7, which shows the difficulty of the company to pay immediate payment of its current liabilities. FY 2005/06 shows the highest ratio i.e. 1.09 times than other year. But the ratio has been fluctuating below 1:1 from FY 2006/07 to FY 2009/10 and has reached to 0.52. So this shows the unfavorable condition to make immediate payment.

4.4 Profitability Position

Profitability ratio measures the efficiency of the organization. It indicates the degree of success in achieving desired profit. Various profitability ratios are calculated to measure the operating efficiency of the business enterprises. Through profitability ratios, the investors and lenders can decide whether to invest in a particular business is good or not .In addition, the adequate return, to its shareholders also depends on profitability. Generally, the profitability position of the companies is analyzed with the help the following ratios.

4.4.1 Return on Total Assets

Return on total assets ratio shows the relationships between the total assets and the net profit after tax. It measures the percentage of return on overall total assets employed for every activities of the company. It gives the profit earning efficiency of the company with relation to total assets. The return on total assets of Janakpur Cigarette Factory Limited is as follows:

Table-8: Return on Total Assets

Fiscal Year (FY)	Net profit after tax (million rupees)	Total Assets (million rupees)	Ratio
2005/2006	9.1	359	0.03
2006/2007	-90	377.5	-0.24
2007/2008	-154.5	364.1	-0.42
2008/2009	-150.4	328.4	-0.46
2009/2010	-500.9	259.5	-1.93
Total	-886.7	1688.5	
Average	-177.34	337.7	-0.61

(Source: balance sheet of JCF)

The above table shows the relation between net profit after tax with total assets from FY 2005/06-2009/10. The average ratio is -0.61, which indicates that the company is not able to gain return on total assets employed. FY 2005/06 shows the highest ratio during the study period with 0.03 where company has employed 359 million of total assets. But from FY 2006/07, the ratio has been gradually decreasing and has reached to -1.93 in FY 2009/10. From above analysis it is clear that the company is in loss and is not able to gain net profit after tax. Hence the overall return on total assets employed is not productive.

4.4.2 Return on Current Assets

This ratio helps to analyze the earning power of the current assets of the company. It measures the effective utilization of current assets. The table-9 shows the relationship between the current assets and net profit after tax of Janakpur Cigarette Factory Limited from FY 2005/06-FY 2009/10. In FY 2005/06, employed current assets of 309.8 million have created 9.1 million of net profit with the ratio of 0.03, which is the highest one during the study period. But from FY 2006/07 the ratio has been gradually decreasing and has reached to -2.28 in FY 2009/10.

Table-9: Return on Current Assets

Fiscal Year (FY)	Net profit after tax (million rupees)	Current Assets (million rupees)	Ratio
2005/2006	9.1	309.8	0.03
2006/2007	-90	327.6	-0.27
2007/2008	-154.5	318.3	-0.49
2008/2009	-150.4	280.3	-0.54
2009/2010	-500.9	219.5	-2.28
Total	-886.7	1455.5	
Average	-177.34	291.1	-0.71

(Source: balance sheet of JCF)

The reason behind this is due to the negative net profit. The average ratio is of -0.71, which is very low. From this it can be said that the overall return employed on current assets in not productive.

4.4.3 Net Profit Margin Ratio

Net Profit Margin measures the overall profitability of firm's ability to earn net profit. It establishes a relationship between net profit and sales and indicates management efficiency in manufacturing, administering, and selling product. Following table shows the net profit margin of Janakpur Cigarette Factory Limited.

Table-10: Net Profit Margin Ratio

Fiscal Year (FY)	Net profit after tax (million rupees)	Sales (million rupees)	Ratio
2005/2006	9.1	1088.3	0.01
2006/2007	-90	966.563	-0.09
2007/2008	-154.5	960.884	-0.16
2008/2009	-150.4	893.217	-0.17
2009/2010	-500.9	377.6	-1.33
Total	-886.7	4286.564	
Average	-177.34	857.3128	-0.35

(Source: balance sheet of JCF)

The above table shows the relationship between the net profits after tax to sales during the FY 2005/06 to 2009/10. In FY 2005/06 the ratio is 0.01 times which the highest one during the study period is. But from FY 2006/07 the ratio has been gradually decreasing and has reached to -1.33 times in FY 2009/10. The average ratio is -0.35, which is very low. It indicates that the company has poor financial planning and low efficiency.

4.5 Turnover Position

The relationship between sales and assets are indicated by the turnover ratios. It is also known as efficiency of the business concern in inventory management. The higher turnover ratio indicates better utilization of assets. Thus it measures the degree of effectiveness in use of resources by firm. Following are the turnover ratio calculated in the study:

4.5.1 Current Assets Turnover Ratio

Current Assets turnover ratio shows the relationship between current assets and sales. This turnover ratio indicates the management's efficiency in overall management of current assets.

It is calculated by dividing net sales by total current assets. Following table shows the position of current assets turnover ratio from FY2005/06- FY2009/10:

Table-11: Current Assets Turnover Ratio

Fiscal Year (FY)	Sales (million rupees)	Current Assets (million rupees)	Ratio
2005/2006	1088.3	309.8	3.51
2006/2007	966.563	327.6	2.95
2007/2008	960.884	318.3	3.02
2008/2009	893.217	280.3	3.19
2009/2010	377.6	219.5	1.72
Total	4286.564	1455.5	
Average	857.3128	291.1	2.88

(Source: balance sheet of JCF)

In above table, the current, assets turnover ratio is almost constant in the initial years. It is in the range of 3. But in FY 2009/10 there is a drastic decrease to 1.72. Here the average ratio is 2.88 times. Since the ratio is nearly constant, the management is has shown an ability to effectively maintain the overall management of current assets.

4.5.2 Inventory Turnover Ratio

Inventory is very important part of current assets. It should be maintained effectively and efficiently. The inventory turnover ratio measures how quickly inventory can be converted into sales. It is the test of efficient inventory management. Thus actual liquidity position of the company cannot be measured without measuring the liquidity of inventories. So, inventory turnover ratio has been used to measure the liquidity financing. Higher inventory turnover ratio indicates the higher degree of liquidity and vice-versa. Following table shows the inventory turnover position of Janakpur Cigarette Factory Limited from FY2005/06- FY2009/10:

Table-12: Inventory Turnover Ratio

Fiscal Year (FY)	Sales (million rupees)	Inventory (million rupees)	Ratio
2005/2006	1088.3	115.3	9.44
2006/2007	966.563	117.6	8.22
2007/2008	960.884	102.2	9.40
2008/2009	893.217	118.2	7.56
2009/2010	377.6	90	4.20
Total	4286.564	543.3	
Average	857.3128	108.66	7.76

(Source: balance sheet of JCF)

The above table shows the inventory turnover position is bit fluctuating during the study period. It varies from 4.2 to 9.44 times. During the study period, FY 2005/06 shows the highest ratio and it has been able to maintain a ratio of 9.44 times. FY 2009/10 shows the lowest ratio with the ratio of 4.2 times. The average ratio is 7.76 times. Since the ratio is fluctuating during the study period and in FY 2009/10 there is a drastic decrease, it can be said that the company has not been able to adopted appropriate inventory position.

4.5.3 Working Capital Turnover Ratio

Net Working Capital turnover ratio helps to analyze the efficiency of working capital management of the organization. This ratio indicates the reliability of the utilization of the resources. This indicates the number of times the working capital turnover during the accounting year. This ratio also measures the efficiency with which the working capital is being used by Janakpur Cigarette Factory Limited.

Table-13: Working Capital Turnover Ratio

Fiscal Year (FY)	Sales(million rupees)	Net Working Capital (million rupees)	Ratio
2005/2006	1088.3	18.4	59.15
2006/2007	966.563	46.3	20.88
2007/2008	960.884	87.6	10.97
2008/2009	893.217	29	30.80
2009/2010	377.6	6	62.93
Total	4286.564	187.3	
Average	857.3128	37.46	36.95

(Source: balance sheet of JCF)

The table above shows the position of working capital turnover ratio of Janakpur Cigarette Factory Limited. It can be seen that the proportion of sales to working capital is quite fluctuating. There has been a drastic decrement in the proportion of sales to working capital from 59.15 in FY 2005/06 to 20.88 in FY 2006/07. In FY 2009/10, the ratio has again increased to 62.93. Both the sales and net working capital has dropped. During the study period, the average turnover ratio is 36.95, which is high. The high value is due to drop in working capital in comparison to sales.

4.6 Statistical Analysis

4.6.1 Trend analysis or time series analysis

A trend analysis or a time series is a sequence of observation of variable made at regular points or intervals of time and arranged in chronological order. Time series analysis is one

quantitative method used to determine patterns in data collected over time. It helps to forecast the future behavior of variables under the study, which is essential for business and economic planning. It also helps to evaluate the present accomplishment by comparing the actual performance with the expected performance and analyze the clause of variation. For future estimation or prediction, management can use the information which are gathered from the past behavior data. Such data are collected, observed or recorded at successive intervals of time. There are many methods for analyzing the trend. Among them least square method is used in this study for trend analysis. The least square method is used to fit a straight line trend to forecast the trend value of future.

The straight line trend is represented by the following equation;

$\hat{Y} = a + bx$

Here, Standard error of estimate for regression is also calculated which is given by:

$$\text{Standard error of estimate for regression (SE reg)} = \sqrt{\frac{\sum(Y - \hat{Y})^2}{n - 2}}$$

It helps to decide whether the calculated trend value best fitted the liner fitted trend equation.

4.6.2 Trend Analysis of Working Capital

Trend Analysis of working capital shows the future situation of working capital position. The following table and figure shows the trend analysis of working capital of Janakpur Cigarette Factory Limited.

Table-14: Trend Analysis of Working Capital

(Rs in millions)

S.N	FY	X = Year-mid year	X²	NWC (Y)	Ŷ	(Y-Ŷ)	(Y-Ŷ)²
1	2005/2006	-2	4	18.4	45.88	-27.48	755.15
2	2006/2007	-1	1	46.3	41.67	4.63	21.44
3	2007/2008	0	0	87.6	37.46	50.14	2514.02
4	2008/2009	1	1	29	33.25	-4.25	18.06
5	2009/2010	2	4	6	29.04	-23.04	530.84
	Σ	0	10	187.3	187.3	0	3839.51

(Source: Appendix-I)

$$\text{Standard error of estimate for regression (SE reg)} = \sqrt{\frac{\sum(Y - \hat{Y})^2}{n - 2}}$$

∴SE reg = 35.77

Above table shows the trend analysis of NWC of Janakpur Cigarette Factory Limited for the five years period from FY 2005/06 to 2009/10. The trend value of Net working Capital is decreasing trend but the actual value of Net Working Capital is fluctuating. In FY 2005/06 it is 18.4 million. In FY 2007/08 the net working capital has gradually increased to 87.6 million. In FY 2008/09 it has decreased to 29 million and in 2009/10 it has dropped to 6 million.

Figure-8: Trend Analysis of Net Working Capital

In above figure, x- axis represents the fiscal year while y-axis represents the amount of net working capital. The actual value of net working capital is fluctuating. The actual net working capital line shows the increasing trend up to the year FY 2007/08 and decreasing trend from FY 2008/09 to FY 2009/10. But trend line shows the decreasing rate of net working capital throughout the study period. All the above estimated values have on an average fluctuation around the trend line by almost 35 units which indicates the linear fitted trend Y =37.46-4.21X has moderately high fluctuation.

4.6.3 Trend Analysis of Net Profit after Tax

Trend Analysis of net profit after tax shows the future situation of net profit after tax position based on the past net profit. The following table and figure shows the trend analysis of net profit after tax of Janakpur Cigarette Factory Limited.

Table-15: Trend Analysis of Net Profit after Tax

(Rs in million)

S.N	FY	X = Year-mid year	X²	NPAT (Y)	Ŷ	(Y-Ŷ)	(Y-Ŷ)²
1	2005/2006	-2	4	9.1	38.74	-29.64	878.53
2	2006/2007	-1	1	-90	-69.3	-20.7	428.49
3	2007/2008	0	0	-154.5	-177.34	22.84	521.67
4	2008/2009	1	1	-150.4	-285.38	134.98	18219.60
5	2009/2010	2	4	-500.9	-393.42	-107.48	11551.95
	Σ	0	10	-886.7	-886.7	0	31600.24

(*Source: Appendix – II*)

Standard error of estimate for regression (SE reg) $= \sqrt{\dfrac{\Sigma(Y - \hat{Y})^2}{n - 2}}$

∴SE reg = 102.63

Source: Appendix-II

The above table shows the trend analysis of Net Profit After Tax for the Five years period from FY 2005/06 to FY 2009/10. The trend value of NPAT is in decreasing trend. In FY 2005/06, it is 38.74 million and it has been decreased to -393.42 million in FY 2009/10. But the actual position of NPAT for the different year is quite fluctuating.

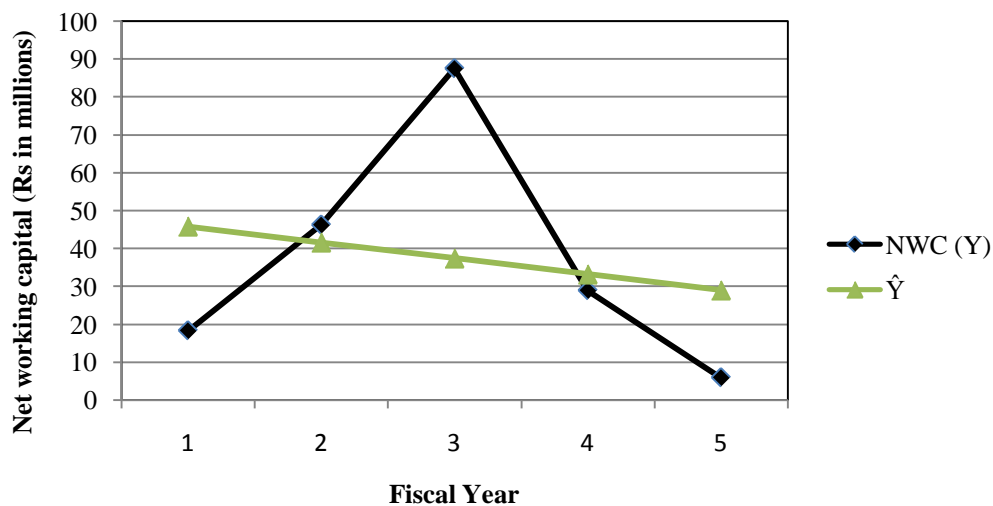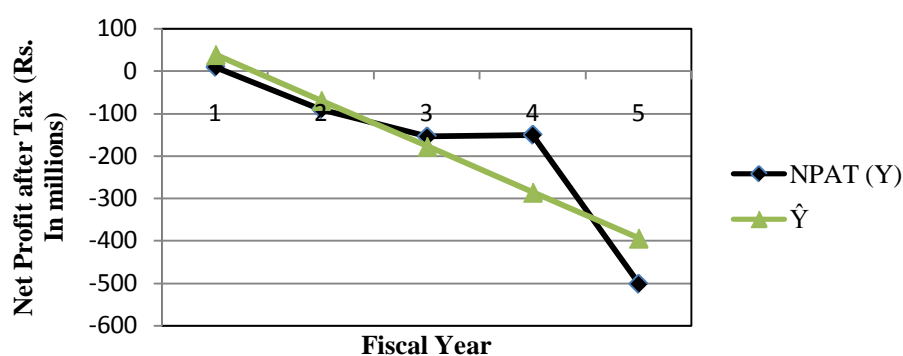

Figure-9: Trend Analysis of Net Profit After Tax

In above figure, x-axis represents the fiscal year and the y-axis represents the amount of NPAT. The above figure shows the trend value of NPAT is in decreasing trend while the actual value of NPAT is in random position. In FY 2005/06, the actual value of NPAT is 9.1 million which the highest one is and it has been decreased down to -500.9 million in FY 2009/10. The average fluctuation of the actual data around the trend line is almost 102.63. It indicates the linear fitted trend Y =-177.34-108.04X has moderately high fluctuation.

4.6.4 Trend Analysis of Sales

Every organization's main aim is to maximize the sales so as to earn maximum return from it. The following table and figure shows the prediction of the future sales position by using post data of the company.

Table-16: Trend Analysis of Sales

(In millions rupees)

S.N	FY	X = Year-mid year	X^2	Sales(Y)	$\hat{Y}$	$(Y-\hat{Y})$	$(Y-\hat{Y})^2$
1	2005/2006	-2	4	1088.3	1156.263	-67.9628	4618.94
2	2006/2007	-1	1	966.563	1006.788	-40.2248	1618.03
3	2007/2008	0	0	960.884	857.3128	103.5712	10726.99
4	2008/2009	1	1	893.217	707.8378	185.3792	34365.45
5	2009/2010	2	4	377.6	558.3628	-180.763	32675.19
	Σ	0	10	4286.564	4286.564	0	84004.61

(Source: Appendix – III)

Standard error of estimate for regression (SE reg) $= \sqrt{\dfrac{\Sigma(Y - \hat{Y})^2}{n-2}}$

$\therefore$ SE reg = 167.3366

The above table shows the trend analysis of Sales from FY 2005/06 to 2009/10. The trend value of Sales is in decreasing trend. In FY 2005/06, it is 1156.263 million and it has been decreased to 558.36 million in FY 2009/10. The actual position of Sales for the different year is almost similar to the trend line. In FY 20005/06, the actual value of sales is 1088.3 million and has decreased to 377.6 million in FY 2009/10. Here the standard error of estimate is 167.33 which is too high.
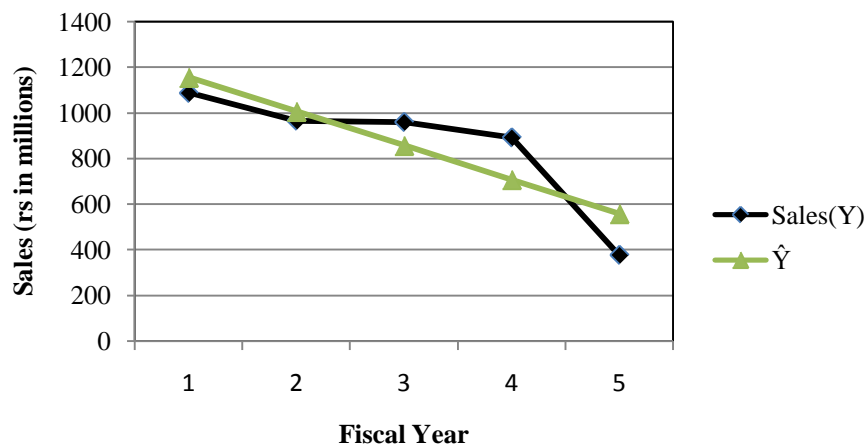
Figure-10: Trend Analysis of Sales

The above figure shows the trend analysis of Sales of Janakpur Cigarette Factory Limited. The x- axis represents the fiscal year and the y-axis represents the amount of Sales. The trend value of sales is in decreasing order.

4.7 Correlation Analysis between the Variables

The financial performance of the company is directly related to their ability to manage working capital management efficiently and effectively. The use of the financial tools was already adequate finding in showing the analysis of various variables to determine the working capital management. But to make the analysis more fruitful and weighty, certain statistical tools such as correlation analysis, probable error, and regression analysis are used to show the relationship between the following:

    i.   Current Assets and Total Assets

    ii.   Current Assets and Fixed Assets

    iii.   Current Assets and Current liabilities

    iv.   Quick Ratio

    v.   Sales and Inventory

    vi.   Working Capital and Inventory

    vii.   Net Profit After Tax .and Sales

    viii.   Net Profit After Tax and Current Assets

    ix.   Net Profit After Tax and Net Working Capital

    x.   Working Capital and Sales

4.7.1 Correlation between Current Assets and Total Assets

The correlation Coefficient between the current assets and total assets (r) = 0.62 (from appendix -IV), which shows that there is positive correlation between C.A and T.A. A positive correlation indicates the strong positive correlation between them i.e. increases in current assets increases the total assets and vice versa. To test the statistical significance of calculated correlation coefficient the probable error is calculated which is 0.185 and 6(PE)=1.113. Since, r=0.62 < 6PE=1.113, this relation implies that during the study there is positive correlation coefficient between C.A and T.A during the study period but is statistically insignificant.

4.7.2 Correlation between Current Assets and Fixed Assets

The correlation Coefficient between the current assets and fixed assets (r) = 0.861(from appendix -V), which shows that there is positive correlation between C.A and F.A. To test the statistical significance of calculated correlation coefficient the probable error PE is calculated which is 0.077 and 6(PE) is 0.46. Since, r =0.861> 6PE= 0.46, this relation shows that relationship between current assets and fixed assets is significant.

4.7.3 Correlation between Current Assets and Liabilities

The correlation coefficient between the current assets and current liabilities r = 0.69 (from Appendix VI), which shows that there is positive correlation between CA and CL. To test the statistical significance of calculated correlation coefficient the probable error PE is calculated which is 0.157 and 6(PE) is 0.942. Since, r = 0.69 < 6PE= 0.942, this relation shows that relationship between current assets and current liabilities is inconclusive.

4.7.4 Correlation of Quick ratio

The correlation coefficient between the Quick assets and current liabilities r = 0.564 (from Appendix VII), which shows that there is positive correlation between QA and CL. To test the statistical significance of calculated correlation coefficient the probable error PE is calculated which is 0.2053 and 6(PE) is 1.232. Since, r = 0.564 < 6PE= 1.232, this relation shows that relationship between Quick assets and current liabilities is inconclusive.

4.7.5 Correlation between Sales and Inventory

The correlation coefficient between the sales and inventories r = 0.816 (from Appendix VIII), which shows that there is positive correlation between sales and inventories. To test the statistical significance of calculated correlation coefficient the probable error PE is calculated which is 0.1005 and 6(PE) is 0.6032. Since, r = 0.816> 6PE= 0.6032, this relation shows that relationship between Quick assets and current liabilities is significant.

4.7.6 Correlation between Working Capital and Inventory

The correlation Coefficient between the Working Capital and Inventory (r) = 0.0865 (from appendix -IX), which is positive and it shows that there is positive correlation between Working Capital and Inventory.

To test the statistical significance or reliability of computed value of correlation coefficient, the probable error (P.E) is necessary which is 0.299 and 6(PE) is 1.796. Since r = 0.0865 <6PE =1.796, this implies though during the study period there is positive correlation between working capital and inventory, no conclusion could be derived as to statistically significant/ insignificant i.e inconclusive.

4.7.7 Correlation between Net Profit After Tax and Sales

The correlation Coefficient between the Net Profit After Tax and Sales (r) = 0.988 (from appendix -X), which is positive and it shows that there is positive correlation between Net Profit After Tax and Sales. To test the statistical significance or reliability of computed value of correlation coefficient, the probable error (P.E) is necessary which is 0.0067 and 6(PE) is 0.04. Since PE=0.0067< 6PE = 0.04 < r = 0.988 it shows that during the study period there is significant relationship between Net Profit after tax and Sales of Janakpur Cigarette Factory Limited.

4.7.8 Correlation between Net Profit After Tax and Current Assets

The correlation Coefficient between the Net Profit After Tax and Current Assets (r) = 0.894 (from Appendix -XI), which is positive and it shows that there is positive correlation between Net Profit After Tax and Current Assets. To test the statistical significance or reliability of computed value of correlation coefficient, the probable error (P.E) is necessary which is 0.06012 and 6 (PE) is 0.36. Since r= 0.894 > 6PE=0.36, it shows that during the study period the relationship between Net Profit after tax and Sales of Janakpur Cigarette Factory Limited is significant.

4.7.9 Correlation between Working Capital and Net Profit After Tax

The correlation Coefficient between the Working Capital and Net Profit After Tax (r) = 0.340(from appendix -XII), which is positive and it shows that there is positive correlation between working capital and net profit after tax. To test the statistical significance or reliability of computed value of correlation coefficient, the probable error (P.E) is necessary which 0.266 and 6 (PE) is 1.5998. Since PE=0.266< r= 0.340<6PE=1.599, this relation implies during the study period the relationship between WC and NPAT of Janakpur Cigarette Factory Limited is insignificant.

4.7.10 Correlation between Working Capital and Sales

The correlation Coefficient between the Working capital and sales (r) = 0.47(from Appendix -XIII), which shows that there is positive correlation between Sales and Inventory. To test the statistical significance or reliability of computed value of correlation coefficient, the probable error (P.E) is necessary which is 0.234 and 6(PE) is 1.408. Since PE=0.234 < r= 0.47 < 6PE =1.408, this implies though there is positive correlation between working capital and sales, no conclusion could be derived as to statistically significant / insignificant which means inconclusive.

4.8   Regression Analysis

Regression analysis studies the statistical relationship between the variables. The main objective of regression analysis is to find out the impact of one variable to another variable. It also helps to predict or estimate the value of dependent variables corresponding to a given value of independent variables

This regression analysis of Net Working Capital and Net Profit after Tax helps to find out the impact of working capital on profitability. In this regression analysis, prediction of dependent variable net profit is calculated on the basis of independent variable net working capital. Following table shows the regression equation between WC and NPAT of Janakpur Cigarette Factory Limited:

Table-17: Calculation of regression equation between WC and NPAT

Regression Equation of Y (NPAT)on X (N.W.C)	Regression Equation	Value of constant 'a'	Regression Coefficient 'b'
Y(NPAT)on X (N.W.C)	$\hat{Y}$= -254.885+2.07007x	-254.885	2.07007

Correlation test between the WC and NPAT (r) = 0.34065

Coefficient of determination, $r^2 = 0.116047$

Standard error of estimate for regression (SE reg) $= \sqrt{\dfrac{\sum(Y - \hat{Y})^2}{n - 2}}$

SE regression = 246.0032

(Source: Appendix - XIV)

Above table illustrates the impact of net working capital on net profit after tax for the five years study period. According to the above table, regression equation of net profit after tax

(Y) on net working capital (X) is $\hat{Y}$= -254.885+2.07007x. The regression coefficient 'b' between two variables is positive (2.07007) which shows the positive relationship between net profit and net working capital during the five year study period.

The standard error of estimate for regression is 246.0032 which is high and shows that NWC and NPAT are dependable due to the value of b =0.437. The coefficient of determination is 0.116047 which implies that NPAT is affected by NWC. The NWC is a determinant factor which makes change in the net profit after tax of Janakpur Cigarette Factory Limited.

4.9 Major Findings of the Study

On the basis of the interpretation and evaluation of methods of analysis, financial statements, accounting system and reports, booklets and other related materials during the study period some facts are obtained. These evaluations are pointed out as the major findings of the study:

1) Current assets of Janakpur Cigarette Factory Limited holds larger portion of the total assets. It is in decreasing trend except in FY 2006/07. In FY 2005/06, it is Rs. 309.8 million and it has been decreased to Rs.219.5 million in the FY 2009/10. This decrement in the position of current assets indicates the transaction of the company is decreasing.

2) The position of current liabilities is fluctuating which is sign of poor working capital management. It indicates that the obligation of the company which has to be paid within an accounting year has also been fluctuating.

3) Current assets of Janakpur Cigarette Factory Limited holds relatively larger portion of total assets. The average ratio of current assets to total asset is 0.86 times which shows that the company has adopted relaxed current asset investment policy.

4) The investment in current assets is higher than that of fixed assets. The average ratio is 6.23 times.

5) Inventory to current assets ratio is 0.37 in FY 2005/06 and has been gradually decreasing and has reached to 0.32 times in FY 2007/08 and it has decreased by -11%. But in FY 2008/09 the ratio has been increased to 0.42. In FY 2009/10 the ratio is 0.41. This analysis

shows that the company has started adopting the policy to hold optimum level of inventory. The average inventory to current assets ratio is 0.38. It shows the inventory holds greater portion of current assets, which indicates idle cash. The level of maintaining largest inventory level should be reduced.

6) Liquidity Position

The liquidity of the company is analyzed with current ratio and quick ratio.

i. The current ratio of Janakpur Cigarette Factory Limited is quite fluctuating. The average current ratio is 1.15:1 which shows that the company does not have enough current assets to meet its current obligations. During all the study period, the ratio is lower than 2:1 which shows the difficulty of the company to meet its obligation.

ii. The quick asset of Janakpur Cigarette Factory Limited is quite fluctuating. The average quick ratio is 0.74, which shows the difficulty of the company to pay immediate payment of its current liabilities.

7) Profitability Position

Profitability is the measure of efficiency. The profitability position of Janakpur Cigarette Factory Limited has been analyzed from various angles.

i) The average ratio of return on total assets is -0.61, which indicates that the company is not able to gain return on total assets employed. FY 2005/06 shows the highest ratio during the study period with 0.03 where company has employed 359 million of total assets. But from FY 2006/07, the ratio has been gradually decreasing and has reached to -1.93 in FY 2009/10. From above analysis it is clear that the company is in loss and is not able to gain net profit after tax. Hence the overall return on total assets employed is not productive.

ii) The average ratio of the net profits after tax to sales is -0.35, which is very low. It indicates that the company has poor financial planning and low efficiency.

8) Turnover position

i) The current assets turnover ratio is almost constant. Here the average ratio is 2.88 times. Since the ratio is nearly constant, the management is has shown an ability to effectively maintain the overall management of current assets.

ii) The inventory turnover position is bit fluctuating during the study period. It varies from 4.2 to 9.44 times. The average ratio is 7.76 times. Since the ratio is slightly fluctuating during the study period, it can be said that the company has not been able to adopted appropriate inventory position.

iii) During the study period, the average working capital turnover ratio is 36.95, which is high and is favorable. But the ratio is due to sudden decrease of working capital in comparison to sales.

9) Statistical Analysis

i) The trend value of Net working Capital is decreasing trend but the actual value of Net Working Capital is fluctuating. In FY 2005/06 it is 18.4 million. In FY 2007/08 the net working capital has gradually increased to 87.6 million. In FY 2008/09 it has decreased to 29 million and in 2009/10 it has dropped to 6 million.

ii) The trend value of NPAT is in decreasing trend. In FY 2005/06, it is 38.74 million and it has been decreased to -393.42 million in FY 2009/10. But the actual position of NPAT for the different year is quite fluctuating.

iii) The trend value of Sales is in decreasing trend. In FY 2005/06, it is 1156.263 million and it has been decreased to 558.36 million in FY 2009/10. The actual position of Sales for the different year is almost similar to the trend line. In FY 20005/06, the actual value of sales is 1088.3 million and has decreased to 377.6 million in FY 2009/10. Here the standard error of estimate is 167.33 which is too high.

iv) The correlation Coefficient between the current assets and total assets (r) = 0.62 which shows that there is positive correlation between C.A and T.A. Since, r=0.62 < 6PE=1.113, this

relation implies that during the study there is positive correlation coefficient between C.A and T.A during the study period but is statistically insignificant.

v) The correlation Coefficient between the current assets and fixed assets (r) = 0.861 which shows that there is positive correlation between C.A and F.A. Since, r =0.861> 6PE= 0.46, this relation shows that relationship between current assets and fixed assets is significant.

vi) The correlation coefficient between the current assets and current liabilities r = 0.69 which shows that there is positive correlation between CA and CL. Since, r = 0.69 < 6PE= 0.942, this relation shows that relationship between current assets and current liabilities is inconclusive.

vii) The correlation coefficient between the Quick assets and current liabilities r = 0.564 which shows that there is positive correlation between QA and CL. Since, r = 0.564 < 6PE= 1.232, this relation shows that relationship between Quick assets and current liabilities is inconclusive.

viii)The correlation coefficient between the sales and inventories r = 0.816 which shows that there is positive correlation between sales and inventories. Since, r = 0.816> 6PE= 0.6032, this relation shows that relationship between Quick assets and current liabilities is significant.

ix)The correlation Coefficient between the Working Capital and Inventory (r) = 0.0865 (which is positive and it shows that there is positive correlation between Working Capital and Inventory. Since r = 0.0865 <6PE =1.796, this implies though during the study period there is positive correlation between working capital and inventory, no conclusion could be derived as to statistically significant/ insignificant i.e inconclusive.

x) The correlation Coefficient between the Net Profit After Tax and Sales (r) = 0.988 which is positive and it shows that there is positive correlation between Net Profit After Tax and Sales. Since PE=0.0067< 6PE = 0.04 < r = 0.988 it shows that during the study period there is significant relationship between Net Profit after tax and Sales of Janakpur Cigarette Factory Limited.

xi) The correlation Coefficient between the Net Profit After Tax and Current Assets (r) = 0.894 which is positive and it shows that there is positive correlation between Net Profit After Tax and Current Assets. Since r= 0.894 > 6PE=0.36, it shows that during the study period the relationship between Net Profit after tax and Sales of Janakpur Cigarette Factory Limited is significant.

xii) The correlation Coefficient between the Working Capital and Net Profit After Tax (r) = 0.340 which is positive and it shows that there is positive correlation between working capital and net profit after tax. Since PE=0.266< r= 0.340<6PE=1.599, this relation implies during the study period the relationship between WC and NPAT of Janakpur Cigarette Factory Limited is insignificant.

xiii) The correlation Coefficient between the Working capital and sales (r) = 0.47 which shows that there is positive correlation between Sales and Inventory. Since PE=0.234 < r= 0.47 < 6PE =1.408, this implies though there is positive correlation between working capital and sales, no conclusion could be derived as to statistically significant / insignificant which means inconclusive.

xiv) The regression equation of net profit after tax (Y) on net working capital (X) is $\hat{Y}$= -254.885+2.07007x. The regression coefficient 'b' between two variables is positive (2.07007) which shows the positive relationship between net profit and net working capital during the five year study period. The standard error of estimate for regression is 246.0032 which is high and shows that NWC and NPAT are dependable due to the value of b =0.437. The coefficient of determination is 0.116047 which implies that NPAT is affected by NWC. The NWC is a determinant factor which makes change in the net profit after tax of Janakpur Cigarette Factory Limited.

CHAPTER-V

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter attempts to summarize the whole study. In this chapter, the effort has been made to present summary, conclusion, and recommend some concrete suggestions for improvement based on the analysis made.

5.1 Summary

The basic objective of this study is to examine and find out the working capital management adopted by Janakpur Cigarette Factory Limited. The specific objective of this study are (i) to evaluate the financial position in relation to working capital management of Jankpur Cigarette Factory limited (ii) to identify whether the organization is being able to adopt appropriate working capital policy (iii) to examine the impact of working capital management in liquidity and profitability of Janakpur Cigarette Factory limited.

The study has been organized into five major chapters each denotes some aspects of the study of working capital management.

The first chapters focuses on the brief introduction which cover background of the study, brief history of Janakpur Cigarette Factory limited, introduction of working capital management, purpose and objective of the study. It includes statement of problem, significance of study and its limitations.

The second chapter deals with theoretical concepts and different literature review for journals, books, dissertation which will help to provide knowledge about the development and progresses made by earlier researchers on the concerned topic. The summarization of previous literature has been done to provide knowledge about the background of the work done by earlier researcher.

In chapter three, an appropriate research methodology has been applied to fulfill the stated objectives of the study. This chapter includes research design, nature and sources of data, data processing procedure, tools and techniques used. The research design of this study is descriptive and analytical in nature. The data are collected from secondary sources. Financial

ratios such as current ratio, turnover ratio, profitability ratio, liquidity ratio have been used. Similarly, statistical tools like Karl Peat-son's coefficient, probable error, trend analysis and regression analysis have been used.

One of the most important chapters of this research is chapter four which is Presentation and Analysis of the data which have been used to present, analyze and interpret the necessary data. The necessary data are derived from balance sheet, profit and loss A/C, web site of the finance ministry for the study period of five years from FY 2004/05 - 2008/09. Besides these, primary data are collected through direct interaction, interview with the concerned person of the company. The collected data have been presented in tables, figures and comparative interpretation has been made by using various financial and statistical tools.

The size and structure of working capital are analyzed by comparing current assets and its components with different related variables. Liquidity and profitability ratios are calculated to evaluate the efficiency of working capital. Liquidity position was assessed by calculating different liquidity ratios. To find out the growth rate of working capital, sales, NPAT, cash and bank balances, the trend analysis is done. Different statistical tools like mean, standard deviation, coefficient of correlation, regression analysis to show impact of one variable to another are done for the meaningful interpretation of the data.

5.2 Conclusion

The proper management of working capital is necessary for day to day operation of every organization because it plays vital role in success and failure of the organization. Thus, the role of working capital is more significant for every business organization irrespective to their nature.

i. The working capital position has been analyzed by calculating various ratios. Janakpur Cigarette Factory limited have adopted relaxed current assets investment policy as current assets holds lager portion of total assets. In average it is 0.86 times which shows the company holds relatively large amount of current assets in total assets to support the sales level. In addition, it is clear that the company is motivated to sales by applying liberal credit policy. Similarly, investment in current assets is higher than that of fixed assets and the average ratio between current assets to fixed assets is 6.23 times. This ratio indicates that the company has adopted the conservative current assets investment policy. And also the

company has no clear vision about the investment in CAs to FAs proportion. There is positive correlation between CA and TA as well as statistically significant and there is no significant difference between variables, it could adverse effect in Janakpur Cigarette Factory limited wealth maximization goal in the long run.

ii.   Inventory management is one of the important parts of current assets. So far as liquidity is concerned, inventory is lease liquid current assets in itself. It should be maintained effectively and efficiently. It absorbs 0.38 times of current assets in average. It shows the inventory holds greater portion of current assets, which indicates idle cash. The level of maintaining largest inventory level should be reduced.

iii. The liquidity position of Janakpur Cigarette Factory Limited is not satisfactory. The current ratio of is quite fluctuating. The average current ratio is 1.15:1 which shows that the company does not have enough current assets to meet its current obligations. During all the study period, the ratio is lower than 2:1 which shows the difficulty of the company to meet its obligation. Similarly the quick asset of Janakpur Cigarette Factory Limited is also fluctuating. The average quick ratio is 0.74, which shows the difficulty of the company to pay immediate payment of its current liabilities.

iv.   The overall profitability position of Janakpur Cigarette Factory limited is not satisfactory. There is no return on total assets. The average ratio of return on total assets is -0.61, which indicates that the company is not able to gain return on total assets employed. FY 2005/06 shows the highest ratio during the study period with 0.03 where company has employed 359 million of total assets. But from FY 2006/07, the ratio has been gradually decreasing and has reached to -1.93 in FY 2009/10. From above analysis it is clear that the company is in loss and is not able to gain net profit after tax. Hence the overall return on total assets employed is not productive. The average ratio of the net profits after tax to sales is -0.35, which is very low. It indicates that the company has poor financial planning and low efficiency.

v.   The current assets turnover ratio is almost constant. Here the average ratio is 2.88 times. Since the ratio is nearly constant, the management is has shown an ability to effectively maintain the overall management of current assets. The inventory turnover position is bit fluctuating during the study period. It varies from 4.2 to 9.44 times. The average ratio is 7.76

times. Since the ratio is slightly fluctuating during the study period, it can be said that the company has not been able to adopted appropriate inventory position. During the study period, the average working capital turnover ratio is 36.95, which is high and is favorable. But the ratio is due to sudden decrease of working capital in comparison to sales. The high value is due to drop in working capital in comparison to sales. The sales and working capital both has declined.

vi. The actual value of net working capital is fluctuating and shows decreasing trend throughout the study period. The trend value of NPAT is also in decreasing trend. The actual position of NPAT is not satisfactory. The trend value of Sales is in decreasing trend too. The trend value of Net working Capital is decreasing trend but the actual value of Net Working Capital is fluctuating. In FY 2005/06 it is 18.4 million. In FY 2007/08 the net working capital has gradually increased to 87.6 million. In FY 2008/09 it has decreased to 29 million and in 2009/10 it has dropped to 6 million. The trend value of NPAT is in decreasing trend. In FY 2005/06, it is 38.74 million and it has been decreased to -393.42 million in FY 2009/10. But the actual position of NPAT for the different year is quite fluctuating. The trend value of Sales is in decreasing trend. In FY 2005/06, it is 1156.263 million and it has been decreased to 558.36 million in FY 2009/10. The actual position of Sales for the different year is almost similar to the trend line. In FY 20005/06, the actual value of sales is 1088.3 million and has decreased to 377.6 million in FY 2009/10. Here the standard error of estimate is 167.33 which is too high.

vii. The correlation Coefficient between the current assets and total assets (r) = 0.62 which shows that there is positive correlation between C.A and T.A. Since, r=0.62 < 6PE=1.113, this relation implies that during the study there is positive correlation coefficient between C.A and T.A during the study period but is statistically insignificant.

viii. The correlation Coefficient between the current assets and fixed assets (r) = 0.861 which shows that there is positive correlation between C.A and F.A. Since, r =0.861> 6PE= 0.46, this relation shows that relationship between current assets and fixed assets is significant.

ix. The correlation coefficient between the current assets and current liabilities r = 0.69 which shows that there is positive correlation between CA and CL. Since, r = 0.69 < 6PE=

0.942, this relation shows that relationship between current assets and current liabilities is inconclusive.

x. The correlation coefficient between the Quick assets and current liabilities r = 0.564 which shows that there is positive correlation between QA and CL. Since, r = 0.564 < 6PE= 1.232, this relation shows that relationship between Quick assets and current liabilities is inconclusive.

xi. The correlation coefficient between the sales and inventories r = 0.816 which shows that there is positive correlation between sales and inventories. Since, r = 0.816> 6PE= 0.6032, this relation shows that relationship between Quick assets and current liabilities is significant.

xii. The correlation Coefficient between the Working Capital and Inventory (r) = 0.0865 (which is positive and it shows that there is positive correlation between Working Capital and Inventory. Since r = 0.0865 <6PE =1.796, this implies though during the study period there is positive correlation between working capital and inventory, no conclusion could be derived as to statistically significant/ insignificant i.e inconclusive.

xiii. The correlation Coefficient between the Net Profit After Tax and Sales (r) = 0.988 which is positive and it shows that there is positive correlation between Net Profit After Tax and Sales. Since PE=0.0067< 6PE = 0.04 < r = 0.988 it shows that during the study period there is significant relationship between Net Profit after tax and Sales of Janakpur Cigarette Factory Limited.

xiv. The correlation Coefficient between the Net Profit After Tax and Current Assets (r) = 0.894 which is positive and it shows that there is positive correlation between Net Profit After Tax and Current Assets. Since r= 0.894 > 6PE=0.36, it shows that during the study period the relationship between Net Profit after tax and Sales of Janakpur Cigarette Factory Limited is significant.

xv. The correlation Coefficient between the Working Capital and Net Profit After Tax (r) = 0.340 which is positive and it shows that there is positive correlation between working capital and net profit after tax. Since PE=0.266< r= 0.340<6PE=1.599, this relation implies

during the study period the relationship between WC and NPAT of Janakpur Cigarette Factory Limited is insignificant.

xvi. The correlation Coefficient between the Working capital and sales (r) = 0.47 which shows that there is positive correlation between Sales and Inventory. Since PE=0.234 < r= 0.47 < 6PE =1.408, this implies though there is positive correlation between working capital and sales, no conclusion could be derived as to statistically significant / insignificant which means inconclusive.

xvii. The standard error of estimate for regression of NWC is 246.0032 which is high and shows that NWC and NPAT are dependable due to the value of b =0.437. The coefficient of determination is 0.116047 which implies that NPAT is affected by NWC. The NWC is a determinant factor which makes change in the net profit after tax of Janakpur Cigarette Factory Limited.

Thus, the company cannot neglect the working capital management because it is very essential and the most important aspect of financial management having great impact on risk and profitability of the company. The top level management of the company should be very much sensitive and responsible for the better management of working capital. So the top level management should have proper working capital policy as well as appropriate management.

5.3 Recommendation

Based on the analysis and findings of the study, following recommendations are forwarded for the improvement of the working capital management of Janakpur Cigarette Factory limited.

1. Improve Current and Fixed Assets Policy

Janakpur Cigarette Factory limited should set the standard for the ration of C.A to F. A. It has not any clear vision about the management of CAs and FAs. Thus, the management should have proper plan to improve its profitability in future.

2. Effective Inventory Management

Inventory plays a great role in working capital management. Effective inventory plan is helpful for keeping the inventory level adjustable to sales and production and reduce the

problem of stock piling. From the above analysis it was found that inventory holds the highest portion of CA during the study period. This increases the cost of company which indicates the idle cash. The company should keep the inventory adjustable to sales. Management should adopt effective inventory control technique in order to control inventory in accordance with their value and importance. Stock should be controlled and categorized on the basis of its value and investment.

3 . Improve Turnover Position

It is found that current assets turnover, net working capital turnover is very low. Lower turnover indicates the inefficient utilization of assets. So, to increase company turnover position, the company must utilize their assets effectively. Adequate turnover of company increases profit and performance level. Thus management of the company should focus their attention to maximize their turnover position. Similarly, the company should focus on maintaining the fixed level of working capital to achieve high volume of sales.

4. Effective working capital plan and policy

There is maximum fluctuation in working capital holding of the company. From this, it can be analyzed that the company is not following certain working capital policy. The management should determine certain proportion for the component of current assets in order to manage working capital in future. Therefore, Janakpur Cigarette Factory limited should formulate compulsory working capital plan and policy to maintain working capital in certain level. And it is also suggested to adopt appropriate working capital policy by which it can increase its profit level instead of loss. Appropriate working capital policy helps to maintain adequate liquidity position in the company.

5. Improve Financial Planning

The return on total asset and current asset is not productive at all, the company is in loss. Management should develop effective policy to generate maximum return on total assets employed. There is no profit. This indicates that the company has poor and less effective financial planning.

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Appendix –I

Trend Analysis of Net Working Capital

(Rs in million)

FY	X = Year-mid year	X^2	NWC (Y)	Ŷ	(Y-Ŷ)	(Y-Ŷ)^2
2005/2006	-2	4	18.4	45.88	-27.48	755.15
2006/2007	-1	1	46.3	41.67	4.63	21.44
2007/2008	0	0	87.6	37.46	50.14	2514.02
2008/2009	1	1	29	33.25	-4.25	18.06
2009/2010	2	4	6	29.04	-23.04	530.84
Σ	0	10	187.3	187.3	0	3839.51

To calculate the trend analysis, we have to solve the following equation which is given

Ŷ= a + bx

Finding the value of a and b,

$a = \frac{\sum Y}{N} = 37.46$

$b = \frac{\sum XY}{\sum X^2} = -4.21$

n = 5

Standard error of estimate for regression (SE reg) $= \sqrt{\frac{\sum(Y - \hat{Y})^2}{n - 2}}$

∴SE reg = 35.77

Trend Analysis of Net Profit after Tax

(Rs in million)

FY	X = Year-mid year	X^2	NPAT (Y)	$\hat{Y}$	$(Y-\hat{Y})$	$(Y-\hat{Y})^2$
2005/2006	-2	4	9.1	38.74	-29.64	878.53
2006/2007	-1	1	-90	-69.3	-20.7	428.49
2007/2008	0	0	-154.5	-177.34	22.84	521.67
2008/2009	1	1	-150.4	-285.38	134.98	18219.60
2009/2010	2	4	-500.9	-393.42	-107.48	11551.95
Σ	0	10	-886.7	-886.7	0	31600.24

To calculate the trend analysis, we have to solve the following equation which is given

$\hat{Y}$= a + bx

Finding the value of a and b,

$a = \frac{\Sigma Y}{N}$ = -177.34

$b = \frac{\Sigma XY}{\Sigma X^2}$ = -108.4

n = 5

Standard error of estimate for regression (SE reg) $= \sqrt{\dfrac{\Sigma (Y - \hat{Y})^2}{n - 2}}$

$\therefore$ SE reg = 102.6324

Trend Analysis of sales

(In millions rupees)

S.N	FY	X = Year-mid year	X^2	Sales(Y)	$\hat{Y}$	(Y-$\hat{Y}$)	(Y-$\hat{Y}$)^2
1	2005/2006	-2	4	1088.3	1156.263	-67.9628	4618.94
2	2006/2007	-1	1	966.563	1006.788	-40.2248	1618.03
3	2007/2008	0	0	960.884	857.3128	103.5712	10726.99
4	2008/2009	1	1	893.217	707.8378	185.3792	34365.45
5	2009/2010	2	4	377.6	558.3628	-180.763	32675.19
	Σ	0	10	4286.564	4286.564	0	84004.61

To calculate the trend analysis, we have to solve the following equation which is given

$\hat{Y}$= a + bx

Finding the value of a and b,

$a = \frac{\sum Y}{N} = 857.3128$

$b = \frac{\sum XY}{\sum X^2} = -149.475$

n = 5

Standard error of estimate for regression (SE reg) $= \sqrt{\dfrac{\Sigma(Y - \hat{Y})^2}{n - 2}}$

$\therefore$ SE reg = 167.336

Appendix –IV

Fiscal Year	Current Assets(X)	x = (X-$\bar{X}$)	Fixed Assets	Total Assets(Y)	y = (Y-$\bar{Y}$)	x^2	y^2	xy
Correlation between Current Assets and Total Assets						(Rupees in million)		
2005/2006	309.8	18.7	49.2	359	-68.7	349.69	4719.69	-1284.69
2006/2007	327.6	36.5	499.9	827.5	399.8	1332.25	159840	14592.7
2007/2008	318.3	27.2	45.8	364.1	-63.6	739.84	4044.96	-1729.92
2008/2009	280.3	-10.8	48.1	328.4	-99.3	116.64	9860.49	1072.44
2009/2010	219.5	-71.6	40	259.5	-168.2	5126.56	28291.24	12043.12
	1455.5	0	683	2138.5	0	7664.98	206756.4	24693.65

Mean CA ($\bar{X}$)) =($\sum$X/N) = 291.1

Mean TA ($\bar{Y}$) =($\sum$Y/N) = 427.7

Standard deviation of CA (σ) = $\sqrt{(1/n\sum(X-\bar{X})^2}$= 39.15349282

Standard deviation of TA (σ) = $\sqrt{(1/n\sum(Y-\bar{Y})^2}$= 203.3501512

Correlation between current assets and total assets, r = $\sum xy/(\sqrt{\sum x^2} \sqrt{\sum y^2})$ =   0.620298

Probable error(PE) = 0.6745(1-r^2)/$\sqrt{N}$=   0.18558158

6PE = 1.113489477

Appendix V

						(Rupees in millions)	
Correlation between Current Assets and Fixed Assets							
Fiscal Year	Current Assets(X)	$x = (X-\bar{X})$	Fixed Assets(Y)	$y = (Y-\bar{Y})$	x^2	y^2	xy
2005/2006	309.8	18.7	49.2	2.6	349.69	6.76	48.62
2006/2007	327.6	36.5	49.9	3.3	1332.25	10.89	120.45
2007/2008	318.3	27.2	45.8	-0.8	739.84	0.64	-21.76
2008/2009	280.3	-10.8	48.1	1.5	116.64	2.25	-16.2
2009/2010	219.5	-71.6	40	-6.6	5126.56	43.56	472.56
	1455.5	0	233	-7.10543E-15	7664.98	64.1	603.67

Mean CA $(\bar{X}) = (\sum X/N) = $ 291.1

Mean FA $(\bar{Y}) = (\sum Y/N) = $ 46.6

Standard deviation of CA $(\sigma) = \sqrt{(1/n\sum(X-\bar{X})^2} = $ 39.15349282

Standard deviation of FA $(\sigma) = \sqrt{(1/n\sum(Y-\bar{Y})^2} = $ 3.580502758

Correlation between current assets and Fixed assets, $r = \sum xy/(\sqrt{\sum x^2} \sqrt{\sum y^2}) = $ 0.861222

Probable error(PE) $= 0.6745(1-r^2)/\sqrt{N} = $ 0.077914096

6PE $= $ 0.467484578

Appendix VI

	Current		Current				
	Correlation between Current Assets and Current Liabilities					(Rupees in million)	
Fiscal Year	Assets(X)	$x = (X-\bar{X})$	Liabilities(Y)	$y = (Y-\bar{Y})$	x^2	y^2	xy
2005/2006	309.8	18.7	291.4	37.76	349.69	1425.818	706.112
2006/2007	327.6	36.5	281.3	27.66	1332.25	765.0756	1009.59
2007/2008	318.3	27.2	230.7	-22.94	739.84	526.2436	-623.968
2008/2009	280.3	-10.8	251.3	-2.34	116.64	5.4756	25.272
2009/2010	219.5	-71.6	213.5	-40.14	5126.56	1611.22	2874.024
	1455.5	0	1268.2	5.68434E-14	7664.98	4333.832	3991.03

Mean CA $(\bar{X}) = (\sum X/N) =$ 291.1

Mean CL $(\bar{Y}) = (\sum Y/N) =$ 253.64

Standard deviation of CA $(\sigma) = \sqrt{(1/n\sum(X-\bar{X})^2)} =$ 39.15349282

Standard deviation of CL $(\sigma) = \sqrt{(1/n\sum(Y-\bar{Y})^2)} =$ 29.44089673

Correlation between current assets and Current liabilities,

$$r = \sum xy/(\sqrt{\sum x^2} \sqrt{\sum y^2}) = 0.69245801$$

Probable error(PE) $= 0.6745(1-r^2)/\sqrt{N} =$ 0.157007094

6PE = 0.942042562

Appendix VII

Correlation between Quick Assets and Current Liabilities							(Rupees in million)
Fiscal Year	Quick assets (X)	x = (X-$\bar{X}$)	Current Liabilities(Y)	y = (Y-$\bar{Y}$)	x^2	y^2	xy
2005/2006	195.238	12.8718	291.4	37.76	165.6832	1425.818	486.0392
2006/2007	210.975	28.6088	281.3	27.66	818.4634	765.0756	791.3194
2007/2008	214.551	32.1848	230.7	-22.94	1035.861	526.2436	-738.319
2008/2009	160.832	-21.5342	251.3	-2.34	463.7218	5.4756	50.39003
2009/2010	130.235	-52.1312	213.5	-40.14	2717.662	1611.22	2092.546
	911.831	5.68E-14	1268.2	5.68E-14	5201.392	4333.832	2681.976

Mean QA ($\bar{X}$) =($\sum$X/N) =   182.3662

Mean CL ($\bar{Y}$) =($\sum$Y/N) =   253.64

Standard deviation of QA (σ) = $\sqrt{(1/n\sum(X-\bar{X})^2}$=   32.25335

Standard deviation of CL (σ) = $\sqrt{(1/n\sum(Y-\bar{Y})^2}$=   29.4409

Correlation between Quick assets and Current liabilities, r = $\sum xy/(\sqrt{\sum x^2} \sqrt{\sum y^2})$ =   0.564884

Probable error(PE) = $0.6745(1-r^2)/\sqrt{N}$=   0.205392415

6PE =   1.23235449

Appendix VIII

Correlation between Sales and Inventory							(Rupees in million)
Fiscal Year	Sales (X)	$x = (X-\bar{X})$	Inventory(Y)	$y = (Y-\bar{Y})$	x^2	y^2	xy
2005/2006	1088.304	230.9904	115.3	6.64	53356.56	44.0896	1533.776
2006/2007	966.563	109.2494	117.6	8.94	11935.43	79.9236	976.6896
2007/2008	960.884	103.5704	102.2	-6.46	10726.83	41.7316	-669.065
2008/2009	893.217	35.9034	118.2	9.54	1289.054	91.0116	342.5184
2009/2010	377.6	-479.7136	90	-18.66	230125.1	348.1956	8951.456
	4286.568	0	543.3	0	307433	604.952	11135.38

Mean Sales $(\bar{X})$ =($\sum$X/N) =   857.3136

Mean Inventory $(\bar{Y})$ =($\sum$Y/N) =   108.66

Standard deviation of Sales (σ) = $\sqrt{(1/n\sum(X-\bar{X})^2}$=   247.9649

Standard deviation of Inventory (σ) = $\sqrt{(1/n\sum(Y-\bar{Y})^2}$=   10.99956

Correlation between sales and inventory, r = $\sum xy/(\sqrt{\sum x^2} \sqrt{\sum y^2})$ =   0.816524364

Probable error(PE) = $0.6745(1-r^2)/\sqrt{N}$=   0.100534837

6PE =   0.603209025

Appendix IX

Correlation between Working and Inventory							(Rupees in million)
Fiscal Year	WC (X)	x = (X-$\bar{X}$)	Inventory(Y)	y = (Y-$\bar{Y}$)	x^2	y^2	xy
2005/2006	18.4	-19.06	115.3	6.64	363.2836	44.0896	-126.558
2006/2007	46.3	8.84	117.6	8.94	78.1456	79.9236	79.0296
2007/2008	87.6	50.14	102.2	-6.46	2514.02	41.7316	-323.904
2008/2009	29	-8.46	118.2	9.54	71.5716	91.0116	-80.7084
2009/2010	6	-31.46	90	-18.66	989.7316	348.1956	587.0436
	187.3	0	543.3	0	4016.752	604.952	134.902

Mean WC ($\bar{X}$X') =($\sum$X/N) = 37.46

Mean Inventory ($\bar{Y}$) =($\sum$Y/N) = 108.66

Standard deviation of WC (σ) = $\sqrt{(1/n\sum(X-\bar{X})^2}$= 28.34344

Standard deviation of Inventory (σ) = $\sqrt{(1/n\sum(Y-\bar{Y})^2}$= 10.99956

Correlation between WC and inventory, r = $\sum$xy/($\sqrt{\sum x^2}$ $\sqrt{\sum y^2}$) = 0.086541

Probable error(PE) = 0.6745(1-r^2)/$\sqrt{N}$= 0.299386458

6PE = 1.796318748

Appendix – X

Correlation between Sales and Net profit after Tax						(Rupees in million)		
Fiscal Year	Sales (X)	$x = (X-\bar{X})$	NPAT(Y)	$y = (Y-\bar{Y})$	x^2	y^2	xy
2005/2006	1088.304	230.9904	9.1	186.44	53356.56	34759.87	43065.85
2006/2007	966.563	109.2494	-90	87.34	11935.43	7628.276	9541.843
2007/2008	960.884	103.5704	-154.5	22.84	10726.83	521.6656	2365.548
2008/2009	893.217	35.9034	-150.4	26.94	1289.054	725.7636	967.2376
2009/2010	377.6	-479.714	-500.9	-323.56	230125.1	104691.1	155216.1
	4286.568	0	-886.7	0	307433	148326.7	211156.6

Mean Sales $(\bar{X})$ =$(\sum X/N)$ =   857.3136

Mean NPAT $(\bar{Y})$ =$(\sum Y/N)$ =   -177.34

Standard deviation of Sales $(\sigma) = \sqrt{(1/n\sum(X-\bar{X})^2}$ =   247.9649

Standard deviation of NPAT $(\sigma) = \sqrt{(1/n\sum(Y-\bar{Y})^2}$ =   172.2363

Correlation between sales and NPAT, $r = \sum xy/(\sqrt{\sum x^2} \sqrt{\sum y^2})$ =   0.988826

Probable error(PE) = $0.6745(1-r^2)/\sqrt{N}$ =   0.006703573

6PE =   0.040221437

Appendix – XI

Correlation between Current assets and Net profit after Tax						(Rupees in million)
Fiscal Year	Current assets (X)	$x = (X-\bar{X})$	NPAT(Y)	$y = (Y-\bar{Y})$	x^2	y^2	xy
2005/2006	309.8	18.7	9.1	186.44	349.69	34759.87	3486.428
2006/2007	327.6	36.5	-90	87.34	1332.25	7628.276	3187.91
2007/2008	318.3	27.2	-154.5	22.84	739.84	521.6656	621.248
2008/2009	280.3	-10.8	-150.4	26.94	116.64	725.7636	-290.952
2009/2010	219.5	-71.6	-500.9	-323.56	5126.56	104691.1	23166.9
	1455.5	0	-886.7	0	7664.98	148326.7	30171.53

Mean CA ($\bar{X}$) =($\sum$X/N) =   291.1

Mean NPAT ($\bar{Y}$) =($\sum$Y/N) =   -177.34

Standard deviation of CA (σ) = $\sqrt{(1/n\sum(X-\bar{X})^2}$=   39.15349
Standard deviation of NPAT (σ) = $\sqrt{(1/n\sum(Y-\bar{Y})^2}$=   172.2363

Correlation between CA and NPAT, r = $\sum xy/(\sqrt{\sum x^2} \sqrt{\sum y^2})$ =   0.8948

Probable error(PE) = $0.6745(1-r^2)/\sqrt{N}$=   0.06012

6PE =   0.36072

Appendix XII

	Working						
Fiscal Year	capital (X)	$x = (X-\bar{X})$	NPAT(Y)	$y = (Y-\bar{Y})$	x^2	y^2	xy

Correlation between Working Capital and Net profit after Tax — (Rupees in million)

Fiscal Year	Working capital (X)	$x = (X-\bar{X})$	NPAT(Y)	$y = (Y-\bar{Y})$	x^2	y^2	xy
2005/2006	18.4	-19.06	9.1	186.44	363.2836	34759.87	-3553.55
2006/2007	46.3	8.84	-90	87.34	78.1456	7628.276	772.0856
2007/2008	87.6	50.14	-154.5	22.84	2514.02	521.6656	1145.198
2008/2009	29	-8.46	-150.4	26.94	71.5716	725.7636	-227.912
2009/2010	6	-31.46	-500.9	-323.56	989.7316	104691.1	10179.2
	187.3	0	-886.7	0	4016.752	148326.7	8315.022

Mean WC $(\bar{X}) = (\sum X/N) =$ 37.46

Mean NPAT $(\bar{Y}) = (\sum Y/N) =$ -177.34

Standard deviation of WC $(\sigma) = \sqrt{1/n \sum (X-\bar{X})^2} =$ 28.343437

Standard deviation of NPAT $(\sigma) = \sqrt{1/n \sum (Y-\bar{Y})^2} =$ 172.23626

Correlation between WC and NPAT, $r = \sum xy/(\sqrt{\sum x^2} \sqrt{\sum y^2}) =$ 0.340656

Probable error(PE) $= 0.6745(1-r^2)/\sqrt{N} =$ 0.266641

6PE = 1.599844

Appendix – XIII

Correlation between Working Capital and Sales						(Rupees in million)	
Fiscal Year	Working capital (X)	x = (X-$\bar{X}$)	Sales(Y)	y = (Y-$\bar{Y}$)	x^2	y^2	xy
2005/2006	18.4	-19.06	1088.3	230.9872	363.2836	53355.09	-4402.62
2006/2007	46.3	8.84	966.563	109.2502	78.1456	11935.61	965.7718
2007/2008	87.6	50.14	960.884	103.5712	2514.02	10726.99	5193.06
2008/2009	29	-8.46	893.217	35.9042	71.5716	1289.112	-303.75
2009/2010	6	-31.46	377.6	-479.713	989.7316	230124.4	15091.76
	187.3	0	4286.564	0	4016.752	307431.2	16544.23

Mean WC ($\bar{X}$) =($\sum$X/N) =   37.46

Mean Sales ($\bar{Y}$) =($\sum$Y/N) =   857.3128

Standard deviation of WC (σ) = $\sqrt{1/n\sum(X-\bar{X})^2}$=   28.34344

Standard deviation of sales (σ) = $\sqrt{1/n\sum(Y-\bar{Y})^2}$=   247.9642

Correlation between WC and sales, r = $\sum xy/(\sqrt{\sum x^2} \sqrt{\sum y^2})$ =   0.470799

Probable error(PE) = $0.6745(1-r^2)/\sqrt{N}$=   0.2347854

6PE =   1.4087127

Regression between working capital and Net Profit after tax

Rupees in million

Fiscal Year	WC (X)	NPAT(Y)	XY	X^2	Y^2	$\hat{Y}$	$Y-\hat{Y}$	$(Y-\hat{Y})^2$
2005/2006	18.4	9.1	167.44	338.56	82.81	-96.537	105.637	11159.18
2006/2007	46.3	-90	-4167	2143.69	8100	-84.3187	-5.68134	32.27767
2007/2008	87.6	-154.5	-13534.2	7673.76	23870.25	-66.232	-88.268	7791.243
2008/2009	29	-150.4	-4361.6	841	22620.16	-91.8949	-58.5051	3422.845
2009/2010	6	-500.9	-3005.4	36	250900.8	-101.967	-398.933	159147.2
	187.3	-886.7	-24900.8	11033.01	305574	-440.95	-445.75	181552.8

Regression equation of y on x is given by:

$\hat{Y}$= a + bx --------------- (i)

Where a and b are constants to be determined to find the position of the line completely. The parameters a and b of equation is obtained by solving the normal equation of least square method:

Σy = na + bΣx ----------------(ii)

Σxy = aΣx + bΣx^2 -------------(iii)

Where, n= no. of years

Substituting the value of n, Σx, Σy, Σxy, Σx^2 in equations (ii) and (iii) we get,

-886.7 = 5a + 187.3b ----------------(iv)

-24900.8 = 187.3a + 11033.01b -------------(v)

By solving the equations (v) and (v), we get 'a' and 'b'.

a = -254.885

b = 2.070076

Substituting the values of a and b in equation (i) we get the equation of line of regression,

$\overline{Y}$ = -254.885 + 2.07007X

From above calculation we can analyze that the working capital of Janakpur Cigarette Factory has direct impact on the profitability position.

Now calculating the correlation for the reliability test between the WC and NPAT we have

(r) = 0.340656

And coefficient of determination, r^2 = 0.116047

Standard error of estimate for regression (SE reg) $= \sqrt{\dfrac{\Sigma(Y - \hat{Y})^2}{n-2}}$

SE regression = 246.0032

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Professional Training

- Accounting Package TATA EX, Chartered Academics International P. Ltd, Kathmandu,
- Accounting Package TALLY, Chartered Academics International P. Ltd, Kathmandu,
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References

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