A STUDY ON CASH MANAGEMENT OF LISTED MANUFACTURING COMPANIES IN NEPAL

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RECOMMENDATION

This is to certify that this thesis

Submitted by:

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Entitled:

"A Study on Cash Management of Listed Manufacturing Companies in Nepal"

has been Prepared as approved by this Department in the prescribed format of the Faculty of Management. This thesis if forwarded of examination

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DECLARATION

I hereby declare that this comprise my own original work and exclusive of footnotes, bibliography and appendices. This thesis entitled "cash management of listed manufacturing companies in Nepal" submitted to central department of management for office of dean, faculty of management, Tribhuvan University, which have done in the partial fulfilment of the requirement for the Master of Business Studies (MBS) under supervision of Professor Mr. Ajaya Pd Dhakal of central department of management of management Kritipur, Kathmandu.

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RAMA SAPKOTA

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ABBREVIATION

ACP	=	Average Collection Period
AR	=	Annual Report
BN	=	Bottlers Nepal United
CA	=	Current Assets
CCC	=	Cash Conversion Cycle
CL	=	Current Liabilities
CR	=	Current Ratio
CTR	=	Cash Turnover Ratio
DTR	=	Debtors Turnover Ratio
FSLC	=	Financial Statistics of Listed Companies
HMG/N	=	His Majesty the Government of Nepal
ICP	=	Inventory Conversion Period
ITR	=	Inventory Turnover Ratio
M	=	Million
Mfg.	=	Manufacturing
NBG	=	Nepal Banaspati Ghee Udhyog Limited
NLO	=	Nepal Lube oil Limited
NPAT	=	Net Profit After Tax
NPM	=	Net Profit Margin
PDP	=	Payable Deferral Period
PE	=	Probable Error
QA	=	Quick Assets
QR	=	Quick Ratio
RCP	=	Receivable Collection Period
SD	=	Standard Deviation
SRJM	=	Shree Raghupati jute Mills Limited
TA	=	Total Assets
UL	=	Unilever Nepal Limited
WC	=	Working Capital

CHAPTER ONE
INTRODUCTION

1.1 General Background

Industrial revolution was took place in Great Britain in 19th century. This revolution brought changes in different aspects of Human life. Due to the revolution many small scale industries converted into large scale industries incorporated in the form of limited company. Many business organizations established in the form of partnership and partnership could not fulfill all the requirement of the business organization due to lack of capital, unlimited liability and lack of effective management. Then the concept of ltd company emerged to fulfill the entire requirement for successful operation of business organization.

Different economic concept and system practiced in various time spans. Different economist suggested different economic concept for the efficient operation of the economy. The classical economist postulated laissez fair doctrine in 19th century against the control of the government in the economy. Another strong economic concept and system as called socialist economy come into existence along with the establishment of former USSR in 1917 and challenged the free market economic system. Under this system there were totalitarian authorities which control the entire economy of the country. After great economic depression in 1930, another concept mixed economic system, emerged by allowing co-existence of both private and public sector. Under this economic system government plays promotional role by investing for infrastructure development.

Many large number scale business organizations were established. But whet the business organizations were on their expansion and enlargement, unfortunately the First World War broken out political, business and economic sector of the world. As a result of First World War business and economic sector lost its sprite and rhythm. After the First World War, business and economic sector re-organized and thy resumed their operation, but environment was not clean it was totally influenced by political instability of the world. Every nation of Europe, Asia, and America concentrated to expand their military power as a result of militarism another world war broken out and devastated all over the world. Second World War suffered the economics of entire world, after the termination of world second, scenario of the whole changed totally. The world politically divided into two polar. A polar led by Moscow following communism by centralizing all power and state activities business and economic sector was controlled by the nation. On the other hand another polar lead by Washington following free market economy. Under this concept decentralization had used and states power didn't concentrated its mind to control activities conducted by their people.

After termination of Second World War, business and economic sector reconstructed and recognized by spending millions of dollars, every nation around world concentrated their efforts for their economic development. Every government participated in the process of economic development by investing and operating many companies. After the termination of cold war another concept of globalization and liberalization came its own existence and under this concept many multinational company established and started to provide their production and services all over the business and commercial sector become

successful to come in this present stage and now resuming its operation on the early century.

In the contest of Nepal, business and commercial sector is very backwards so far than other developed countries. In the period of panchayat regime, many manufacturing and service oriented public enterprises were established to play the vital role for economic development of the nation. After the restoration of democracy, private sector started to play crucial role for the development of the country.

A Biratnagar Jute mill is the first manufacturing industry in Nepal which established in 1936. Then Morang cotton mills, Morang sugar mills Raghupati jute mill and juddha match factory were established till 1946 in Biratnagar. After the Second World War made the attraction for establishment new various industries, 63 industries were opened during the period of 10years. In this time the Biratnagar jute mills and juddha mills factory in Biratnagar continued operating successfully. Most other modern industries either closed down or declined. Several industries were established in public sector mostly with financial and technical assistance of the then USSR and china, during the period of 1951, era of democracy in Nepal. After sixth plan, Nepal witnessed the development of quite large number of manufacturing industries in public sector. Government then sifted its development strategy from stage- led development to market-led open economy. As a result in 1990 many public industries were started privatization. Bhrikuti paper mills and Harisiddhi Bricks and Tile industry were first privatization public industries in Nepal. Due to trend of globalization, Nepal government has adopted the policy of economic liberalization and free market economy. So, different types of joint venture companies were established in Nepal.

Cash is the important asserts for the operations of the business. It is an idle and non earning asset. Therefore the firm should keep sufficient cash, neither more nor less. More cash balance reduces the rate of return on equity and value of the firm's stock. Cash includes coins, currency cheque hold by the firm and balances in its bank account, sometimes noncash items such as marketable securities bank deposits are also included in cash. The task of cash management is to determine how much cash a fir should have on hand at any time to ensure normal business operations continue without interruption. Essence of cash management is the preparation of cash budget and cash flow statement which projects and identifies the inflow of cash. Thus cash budget is also a key to the overall comprehensive profit plan it provides measure and guidelines for effective control of cash.

In this time, there are provide money different policies and techniques for appropriate cash management. But many Nepalese manufacturing company doesn't applied this policies and techniques. Since they are suffering from loss and not developed. So, the financing of the study will help to provide necessary suggestion about appropriate cash management for the manufacturing companies they are listed in Security Board of Nepal.

1.2 Statement of the Problem

The development of a nation depends upon the proper utilization of the resources available in the country. In Nepal, there are various manufacturing company established in many sector to utilize the resources for the overall development of the country with effective goal and objectives. But majority of the manufacturing companies have not been able to operate their activities without loan and donation because

their poor financial performance. Many manufacturing companies have been found preparing long term and short term plans on the Ad-hoic basis. The main causes of the failure of such manufacturing companies are the lack of integration of activities, less utilization of capacity, ineffective and inappropriate action plan, strategies and control mechanism.

Listed manufacturing companies are the largest organizations in the country. There is limited market competition for the company so, it deserve lower further scope of production and expansion. The success and failure of companies is measured on the basis of profitability or surplus. The profit depends upon the systematic planning (budgeting) and its proper implementation.

Cash management has been the most intricate and challenging area if modern corporate finance as much as the management always face a trade- off between the liquidity and profitability o the firm. Through most of the companies in Nepal have been well recognized the importance of proper cash, they are still facing the problem of cash management.

Cash management in manufacturing companies of Nepal is primarily based on the traditional practices, lacking in a scientific approach. A more serious aspect of cash management has been the absence of any formalizes system of planning and cash budgeting in many companies do have the practice if forecasting cash requirement or a form basis (Bajracharya, 1990).

Most of the companies had periodic accumulation of surplus cash and corresponding cash shortage form time to time. Most of the Nepalese manufacturing companies never thought of the source of current assets i.e. cash and usually depends upon the loan for it. This existing problem

in the areas of finance is mostly directed towards the management of cash rather than in any other area. Listed manufacturing companies have also suffered from problem of efficient cash management. This study therefore, attempts to have an insight over the problem of cash management. Basically the research intends to explore the following problems.

1. Are the companies are follows and applied the method and policies of cash management?
2. Are the companies operating with the principals of cash management?
3. Are what level the companies should balance the cash?
4. Are the companies' managers managing the cash to trade off liquidity or profitability in order to maximize profit?
5. Are the companies are able to grape investment opportunities and proper payment at stated time with availability of cash?
6. Are the companies principally estimates the requirement of cash?

1.3 Objectives of the Study

The main objectives of this study are to identify of manufacturing companies. How it's follow and maintains cash management in these companies. In order to meet the main objective the following specific have been proposed.

1. To identify liquidity position of the companies.
2. To assess the current position of cash management practices in manufacturing companies.
3. To know the effect of holding cash on profitability.
4. To analysis the cash conversion cycle of listed manufacturing companies.

5. To know the relationship between cash and interest rate.
6. To study reasons for holding cash in manufacturing companies.
7. To identify liquidity position of the companies.
8. To provide necessary suggestion for improvement of cash management techniques.

1.4 Importance of the Study

Cash management is one of the most important functions in organization. Without effective and efficient cash management, no organization can achieve its goal. A firm cannot achieve its goals unless cash are controlled effectively and capital is allocated properly. Cash is the most liquid and least productive current assets of the companies. Every company should hold certain amount of absolute cash or marketable securities; they are transaction motives precautionary motive and speculation motive.

If companies doesn't considered best techniques of cash management, companies should be suffering for lack of cash or its companies doesn't obtained its goal.

Most of the Nepalese manufacturing companies are suffering from poor cash management. Due to in adequacy of knowledge , the policies and techniques have not been implemented in Nepalese manufacturing companies, in this very much interested to examine its cash management system of listed manufacturing companies. So, this topic is chosen for the study. It is hoped that the study may help to solve the problem faced by listed manufacturing companies to eliminate the obstacles presently traced in cash management.

1.5 Limitation of the Study

This study attempts to find out the problem and impact on the cash management in manufacturing companies. Therefore the following will be the major limitation of the study.

1. The study depends only manufacturing companies, which are listed in security board of Nepal.
2. Only secondary data will be consider, the reality of result will depends upon the availability of data.
3. Only least time duration data will be used for study, due to constraint of time.
4. Mainly profit and loss account cash flow statement and company's balance sheet will be used for study.
5. Most more than financial and statistical tools will be used for analyze the data.

1.7 Organization of the Study

The study has been completed within the format provide by the research department of Central Department of Management, Kritipur. So, the research is divided into five chapters, which are as follows:

Chapter One: It includes general background of the study, statement of problem, objectives of the study, Introduction of the company, objectives and limitation of the study.

Chapter Two: This chapter includes review of literature. The researcher has divided this chapter into portion, first being theoretical framework and second is review of previous studies.

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

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

Chapter Five: This is last chapter of study and includes, summary, conclusion, findings some recommendation.

CHAPTER-TWO
REVIEW OF LITERATURE

2.1 Introduction

Review of literature is a compilation of theoretical review and the review of the thesis\dissertation carried out in the similar field. Review of the literature is support to revise the eminent literatures relating to the study. This chapter aims to gives a conceptual framework and makes that have already been done in this research topic so that some new contributions could be given to the established body o knowledge. This chapter has been divided encompasses the conceptual framework. The second section presents the review o book and the final section explains the review of related study.

2.2 Conceptual Framework

2.2.1 Meaning of Cash Management

Before knowing about 'cash management' it is better to know about 'cash'. Cash is the money, which the firm can disburse immediately without any restriction. According to economics 'cash is the satisfy of human want" and According to Lawyer 'cash is the legal tender money issued by a determinate authority'. However, our concern on the meaning of cash is to look from the view point of balance-sheet (Saksena,1974).

The term cash includes coins currency and cheque held by the firm and balance in its bank accounts. Sometimes near cash items, such as marketable securities is also included in cash. Cash is the most important form of current assets. It is the basic input and ultimate output. The term cash refers to all money items and sources that are immediately available to help pay firm bills. Cash is the important current assets for the

operations of the business organization and public organization. Cash is the basic input needed to keep the business running on a countries basis it is also the ultimate output expected to be realized by selling the service or product manufactured by the firm. The firm should keep sufficient cash, neither more nor less. Cash shortages are disrupting the firm's manufacturing operations while excessive cash is simply remaining idle, without contributing anything towards the firm's profitability. Thus, a major function of the financial manager is to maintain a sound cash position.

The term "Cash management" is concerned with the management of current assets and current liabilities of the business, which is necessary for day-to- day operation. Cash management is concerned with the decision regarding the short-term funds influencing overall profitability and risk involving in the firm. The management of cash has been regarded as one of the conditioning factors in the decisions making issues (Saksena, 1990). It is no doubt, very difficult to point out as to how cash is needed by a particular company, but it is very essential to analyze and fine out the solution to make an efficient use of funds for minimizing the risk of loss to attain profit objectives. Cash management is also called management of money position, because cash includes not only the cash or currency in hand but also the readily convertible securities or other near cash items e.g. time and demand deposits, readily available credit and so on. (Shrestha,2004).

Good cash management means;

- Knowing when, where, and how your cash need will occur.
- Knowing what the best sources are for meeting additional cash needs and

- Being prepaid to meet these needs when they occur, by keeping good relationship with bankers and other creditors.

Cash flow management is the process of monitoring, analyzing and adjusting business cash flows. For business, the most important aspect of cash flow management is avoiding extended cash shortage caused by having too great a gap between cash inflows and outflows. We won't be able to stay in business if we can't pay our bills for any extended length of time.

Therefore, we need to perform a cash flow analysis on a regular basis and use cash flow forecasting so you can take the steps necessary to head o cash flow problems. Many software accounting programs have built in reporting features that make cash flow analysis easy. One of the most useful strategies for business is to shorten cash flow conversion period so that business can bring in money faster.

2.2.2 Function of Cash Management

There is various function of cash management. They are as follows:

- Cash planning
- To design and manage cash flows
- To maintain cash and marketable securities in amounts close to optimal level.
- To place the cash and marketable securities in the proper institutions and in the proper forms.

2.2.3 Principle of Cash management

Cash has a number of functions as it makes payment possible. It serves to meet emergencies. But if cash is kept idle contributes directly nothing to the earnings of the corporation. As such corporation must adopt such a

policy that makes optimum cash management possible. The financial manager of the corporation should try to minimize the corporation holding of cash while still maintaining enough to ensure payment of obligation. For improving the efficiency of cash management effective method of collection and disbursement should be adopted. Some method for efficiency of cash management is briefly described below.

1. Managing collections

One important way of increasing efficiency of cash management is to speed up cash collection efforts. Speed up cash collection can reduce cash balance requirement. The fundamental idea is to collect accounts receivable as soon as possible.

There are several factors that make delay in cash collection. The first aspect is the firm itself which may take more time to process invoice. The most aspect is the buyer who generally takes more than allowed time to pay bill. When cheques are collected and sent to bank for conversion into cash, it takes few times to realize usable funds. Reducing these gap involve several strategies of cash collection.

Customer always tries to pay delay but most logical way to stimulate customer for quick payment is to offer cash discount for early payment. When customer makes payment through cheques, it consumes time for receiving cheques from conversion. This time consumption is known as 'float'. It has two aspects first; it includes the time that a firm internally takes to process the cheque. That is, this is the time lag between the firm receives the cheques and it is deposited into bank, second it includes the time lag in clearing the cheques through baking system, Reducing he float is one of the significant tasks of financial manager under cash

management. There are different methods usually applied to manage collections.

(a) Concentration Banking

"Concentration banking" is a means of accelerating the flow of funds establishing strategic collection centers. Instead of a single collection center located at the company headquarters, multiple collection centers are established. The purpose is to shorten the period between the time customers mail in their payments and the particular area are instructed to remit their payments to a collection centers usually is based on the geographic areas served and the volume of billing in an area. Surplus funds are then transferred from these local bank accounts to a concentration bank or banks. (Van horne, 2010)

(b) Lock- Box System

"A lockbox system can significantly reduce all type of flat. A firm will set up a lockbox arrangement in a city (or cities) corresponding to the geographic distribution of its customers. Customers are directed to mail payments to the lockbox (a post office box) administered by a local bank which collects checks to the firm the box. Sometimes several times a day, and deposits the checks to the firm's account. The bank begins the clearing process and notifies the firm that a check has been received, reducing processing float. The determined whether a lockbox system is advantageous, the firm will compare the bank fees (including compensating balances) against the gains from reducing float". (Weston and Copeland, 1999)

(c) Special Handling of Cash

Special handling of cash enable corporation to have sufficient funds that can be put the profitable use. This special handling may involve personal pick up these cheques or the use of airmail or special delivery.

2. Control of Disbursement

Efficient cash management also depends on the effective control of disbursement. The fundamental idea behind control of disbursement is to slow down payables as much as possible and do not let the funds to remain idle. There are several ways of maximizing cash availability by slowing the disbursements.

One way of controlling disbursement is to tightly centralize the payments in to a signal account. This is called payables cent ration. The disbursements also can be delayed to some extent by making payments by drafts. The firm can also use zero balance account to slow down the payable. Zero balance account used for disbursements that has a balance equal to zero when there is no disbursement activity.

3. Cash Velocity

Efficiency in the use of cash depends upon the cash velocity i.e. level of cash over period of time. But the amount of sales in crucial factor that determines the cash velocity. The greater amount of sales is the greater would be the additional cash necessary to conduct the higher scale of operation.

$$\text{Cash Velocity} = \frac{\text{Annual Sales}}{\text{Average Cash Balances}}$$

4. Minimum Cash Balance

Corporations are required to keep a minimum cash balance requirement of bank either for the service it render or in consideration of a lending arrangement.

5. Using Float

Float is defined as the difference between the balance shown in a firm's (or individuals) check book and balance on the bank's records.

6. Overdraft System

A system whereby depositors may write checks in excess of their balance with their banks automatically extending loans to cover the shortage. Most of the foreign countries use overdraft systems.

7. Synchronized Cash Flows

Synchronization of cash flow can be achieved at the situation in which inflows coincide with outflows, thereby permitting a firm to hold transactions balance to a minimum.

2.2.4 Motives for Holding Cash

Cash is the most liquid and least productive current assists of a firm. Cash, if it remains idle, earns nothing but involves cost in terms of interest payable to finance it. If cash is the least productive current assets, why should a firm hold the cash? Every firm should hold certain amount of absolute cash or marketable securities. There are four important motives for holding cash.

1. Transaction Motive

This refers to the need to hold cash to satisfy normal disbursement collection activities associated with a firm's ongoing operation. Firm enters in to a variety of transaction to accomplish its objectives which have to pay for in the form of cash. The requirement of cash balance to meet routine cash needs is known as transaction motive and such motive refers to the holding of cash to meet anticipated obligation whose timing is not perfectly synchronized with cash receipt. (Khan and Jain, 1999)

2. Precautionary Motive

It refers to holding cash s a safety margin to act a financial reserve. A firm should also hold some cash for the payment of unpredictable or unanticipated events. A firm may have to face emergencies such as strikes and lock up from employees, increase in cost of raw material, fund and labour, fall in market demand and so on. There emergencies also bound a firm to hold certain level of cash. But how much cash is held against these emergencies depends on the degree of predictability associated with future cash flow. The precautionary needs or holding cash usually is satisfied by holding near cash items such as, investment in marketable securities.(Poudel, Baral, Gautam & Rana ,2009)

3. Speculation Motive

Speculative motive refers to the need to hold cash to take advantage of bargain purchase, attractive interest rates, and favorable exchange rate fluctuations. Some firms hold cash in excess than transaction and precautionary need to involve in speculation. Speculative need for holding cash requires that a firm possibly may have some profitable opportunities to exploit, which are out of the normal course of business.

These opportunities arise in conditions, when price of raw material is expected to fall, when interest rate on borrowed funds are expected to decline and purchase of inventory occurs at reduced price on immediate cash payment. A firm may purchase different securities when interest rate is high and sell them in future when interest rate declines. This unexpected moment put the firm in benefit. Therefore firms hold cash for speculation. (Poudel, Baral, Gautam & Rana ,2009)

4. Compensating Balance

A firm should also hold cash to meet the compensating balance requirement demanded by commercial banks or providing loan. Specially, commercial banks demand a regular borrower to maintain an average checking account balance equal to some percentage of the outstanding loan .The cash kept as compensating balance is not allowable for the borrower to use. Bank provides different services to the firm compensating balance also represents an indirect charge to bank for providing services by them.

Four primary motives of holding cash balance the two most important are transaction motive and the compensation motive. Business firm do not normally speculate and need not have speculate balance. The requirement of precautionary balances can be meet out of short-term borrowing. (Khan and Jain, 1999)

2.2.5 Factors Determining Cash Need

1. Synchronization of cash flow

With a perfect synchronization of cash inflow and outflows and a higher degree of predictability, cash balances could be held to low levels. An example of synchronization demonstrates low cash flows can be

improved through more frequent requisitioning of fund to divisional offices from the firm's central office. If funds are requisitioned once a month, we may now explore the possibility of requesting of funds on fortnightly, or weekly or daily basis. Moreover, effective forecasting can be achieved; it will enable the firm to economic on the amount of money it must borrow and thereby keeping interest expenses to a minimum. It is necessary to understand now that there is different type of float. We have seen that the float is the different between book cash and bank cash, representing the net effect of changes in process of clarity. The first types of float are disbursement float. As we write check, it declares book balance but does not immediately change available balance. Similarly, the collection float refers to the cheque received, which increase book balance but not immediately change available balance. The net float is the overall different between the firm's available and book balance. (Pardhan, 2010)

2. Short Cost

Another general factor to be considered in determining cash need is the cost associated with a short all in the cash needs. The cash forecast presented in the cash budget would reveal period of cash shortages. In additional, there may be some unexpected short fall. Every shortage of cash, whether expected or unexpected involves a cost depending up on the severity, duration and frequency of the shortfall and how the shortage is covered. Expenses incurred as a result of shortfall are called short costs. Include in the short cost are the following.

- Transaction cost associated with raising cash to tide over the shortage. This is usually the brokerage incurred in relation to the sale of some short term near cash assets such as marketable securities.

- Borrowing cost associated with borrowing to cover the shortage these include items such as interest on loan, commitment charge and other expenses relating to the loan.
- Loss of cash discount that is, a substantial loss because of temporary shortage of cash.
- Cost associated with detoriation of the credit rating which is reflected a higher bank charges on loans, stoppages of supplies, demand for cash payments, refusal to sale, loss of image and the attendant decline in sales and profits.
- Penalty rates by bank to meet shortfall in compensating balances.

3. Excess Cash Balance Cost

The cost of having excessively large cash balance is known as the excessive cash balance cost. If large funds are idle, the implication is that the firm has missed opportunities to invest those funds and has thereby lost interest which it would otherwise have earned. This loss of interest is primarily the excess cost. (khan and Jain, 2003)

4. Procurement and Management

There are the cost associated with the establishing and operating cash management staff and activities. They are generally fixed and are mainly accounted for by salary, shortage, handling of securities and so on. (Khan and Jain, 2003)

5. Uncertainty and Cash Management

Finally, the impact of uncertainty of cash management strategy is also relevant on cash flow cannot be predicated with complete accuracy. The first requirement is a precautionary cushion to cope with irregularities in

cash flows, unexpected delay in collections and disbursements, default and unexpected cash needs.

The impact of uncertainty on cash management can however, be mitigated through improved forecasting of tax payments, capital expenditure, dividend, and so on and increased ability to borrow through over draft facility(Khan and Jain,2003)

2.2.6 Efficiency of Cash Management

Cash performs number of functions as it makes payment possible. It serves to meet emergencies, but it cash is kept idle it contributes directly nothing to the earning of the corporation. As such corporation must adopt such a policy that makes optimum cash management possible. The financial managers of the corporation should try to minimize the corporation holding of cash, wide still maintaining enough to ensure payment of obligation. “For improving the cash efficiency of cash management effective method of collection and disbursement should be adopted. Some methods for efficiency of cash management are briefly described below”. (Van horne, 2010)

a) Speedy cash collection

A firm can conserve cash and reduce its requirement for cash balance if it can speed up its cash collection. Reducing the lag for gap between the times a customer pays his bill can accelerate cash collection and the time the cheque is collected and funds become available for use. Within this time gap, the delay is cause by the mailing time .The amount of cheques sent by customer but not yet collected are called deposit float. The greater the deposit floats, the time taken in converting cheque into usable fund.

There are mainly two techniques, which can be used to save mailing and processing time which is concentration banking, lock box system.

b) Concentration Banking

Concentration banking is a system of operating through number of collection centers, instead of a single collection center centralized at the firm head office. In this system the firm will have a large number of bank account operated in the area where the firm its branches. All branches may not have the collection centers. The collection centers will be required to collect cheque from customers and deposit them in their local bank accounts. The collection center will transfer funds above some predetermined minimum to a control generally at the firm's head office, each day. A concentration bank is one where the firm has a major bank account from which the firm makes usually the disbursement.

c) Slowing Disbursement

A part from speedy collection of account receivable the operation cash requirements can be reduce by slow disbursement of account payable. It may be recalled that a basic strategy of the cash management is delay payment as a long as possible without impairing the credited rating of the firm. In fact, slow disbursement represents a source of funds requiring no interest payment. There are some technique to delay payment is: avoidance of early payment centralized disbursement, float and accruable. Quick collection and slow disbursement accomplish the corporation with adequate cash in hand for longer periods Effective control of disbursement can result in a faster turnover of cash. Whereas the underlying objectives of collection are maximum acceleration, the objectives in disbursements are to slow them down as much as possible.

d) Cash velocity

Efficiency in the use of cash depends upon the cash velocity i.e. level of cash over a period of time.

$$\text{Cash Velocity} = \frac{\text{Annual Sales}}{\text{Average Cash Balances}}$$

e) Synchronized cash flows

Situation in which inflows coincides with out flows, thereby permitting a firm to hold transaction balance a minimum.

f) Using float

Cheque written by the firm but not deducted from the bank record until they actually received by the bank, possible a matter of several day slag between the times, cheques is written until the bank receives it is known as float.

g) Transferring Fund

There are two principle methods –wire transfer and electronic depository transfer cheques. With a wire an electronic depository transfer cheque (DTC) arrangement in the movement of funds, an electronic cheque image is processed through an automatic clearing house. The funds become available o business day later from small transfer, a wire transfer may be too costly.

h) Minimum Cash Balance

Corporations are required to keep a minimum cash balance requirement of a bank either for the service in record or in consideration of lending arrangement.

i) Overdraft System

Systems where depositors may write cheques in excess of their balances with their banks atomically extend loans to cover the shortage. Most of the foreign countries uses over draft system.

j) Transferring Fund

A transferring fund is a system for moving funds among account at different bank. The main transfer mechanisms are depository transfer cheques (DTC). Electronic depository transfer cheques (EDTC), and wire transfers.

2.2.7 Different Tools/ Techniques of Cash Management

i) Cash Planning

Cash planning can help to anticipate future cash flows and needs of the firm and reduces the possibility of idle cash balance and cash deficiencies. Cash planning is a technique to plan for and control the use of cash. The forecasts may be based on the present operation or anticipated future operation. Cash plan is very crucial in developing the overall operation plans of the firm .cash planning may be done on daily, weekly or monthly basis. It depends upon the size of the firm and philosophy of management.

ii) Cash Budget

Cash budget is a detailed plan showing how cash resources will be acquired and used over some specific time period. Cash budget is composed of four major sections.

1. The receipts section.
2. The disbursements section

3. The cash excess or deficiency section
4. The financing section

The cash receipts section consists of a listing of all of the cash inflows, except for financing, expected during the budgeting period. Generally, the major source of receipts will be from sales. The disbursement section consists of all cash payment that are planned for the budgeted period. These payments will include raw materials purchases, direct labour payments, manufacturing overhead costs, and so on as contained in their respective budgets. In addition, other cash disbursements such as equipment purchase, dividends, and other cash withdrawals by owners are listed.

If there is a cash deficiency during any period, the company will need to borrow funds. If there is cash excess during any budgeted period, funds borrowed in previous periods can be repaid or the excess funds can be invested.

The financing section deals the borrowings and repayments projected to take place during the budget period. It also include interest payments that will be due on money borrowed. Generally speaking, the cash budget should be broken down into time periods that are as short as feasible. Considerable fluctuations in cash balances may be hidden by looking at a longer time period. While a monthly cash budget is most common, many firms budget cash on a weekly or even daily basis. Cash Budget calculated by:

XYZ company
Cash Budget
For the Year Ending 20X1

	1	2	3	4	Year
Cash balance, beginning	Xxxx	xxxx	xxxx	xxxx	Xxxx
Collections from customers	Xxxx	xxxx	xxxx	xxxx	Xxxx
	----------	----------	----------	----------	----------
Total cash available	Xxxx	xxxx	xxxx	xxxx	Xxxx
	----------	----------	----------	----------	----------
Less disbursements:					
Direct materals	Xxxx	xxxx	xxxx	xxxx	Xxxx
Direct labor	Xxxx	xxxx	xxxx	xxxx	Xxxx
Manufacturing overhead	Xxxx	xxxx	xxxx	xxxx	Xxxx
Selling and Administrative	Xxxx	xxxx	xxxx	xxxx	Xxxx
Equipment purchases	Xxxx	xxxx	xxxx	xxxx	Xxxx
Dividends	Xxxx	xxxx	xxxx	xxxx	Xxxx
	----------	----------	----------	----------	----------
Total disbursements	Xxxx	xxxx	xxxx	xxxx	Xxxx
	----------	----------	----------	----------	----------
Excess/deficiency of cash available over disbursements	(xxxx)	(xxxx)	xxxx	xxxx	Xxxx
Borrowings (at beginning)*	Xxxx	xxxx	-	-	Xxxx
Payments (at beginning)	-	-	(xxxx)	(xxxx)	(xxxx)
Interest**	-	-	(xxxx)	(xxxx)	(xxxx)
	----------	----------	----------	----------	----------
Total financing	Xxxx	(xxxx)	(xxxx)	(xxxx)	(xxxx)
	----------	----------	----------	----------	----------
Cash balance, ending	Xxxx	xxxx	xxxx	xxxx	Xxxx
	======	======	======	======	======

iii) Short term cash forecasting

There are most two common used methods of short term cash forecasting are as follows:

a) Receipt and Disbursement Forecast

The prime aim of receipt and disbursement forecasts is to summarize the flows during a predetermined period. In case of those companies where cash items of income and expanse involve this method is favored to keep a close control over cash.

b) Adjusted net income method

This method of cash forecasting involves the tracing of working capital flows. Sometime it is also called the sources and use approach .two objectives if the adjusted net income approaches are to project the company's need for cash at some future date and to show whether the company can generate this money internally or not, how much will give to either borrow or rise in capital market. In preparing the adjusted net income forecasts items such as net income, depreciation, taxes dividend etc. can easily be determined from the company's annual operating budget.

iv) Long term cash forecasting

Long term cash forecasting are prepares to give an idle of the company's financial requirement of distant future. Once a company has developed long term cash forecasts, it can be used to evaluate the impact of say new product development on the firm financial condition three, five or more years in future. The major uses of the long term cash forecasts are company's future financial needs, especially for it working capital

requirement, to evaluate proposal capital projects and it help to improve corporate planning. Long term cash forecasting not only reflects more accurately the impact of any recent acquisition but also foreshadows financing problems.

2.2.8 Advantages of Having Adequate Cash in Business

Cash has advantages over credit in all economic conditions. The primary advantages of cash over credit in business are: avoiding the costs associated with credit, negotiating leverage, improved business credit, having an emergency fund and potential income.

1.Cost of Credit

Most businesses use credit cards or lines of credit to pay expenses that they cannot pay with cash. However, credit lines and credit cards in business come with a cost. The most obvious cost is the interest rate. However, when a business has a line of credit, there may also be closing costs and maintenance fees. These costs are avoided when purchases are made with cash.

2.Negotiating Leverage

When a business can demonstrate cash in hand, it is possible to negotiate a better deal than could be done on credit. Cash on hand also allows for harder negotiations with the answer, "That's all I have, take it or leave it." When two parties are bidding on a product or property, the business that can prove that they have the cash to pay in full often receives preference over the party that is buying on credit. Businesses with enough cash to pay in full also avoid the delays of getting approved for credit.

3.Cash and Improved Business Credit

Personal credit ratings are defined by the amount of debt held, the type of loans held, and the ability to repay debt. Business credit is defined by the same standards. A business that can list an emergency fund to pay their base expenses and loan payments in a lean month will be deemed more credit worthy than a business without cash in the bank. Thus a business that does use credit can improve its creditworthiness by having cash sitting in a bank account.

4.Saved Through Savings

An emergency fund is a savings account in cash or liquid form, like a money market fund. This money is then only used in an emergency. This could include a building burning down, a lawsuit or covering surprisingly slow month, with the emergency fund used to cover the base expenses. Having an emergency fund allows a business to stay afloat when emergencies arise. When a business has adequate cash reserves, they can remain in business through an extended economic when their competitors shut down. A business without cash reserves will not stay in business when credit dries up or when they cannot make their debt payments.

5.Income Potential

A large cash reserve may be large enough to generate interest income. While few businesses make most of their income from their cash reserves, a large cash reserve could generate enough interest income to add to the business' profit margin.

2.2.9 Determining the Optimum Cash Balance

Financial manager responsibilities are to maintain a sound liquidity position of the firm. So that dues may be settled in time. The firms need cash not only to purchase raw materials and pay wages but also for payment of dividend, interest, taxes and countless other purpose. The text of liquidity in reality the availability of cash to meet the firm obligations when they become due. Thus, the cash balance is maintained for transaction purpose and an additional amount may be maintained as a safety stock. The financial managers should determine the appropriate amounts of cash balance & trade off between risk and return influences such a decision. If the firm maintain small cash balance, its liquidity position becomes weak and suffers from a capacity of cash to make payment. But inventing released funds in some profitable opportunities can attain a higher profitability. If the firm maintains a high level of cash balance it will have a sound liquidity position but forego the opportunity to earn interests. Thus, the firm should maintain an optimum cash balance to find out the optimum cash balance the transaction costs and risk of too small a balance should be matched with the opportunity costs of too large a balance. The figure shows this trade-off graphically.

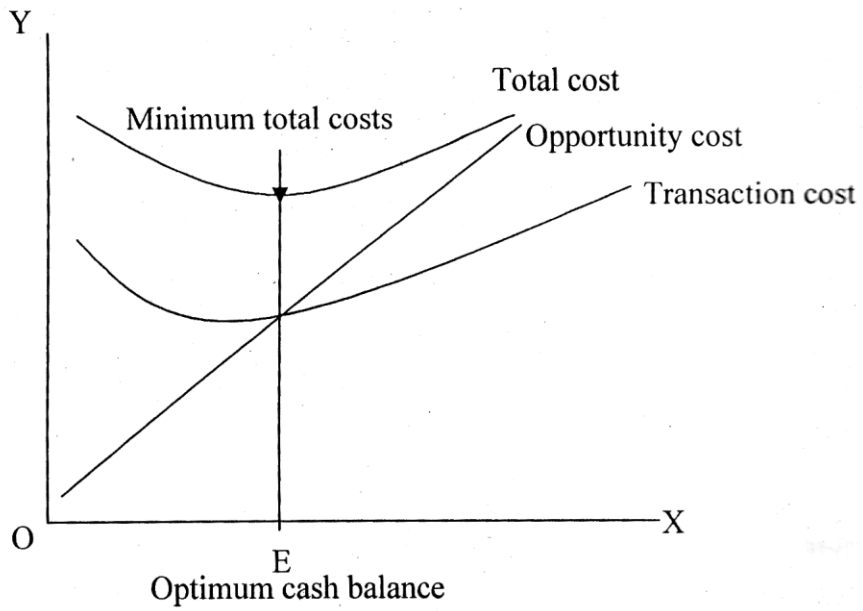


Figure no. 2-1 Determination of optimum cash balance (Baumol, 1952:545)

Source: James C Van Horne. Financial management & Policy. 11th edition (New Delhi prentice Hall of India Private Limited 2000)

2.2.10 Cash Management Models

Optimal balance of cash is determined by the cost-benefit tradeoff between interests, income, transaction costs if no compensating balance were required. However, with the existence of conversion delays and positive transaction cost, the firm would prefer to hold some cash balance. In other world firm required cash for various propose, out of total requirement, how much to maintain in cash and how much to maintain in cash and how much in marketable securities is the question which needs a careful analysis of behavior of cash inflows and outflows. Since cash inflows and outflows may not synchronize all the time, the cash balance often fluctuates, and as a result, the balance could be sometime more and other time less than necessary. It is therefore, necessary to adopt a system to correct such fluctuation and maintain an optimal balance at all time.

If the firm keeps high cash balance, it will have a strong liquidity but its profitability will be lost. The potential profit forgone as holding large

cash balance is an opportunity cost to the firm. The firm should maintain optimum cash to the firm. The firm should maintain optimal cash balance.

There are different types of analytical model for cash management.

1) Baumol's Model

Baumol's model, also known as inventory model, is one of the simplest models to determine optimal cash under the condition of certainty. This model developed by William Baumol in 1952. According to this model carrying cost of holding cash is balanced against the fixed cost of transferring marketable securities into cash marketable securities.

The purpose of this model is to determine the minimum cost amount of cash that a financial manager can obtain by converting securities to cash considering the cost of keeping idle cash balance which otherwise could have been invested in marketable securities.

The total cash associate with cash management, according to this model, has two elements: (i) Cost of converting marketable securities into cash and (ii) the lost opportunity cost.

The conversion costs are incurred cash times marketable securities are converted in to cash symbolically, conversion cost per period.

$$= Tb\backslash C \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (i)$$

Where,

b= Cost per conversion assumed to be independent of size of transaction.

T= total transaction cash need for the period.

C=Value of marketable securities sold at cash conversion.

The opportunity cost is derived from the lost/ forfeited interest rate that could have been earned on the investment of cash balances. The total opportunity cost is the interest rate times the average cash balance kept by the firm. The model assumes a constant and a certain pattern of cash out flows. At the beginning of each period, the firm starts with a cash balance which is gradually spends until at the end of the period it has a zero cash balance and must replenish its each supply to the level of cash balance in the beginning which is shown graphically as.

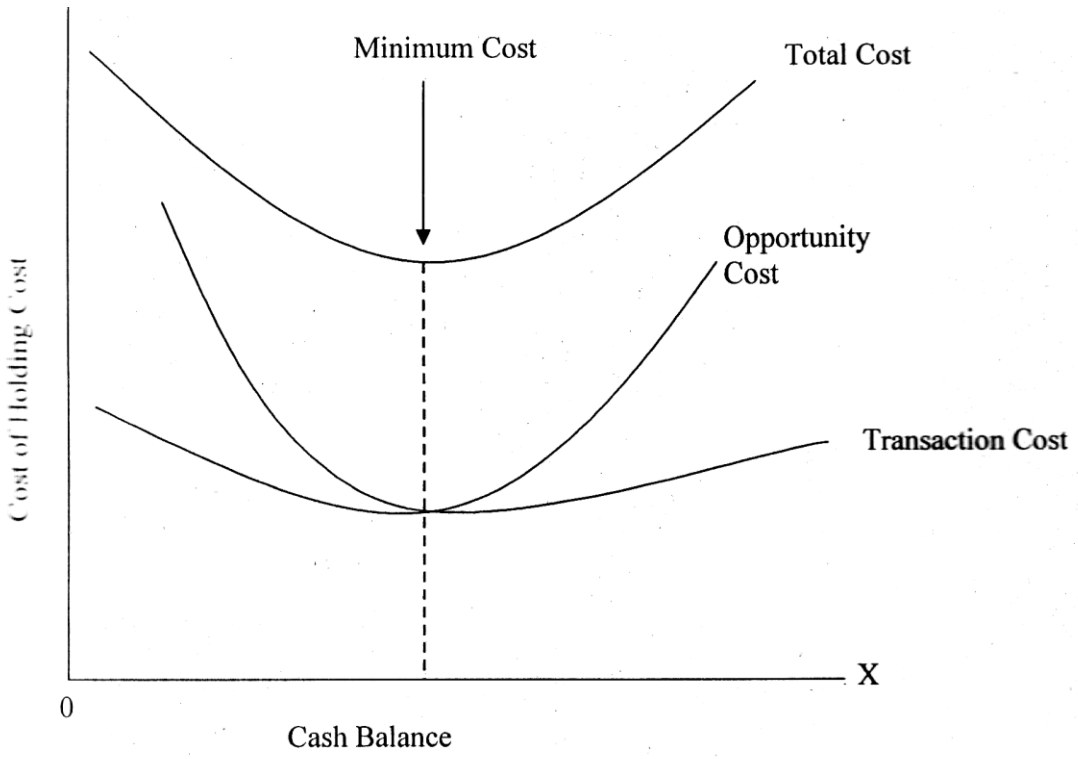


Figure no. 2-2 Baumol's model showing minimum cost of holding cash

Source: James C Van Horne. Financial management & Policy. 11th edition (New Delhi prentice Hall of India Private Limited 2000)

Symbolically, the average lost opportunity cost

$$= I\left(\frac{c}{2}\right) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (ii)$$

Where,

I= Interest rate that could have been earned.

C/2= average cash balance i.e. the beginning cash plus the ending cash balance of the period divided by 2.

The total cost associate with cash management compromising conversion cost plus opportunity cost of not investing cash until it is needed in interest- bearing instruments can be symbolically expressed as

$$I\left(\frac{C}{2}+\frac{Tb}{c}\right) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (iii)$$

To minimize the cost, therefore the model attempts to determine the optimal conversion amount i.e. the cash withdrawal that costs the least. Symbolically, the optimal conversion (c*) amount

$$C *= \frac{\sqrt{2bT}}{i} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (iv)$$

The model in terms of equation (iv) has important implications. First, as the total cash needs for transaction rises because of expansion/ diversification etc. the optimal withdrawal increases less than proportionately. This is the result of economy of scale in cash management. Each project does not need its own additional cash balance. It only needs enough added to the general cash balance of the firm to facilitate expended operations. Secondly, as the opportunity interest rate increase the optimal cash withdrawal decreases. This is to because as increase it is more costly to forfeit the investment decrease opportunity and financial mangers want to keep as much cash invested in securities for as long as possible. They can afford to do this as the higher interest

rates because at those higher rates any shortfall costs caused by a lower withdrawal are offset.

In sum, the model of cash management is very simplistic. Further, its assumption of certainty and regularity of withdrawal of cash do not realistically reflect the actual situation of any firm. In additional, the model is concerned only with transaction balances and not with precautionary balances. In additional, the assumed fixed nature of the cash withdrawal is also not realistic.

Nevertheless, the model does clearly and concisely demonstrates the economics of scale and the counteracting nature of the conversion and opportunity costs, which are undoubtedly major consideration in any financial manager's cash management strategy (Baumol, 1952).

The point on minimum cost will be justified by the following figure

Total Cost=Holding Cost + Transaction Cost

= (Average Cash Balance *Opportunity Cost) + (Cost Per Transaction* No. Of transaction)

Or, Total Cost $= b\left(\frac{T}{C}*\right) + I\left(\frac{C*}{2}\right)$

2. Miller-Orr Model

When cash balance fluctuates unpredictably, we use control theory to determine optimal behavior regarding cash holdings. Stochastic model\Miller –Orr model assume that cash flows are uncertain and unknown in advance. Theoretically, there are number of approaches to control theory. Among them, Miller-Orr Model, which specifies two controls limited i.e. upper and lower limit.

The objectives of cash management according to Miller-Orr are to determine the optimum cash balance level, which minimizes the cost management.

Symbolically,

$$C = bE(N)t + jE(M) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (i)$$

Where,

b= the fixed cost per conversion.

E (M) = the expected average daily cash balances.

E (N) = the expected number of conversions.

t= the number of days in the period.

j= the lost opportunity costs.

C= total cash management costs.

The Miller-Orr model is in fact an attempt to make the Baumol more realistic as regards the pattern of cash flows. As against the assumption of uniform and certain levels of cash balances randomly fluctuate between an upper bound (h) and a lower bound(o). When the cash balances hit the upper bound (h), the firm has too much cash and should buy enough marketable securities to bring the cash balances back to the optimal bound (z), when the cash balances hit zero, the financial manager return them to the optimum bound (z) by selling converting securities in to cash. According to the Miller-Orr model, as in Baumol Model, the optimal cash balance (z) can be expressed symbolically as

$$Z = \frac{\sqrt[3]{3b^2}}{4i} + L \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (ii)$$

Thus, as in Baumol model, there are economies of scale in cash management and the two basic costs of conversion and the lost interest

that have to be minimized. Miller-Orr model also specifies the optimum upper boundary (h) as three times the optimal cash balance level such that

Upper Limit (h)$= 3Z - 2L \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (iii)$

Average Cash balance$= (h + Z)/3$

Future, the financial manager could consider the use of less liquid, potentially more profitable securities as investments for the cash balances in excess of cash (Miller & Orr, 1966)

3. Orgler's Model

According to this model, an optimum cash management strategy can be determined through the use of multiple linear programming model. The construction of the model companies their sectors. They are (i) Selection of appropriate planning horizon,(ii) Selection of appropriate decision variable and (iii) formulation of cash management strategy itself. The advantage of linear programming model is that it enables coordination of optimum ash management strategy with the other operation of the firm such as production and with less restriction on working capital balances.

Orgler's objective function is to minimize the horizon value of the net revenues from the cash budget over the entire planning period. The objective function recognizes each operation of the firm that generates cash inflows or outflows on adding or subtracting profit opportunities for the firm its cash management operation. In the objective functions, decision variables which cause inflows, such payment on receivable, have positive coefficient while decision variable which generate cash inflow, such as, interest and short term borrowing have negative coefficient. The

formulation of the model requires that the financial managers first specify an objective function and then specify a set of constraint.

The constraint of the model could be (i) institutional or (ii) policy constraint. The institutional constraints are those imposed by external factors, that is, bank required compensating balance. Policy constraints are imposed on cash management by the firm itself. For instance, the financial manager may be prohibited from selling securities before maturity either constraint can occur in the model during one monthly period or over several pr all the month in one year planning horizon.

An example for linear programming model is as follows:

Objective Function

Maximize Profit $= a_1x_1 + a_2 x_2$

Subject to,

$b_1x_1 \leq$ production

$b_2x_2 \leq$ constraint

$c_1x_1 + c_2x_2 \leq$ cash available constraint

$8_1X_2 + 8_2X_2 >$ Current assets requirement constraint

$xi \geq 0$; = 1, non-negatively constraint

A very important feature of the model is allows the financial managers to integrate cash management with production and other aspects of the firm.

4) Monte Carlo Simulation

Although the Baumol model and other theoretical models provide insights into the optimum cash balance, they are generally not practical for use. Rather, firms generally set their target cash balances based as some "Safety stock" of cash that holds the risk of running out of money to some acceptability law level. One commonly used procedure is Monte Carlo simulation. Sales and collections are the driving forces in cash budget and, of course, are subject to uncertainty. In the cash budget we used expected values for sales and collection, as well as for other cash flows. However, it would be relatively easy to use Monte Carlo Simulation to introduce uncertainty. If cash budgets are constructed using a spread sheet program with Monte Carlo add in software, then the key uncertain variables could be specified as continuous probability distribution rather than point value.

2.2.11 Cash Conversion Cycle

Cash conversion cycle, also known as assets conversion cycle, net operating cycle or just cash cycle, is a ratio used in the financial analysis of a business. The higher the number, the longer a firm's money is tied up in operational of the business and unavailable for other activities such as investing. The cash conversion cycle is the number of days between purchasing raw materials and receiving the cash from the sale of the goods made from that raw material. Cash conversion cycle/ period consists the following periods.

Inventory conversion period: It is the average length of time required to covert material into finished goods; it is the amount of time the product remains in inventory in various stages of completion. The inventory

conversion period is calculated by dividing inventory by the cost of goods sold per day.

Receivable collection period: It is the average length of time required to convert the firm's receivables into cash that is, to collect cash following a sales. The receivables collection period also is called the day's sales outstanding (DSO) and it is calculated by dividing accounts receivable by the average credit sales per day.

Payable deferral Period: It is the average length of time between the purchase of raw materials and labour and the payment of cash for them. It is computed by dividing accounts payable by the doing credit purchases.

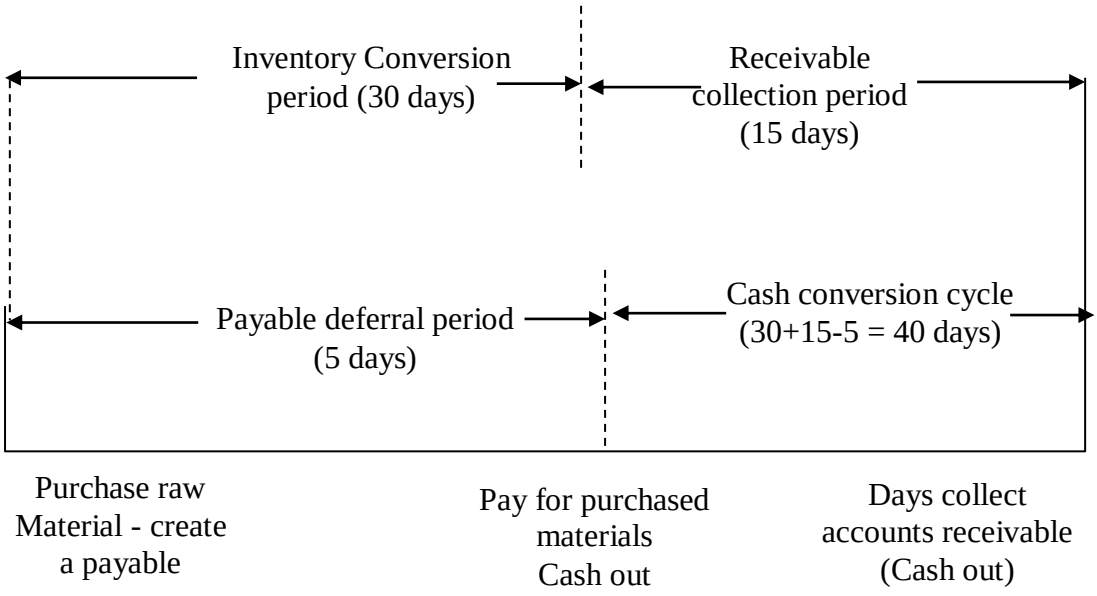
Cash Conversion Cycle: Cash conversion cycle computation nets out the three period just defined, resulting in a value that equals the length of time between the firm's actual cash expenditures to pay for 9 invest in) productive resources (material and labour) and its own cash receipts. From the sale of products (that is, the length of time between paying for labour and materials and collecting o receivables.

Thus,

Cash Conversion Cycle = Inventory Conversion period+ Receivable collection Period- Payable Deferral Period

Figure No:2.3 cash Conversion Cycle Model

The cash conversion cycle



Note: The figure in parenthesis are assumed figure.

The firm's goal should be to shorten its cash conversion cycle as much as possible without hurting operations. This would improve profit because the longer the cash conversion cycle, the greater the need for external financing, and such financing has a cost.

The cash conversion cycle can be shortened by (i) reducing inventory conversion period by processing and selling goods more quickly, (2) reducing the receivables collection period by speeding up collection, or (3) lengthening the payable deferral period by slowing down its own payments. TO the extent that these actions can be taken without harming the return associated with the management of these accounts, they should be carried out. So, when taking actions to reduce the inventory conversion period, a firm should be careful to avoid stock outs because stock outs could cause "good" customer to buy from competitors; when taking actions to firm should be careful to maintain good relations with its "good" credit customers. When taking actions to long then payable deferral period, a firm should be careful not to harm its own credit reputation. (Weston & Copeland,1990)

2.3 Review of Books

One of the major responsibilities management is to plan, control and safeguard the resources of the enterprises. Two kind of resources flow through may business cash and non cash assets. This chapter gives brief stock of literature related to cash inflows (i.e. Cash receipts) and cash outflows (i.e. Payment of cash). The planning and control of cash inflows, the cash out flows and the related financing is important in all enterprises. The cash budgeting is an effective way so for as the planning of cash is concerned. This technique allows manager to assess cash needs and use excess cash. Excess cash, if kept idle is harmful as it decreases the firm's wealth due to the reason excess cash being non earning assets. The timing of cash flows can be control in many ways by management such as increases the effectives of credit and collection activities, making payment by time draft rather than by check, making payment at the last day of discount periods, and giving discount on cash sales.

Weston and Brigham(1999) have given some theoretical insight into current assets management after their various research on it. The findings of their studies provide sound knowledge and guidance for the future studies on the field of management. They explain cash planning the motives for holding cash, cash flow synchronization, float, managing collections etc. Minimum cash balances, compensating balance, overdraft system, marketable securities substitute for cash criteria for selecting suitable investment alternatives, management of account receivables are the subjects on which meaningful explanations and illustration can be obtained.

Panday (1999) suggested that the firm should keep sufficient cash neither more nor less. Cash shortage will disrupt the firm's manufacturing

operations while excessive cash will simply remain idle, without contributing anything towards. The firm's profitability. According to him, the major function of financial manager is to maintain sound cash position. Some theoretical insights about cash management has presented by him. He said that cash management is concerned with the managing of, (i) cash flows into and out of the firm, (ii) cash flow within the firms, and (iii) cash balance hold by the firm at point of time by financing deficit or investing surplus cash. It can be which has to be borrowed cash management seeks to accomplish this cycle at a minimum cost. At the sometimes, it also seeks to achieve liquidity and control. Cash management assumes more importance than other current assets because cash is the most significant and the least productive asset because cash is the most significant because it is used to pay the firm's obligation. However, cash is unproductive, unlike. Fixed assets or inventories, it does not produce goods for sale. Therefore, the aim of cash management is to maintain adequate control over cash position to keep the firm sufficiently liquid and to use excess cash in some profitability way. The cash management cycle is shown as follows:

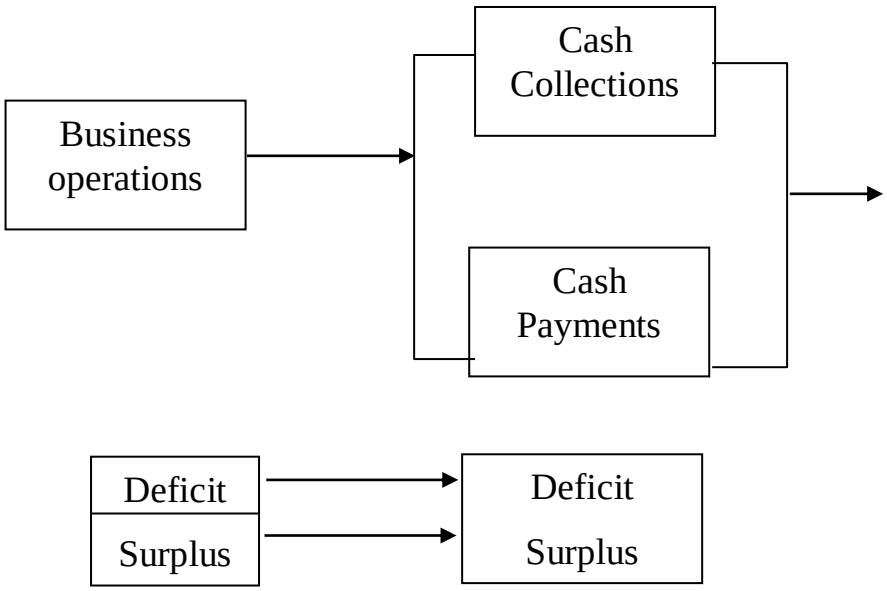


Figure No. 2.6: Cash Management Cycle

(Source: IM Pandey, Financial Management,1999)

The management of cash is also important because it is difficult to predict cash flows accurately, particularly the inflows, and there is no perfect coincidence between inflows and outflows of cash. During some period cash outflows will exceed cash inflows because payment of taxes, dividend or seasonal inventory builds up. At other times, cash inflows will be more than cash payment because there may be large cash sales and debtors may be realized in large sums promptly. Cash management is also important because cash constitutes the smallest portion of the total current assets. Yet management's considerable time is devoted in managing it. In recent past, a number of innovations have been done in cash management techniques. An obvious aim of the firm new-a- day is to manage its cash affairs in such a way as to keep cash balance at a minimum level and to invest the surplus cash in profitable investment opportunities.

Van Horne (2002) said that cash management involves managing the monies of the firm to maximize the cash availability and interest income to any idle funds .At one end the function starts when a customer writes a check to pay the firm on its account receivable. The function ends from the firm as an amount payable are accruals. All activities between these two points fall within the realm of cash management. The firm's efforts to get customers to pay their bills at a certain time fall within account receivable management on other hand, the firm's decision about when to pay its bills involves account payable and accrual management. He again described an idea of effective collection and disbursement of cash, we should attempt to accelerate collection and handle disbursement so means of concentration banking, a lock box system and certain other procedures. Disbursement should be handled to give maximum transfer flexibility and the optimum timing of payment, being mind- full, however, of supplier

relations. Method of controlling disbursement i.e. electronic fund transfer is becoming increasingly important, and most corporation use such transfer in one way or another.

" (western and Brigham, 1986) focused on the relationship between sales growth and need to finance current assets is closed and direct. The growth of sales means generation of more funds provided that such sales constitute cash sales and this enables corporations to be self- supporting without any need to tap additional funds for current assets. Bu if there are more credit sales, the size of account receivables rises so that for the short period corporations have to manage funds either through effective credit policy to have quick collection or arranging a bank loan for short period .The amount earnings also decide how much to invest in current assets as more earning lead to more inflow of cash enabling corporation to meet cost of operation easily.

Williams(1973) explained decline in earning puts burden of liquidity and additional investment in current assets. The highly developed money and efficient banking services make easy availability of credit at any time when it is needs and in such situation corporation can avoid maintenance of higher cash balance and also can easily discount account receivable. But lack of these services compel corporation to follow policy of holding more current assets. The turnover of inventory and other assets is equally important to be considered as quick turnover which means ability of corporation to have fast process of conversion makes no burden of liquidity and thereby helping to undertake further production expansion. But prospect of business have much to do in the overall evaluation of current assets. During the peak seasons, corporation have to keep more stock of commodities readily available to meet increasing demand and it can generate cash quickly. However during the condition of recession, the

current assets should be converted in to cash. The taxation policy and other subsequent developments that take place within a given cycle also affect management of current assets. In view of the consideration of the above factors, current assets management involves a common set of problem concerned with the size of investment required in those assets.

Khan and Jain (2003) interpreted that cash management linkaged with working capital management. He expressed that cash management is one part of the key areas of working capital management. A part from the fact that is the most liquid current asset, cash is the common denominator to which all current assets can be reduced because the other major liquid assets, that is, receivables and inventories get eventually converted into cash. This underlines the significance of management. He presented a detail account of the problem involved in managing cash, i.e., motive for holding cash , objective of cash management, factors determining cash needs , cash management models, cash budgets, basic strategies for efficient management of cash, and specific techniques to manage cash subsequently.

“Corporate must adopt cash such a policy that makes optimum cash management possible for improving the efficiency of cash management effective method of collection and disbursement should be adopted. However in a developing country, corporation has given not much attention in assessing the time value of money so certain method of efficient cash management practiced by corporations in the countries may not be viable in view of either the deficiency of knowledge or lack of consequences among corporate managers of developing country to calculate the interest cost or fund lost, if cash is not collected promptly”. (Shrestha, 1994)

Pradhan (2009) explained that cash includes coins, currencies, cheque hold by a firm, and balances in its bank account. This money is immediately useable to pay bills. Some times "hear cash items" are also include in cash, e.g. marketable securities. If the firm has excess cash, it may decide to convert it to short term investments. The financial manager will purchase low risk, high liquidity money market instruments that can be converted back to cash without delay if the need arises. The securities provide a small profit on cash that may not be needed immediately for the firm's operation. These securities are widely used s short term investment by the firm in developed countries. Each securities offers different characteristics that make it suitable for different firms. He said cash management is also called management of money position because cash includes not only the cash or currency in hand but also the readily convertible securities or other near cash items, e.g. time and demand deposit, readily available credit and so on. According to him concerning area of cash management are Management of cash flows into and out of the firms, Management of cash flow within the firm and Management of cash balance held by the firm at a point of time.

Weston and Copeland (1992) suggest about cash management from various study and research. They said that relatively high level of interest rates have increased the technology have changed the nature of cash management function. Financial manager have developed new techniques for optimizing cash balance and determining the appropriate relation between holding cash and holding investment in marketable securities.

2.4 Review of Articles

Journals are hardily found in Nepal. But some of the journals which are related to our study is found in T.U. Central Library are reviewed over here.

Shrestha (1980) carried a study about cash management on the book of 'financial management'. He also added about cash management of Nepalese corporations individually. At that time, he studies 6 public corporations which are 3 manufacturing and 3 none manufacturing some of the major conclusion of his study as Majority of corporations in a developing country look towards the mouth of government of funds and government considers corporations as its infant babies badly in need of nourishment and In the case of cycle, time period of material received from suppliers is beyond the control of the corporations and do not directly affect the financial statement although they have much to do with productions schedules of corporations and also The first motive of holding cash of the corporation is transaction. For this purpose manufacturing and trading corporations like National Trading required to retain higher cash balance than the public utility corporations like Nepal Electricity Corporations and Royal Nepal Airlines Corporation. The second motive that encourages corporations to hold cash is the precautionary motive. National construction company Nepal suffered from lack of cash to undertake the most profitable contract due to failure of forecasting cash receipts from the completed construction work from where the collection of cash is found to be unexpectedly delayed. The third motive often considered by the corporation is the opportunity motive to earn profit from cash holding; i.e., speculative motive. For efficiency of cash management, quick collection and delay disbursement

is necessary bolt in context of Nepalese corporations; it is found that most of them make quick disbursement while the collection is slow.

Bajracharya (1990) finds that Most of the Nepalese Public Enterprises practices of cash management in the traditional basis, they have lacking in a scientific approaches. A more serious aspect of cash management has been the absence of any formalized system of cash planning and cash budgeting in mangy of the enterprises do have the practices of forecasting cash requirement on a formal basis and modern practices with respect to debt collection monitoring the payment behavior of customer and relevant banking arrangement in connection with collection of receivables have been virtually ignored in many enterprises. Majority of the enterprises did not face any serious liquidity problem. However, this was not because of the effectiveness of cash planning and budgeting. The problem of liquidity actually did not arise due to the coincidence of delay payment to creditors. Most enterprises look 150-180 days in collections overdue accounts. In case delayed payment very few enterprise charged interest, the charged rate around 10%-18% annually. By and large most enterprises had periods accumulation of surplus cash and corresponding cash shortage from time to time. However, none of the enterprise considered the implications of holding idle cash balance and few took into the account the potential benefit of investing surplus in marketable securities. These which did failed to consider the cost of administrating such investment. Used the financial ratios and the trend there of the manufacturing enterprises revealed a more favorable picture of the effectiveness of cash management relatively to non- manufacturing as reflected to current ratios. Regression analysis revealed that there was little effect of the opportunity cost of holding cash on the cash balance held by the enterprises. Neither interest rate nor the rate of inflation had

any effect on the cash balance further there was very little evidence of the effect of economy of scale on cash balance holding in most case.

Tobin (1956) in their research paper, interest elasticity of transaction demand for cash with a view to maximizing individuals interest earning net of transaction cost which is different proposed from Baumol. Tobin and Baumol mainly indicated that there are important economies of scale in cash holding and an inverse relationship between interest rates and the demand for money

Meltzer (1963) finds that the theory of demand for money by business firm. His major contributions was the attempt to incorporate empirical finding on firms into a theoretical perspective developed for individuals, Demand of money functions is

$$M = f(r, w) \qquad ...2.7$$

Where,

M = Demand deposit of public

r= market rate of interest

w= net wealth of public

Meltzer adjusted wealth as an explanatory variable of cash balance determination and sales as the measure of wealth. He concluded that the results suggest strongly that the cross- section demand for money firms is function of sales to a first approximation linear in the logarithm and unit elastic.

Beranek (1996) concluded that the include a probability distribution for expected cash flow and a cost function for the loss of cash discounts and deterioration of credit rating when the firm is caught short of cash. The decision variable in Baranek's model is the allocation of funds between cash and investments at the beginning of the period withdrawals from investments are assumed to be possible only at the end of each planning period. The financial manager is regarded as having total resource of '*k*'

dollars available at the beginning of planning period. The manager expects the net cash drain (receipt-disbursement) at the end of period to by *'y'* dollars [either positive as negative with a probability distribution g*(y)]*. The financial manager's objective of maximizing returns by investment in securities is constrained by transaction cost and the risk of being short cost consist of cash discount forgone and the deterioration of the firm's credit ration when it is unable to meet payment in time.

His solution calls for setting the cash balance at a level such that once the critical level is set the cumulative probabilities of running short of cash is equal to the ratio *'d a'* where *ds* net return on investment portfolio and *'a'* is incremental cost of being short $1 of cash. This means that the financial the opening cash balance will be below the critical minimum is equal to the ration of the incremental net return per dollar of investment to the incremental short cost per dollar.

White and Norman (1965) developed a model for an English insurance company. Investment decision is assumed to be considered periodically and cash inflows form premium and outflows for claims and expenses are assumed to fluctuate randomly according to some known distribution. Another cash flow 'for call-off by stock broker assumed to have and independent distribution function. A penalty rate on borrowing androgens to Beranek's short function also included in the model. Where transaction cost are ignored. The opening cash balance that maximize expected wealth at the end of the period is the relevant decision variable. The optimum solution is a function of Beanek's '*d*' the incremental return per dollar of investment and the interest rate on overdraft.

Pardhan (1997) studied about cash management individual case of National trading Ltd. His finding is very same as Bajracharya (1990). But

it is trading company so his study is not so indicated as manufacturer companies. Another study conducted by Gautam at 1990. He studied cash management a manufacturing company i.e. Gaandaki Noodles. His study indicated that the company is not very sincere about cash management and the volume of companies' cash demand, deposit investments are very fluctuation in nature. His conclusions are very near to findings of Bajracharya. After analyzing conclusions, rations and regressions related to the cash management conveys same relationship with receivable, inventories, sales and profitability. Similarly those conclusions do not give clear picture of overall cash management in Nepalese enterprises. Because, mainly they analyzed only public enterprises' cash management. This study has become old and it cover some of the selected government enterprises. Now, some of the enterprises are privatized and some are dissolved also, so these study cannot reflex about cash management in present situation.

Pradhan and koirala(2004) focused on "Working capital management in Nepalese corporations". They have focuses on evaluation of working capital position of selected manufacturing and non- manufacturing corporations in Nepal. They based their study on five manufacturing and six non manufacturing public enterprises. This study is concentrated in the size of investment, trend of investment and need to control the investment in current assets, significance of current assets management.

Dr. Jagit Singh (2002) conclude that working capital management is the most critical and crucial aspect of management of finances. It is an integral component of financial management of enterprise. The judicious use of working capital determines the success or failure of an enterprise. Studies of the cause of industrial sickness have repeatedly emphasized the importance of working capital. Perceptions of working capital differ from

firm to firm and manager to manager. Working capital is the lifeline of the business. In simple sample terms it is the money required to manage day to day affair of an organization. In technical terms, it is the difference between current assets and current liabilities. Current assets are those assets, which can be readily (easy converted in cash) liquefied to pay of the current liabilities which normally mature with in span of one year. The components of current assets are cash in hand at bank, sundry debtors, inventory, bill receivables, loans and advances. The components of current liabilities are loans, creditors, bill payable, overdrafts etc.

2.5 Review of Previous Thesis

Past Research work would be crucial for our study. We are reviewed here three important thesis which will be little bit helpful for our study purpose. In this section, an attempt has been made to review the studies on cash management done from different persons.

Rai (2010) conclude that "Revenue Planning and Cash Management, A Case Study of Nepal Telecom" to study the existing cash management system , the credit policy adopted by NTC. To explain few suggestions on the basis of above analysis to improve the cash management for future.

Bajracharya (2005) in their research paper, "Cash Management in Nepalese Enterprises" finds that detailed cash management study of the prominent Nepalese enterprise during the time and it includes research on total of 18 enterprises finally recommending a new cash management model suitable in Nepalese context. Since the thesis presented was for PhD degree. Most of the data analyzed were primary data and in greater detail.

Kunwar (2005) finds that computed on the basis of financial and statistical ratio analysis of secondary data such as profit and loss account and balance sheet. Whereas concerning primary data, a questionnaire was distributed to extract qualitative information. Overall, through the study was its own kind, it was not focused on cash management aspect of the organization.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is the guidelines of research. Data and information are lifeblood of any research. Research methodology is a plan to obtain the answer of research question though analysis of data. The main objectives of the study are to examine the cash management of listed manufacturing companies in Nepal. So, this chapters "research methodology" is of extremely important. This chapter consists of research design, coverage of period and date, nature and source of data, research variables, tools and techniques of data analysis and research procedure. Which are explained below.

3.2 Research Design

This research is exploratory in its type as it is mainly concerned to concerned to explore various aspect of working capital management in Nepalese manufacturing companies. As to the nature it can preferably be said a quantitative research as quantitative data have been used extensively. Historical data covering at least 10 years of period have been used here in this study to search the solution of the research questions.

3.3 Population and Sample

The total numbers\ populations of the companies which are NEPSE are 298, with different nature of production. Among them only five companies are selected as a sample for the study .They are,

1. Nepal Lube oil Limited
2. Shree Raghupati Jute Mills

3. Unilever Limited
4. Bottlers Nepal Limited
5. Nepal Banaspati Ghee

3.4 Nature and Sources of Data

Only secondary data are collected for the study. Financial statements, such as, balance sheet and profit and loss account of the companies are major sources of data.

- The major sources of information collections are as follows:
- Annual reports of related companies and security board of Nepal.
- Financial statistics of listed companies, published by security board of Nepal.
- Journals, Government and Non-government publication other supportive books and mostly websites of the companies.
- Other related published and unpublished documents.
- Website of the companies and other institute.

3.5 Data processing Management and Tabulation

Data received from the aforementioned sources are processed and arranged in table graph, chart, diagram etc. to facilities the purpose of analysis.

3.6 Tools for Analysis

Financial and statistical tools those required for analysis are as follows:

3.6.1 Financial Tools

Analysis of Liquidity Ratio

Current Ratio

This ratio examines the short term solvency, i.e. liquidity position of the firm. The higher the current ratio, the larger is the amount of rupee available per rupee of current liability, the more is the firm's ability to meet current obligations and the greater is the safety of funds of short term creditors. The idle current ratio is 2:1. Lesser the ratio indicates the lower liquidity position of the firm.

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

Quick Ratio\Acid- Test Ratio

It is a measure of liquidity designed to overcome the defect of current ratio. It is often referred as a quick ratio because it is a measurement of a firm's ability to convert its current assets quickly in to cash in order to meet current liabilities. The idle quick ratio is 1:1.

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

Where, Quick Assets = Current Assets - Inventory

Turn- Over Ratio

Cash Turnover Ratio

Cash turnovers ratio explains how quickly the cash is received from the sales, or in other words it measures the speed with cash move through a

company's operation. Cash turnover ratio is obtained by the following formula,

$$\text{Cash Turn Over Ratio} = \frac{\text{Sales}}{\text{Cash in hand+Bank Balance}}$$

Inventory Turnover Ratio

This ratio indicates the number of times inventory is converted in sales during the year.

$$\text{Inventory Turnover Ratio} = \frac{\text{Sales}}{\text{Closing Inventory}}$$

$$\text{Inventory Conversion Period} = \frac{\text{Days in a Year}}{\text{Inventory Turnover Ratio}}$$

It indicates that the gap of the period which the inventory to be sold in each time of conversion.

Receivables Turnover Ratio (RTR)

It measure how often receivables are turned over during a period.

$$\text{Receivable Turnover Ratio} = \frac{\text{Sales}}{\text{Receivables}}$$

Receivable Collection period\ Average collection period (RCP)

RCP is the time required to collect cash from customer. It is calculated by dividing account receivable with average daily sales.

$$\text{Receivable Conversion Period} = \frac{\text{A/R}}{\frac{\text{Sales}}{360}}$$

Cash and Bank Balance to Other Aspects

Cash and Bank Balance to Current Liabilities

It calculates the cash balance available with the firm in meeting payment of current liabilities moderately higher ratio indicates good liquidity. Too high and too low ratio are unfavorable for the firm since too high indicates excess cash balance held idle too low ratio means the firm unable to meet current liabilities.

$$\text{Cash to Current Liabilities} = \frac{\text{Cash + Bank Balance}}{\text{Current Liabilities}}$$

Cash and Bank Balance to A\C Payable

$$\text{Cash to A/C Payable} = \frac{\text{Cash + Bank Balance}}{\text{A/C Payable}}$$

Cash and Bank Balance to Total Assets (CBTA)

It indicates that the position of Cash with relation to total assets. It measure ratio of productive assets with unproductive assets moderately high is the best. Too much high measure the idle Cash which is losing opportunity income and vice versa.

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

Cash and Bank Balance to current Assets (CBCA)

It is portion of cash and balances expressed in terms of total current assets and are determined using the equation below:

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

Cash Conversion Cycle

It measures the length of time between the company makes payment and it receives cash. Lower the conversion cycle is preferable.

Symbolically,

Cash Conversion Cycle = Inventory Conversion Period + Receivable Collection Period - Payable Deferral Period

Payable deferral Period (Pdp) is calculated by,

$$\frac{\text{A/C Payable}}{\text{Cost of Good Sold}} \times \text{Days in a Year}$$

Higher the payable deferral period is preferred but credit rating of the companies towards suppliers must be maintained.

Average Collection Period

$$\text{Average Collection Period} = \frac{\text{Receivables}}{\text{Sales}} \times 360$$

3.6.2 Statistical Tools

Correlation with Variable (S)

Correlation describes the degree to which one variable is linearly related to another. Cause is not identified by the study of correlation but it explains the relationship between two or more variables.

Symbolically,

$$\text{Correlation (r)} = \frac{\text{Suv}}{\sqrt{\text{Su}^2}.\sqrt{\text{Sv}^2}}$$

Where,

$u = X - \overline{X}$

$$v = Y - \overline{Y}$$

X and Y are Variables.

$$\text{Probable Error} = 0.6745 \times \frac{1 - r^2}{\sqrt{N}}$$

Where,

N = No. of period, the sample is taken out

r^2 = Coefficient of determination.

If 'r' is less than probable error, there is no evidence of correlation, i.e. the value of 'r' is not all significant.

If the value of 'r' more than six time of probable error from the coefficient of correlation we get respectively the upper and lower limits within which coefficient of correlation in the population can be expected to lie.

Symbolically,

□ = r□□□□PE

Where □ = correlation in the population

Standard Deviation

The standard deviation measure the absolute variability of a distribution. The greater the amount of dispersion or variability, greater the standard deviation, for the greater will be magnitude of deviation of the value from the mean. A small standard deviation means a high degree of uniformity of the observation homogeneously of a series.

Symbolically,

Standard Deviation(σ) = $\sqrt{\frac{Su^2}{N}}$ or $\sqrt{\frac{Sv^2}{N}}$

Regression Analysis and regression Line

In regression analysis the nature of relationship between two variables is established and unknown variable is established on the basis of other known variable. Hus the regression analysis is the statistical method for determining the nature of relationship that exists among two are more variables and then using the relationship between the two variables, he value is the more accurate. The unknown variable is called dependent variable and the known variable is called independent variable.

Symbolically,

Regression line of 'x' variable (X) on 'Y' variable (Y) in given by

$$X - \bar{X} = r\frac{sx}{sy}(Y - \bar{Y})$$

Where,

$\bar{X}$ = mean of 'x' variable

$\bar{Y}$ = mean of 'y' variable

σx = standard deviation of 'x' variable

σy = standard deviation of 'y' variable

r = Karl Pearson's coefficient of correlation

We can say, $r\frac{sx}{sy}$ regression coefficient of 'x' on 'y'. It measures the change in 'x' corresponding to a unit change in 'y'.

Multiple Regression Analysis

It is a statistical technique for investing the relationship between one dependent variable and a set of two or more independent variables. The multiple regression analysis represents the extension of two- variable regression analysis. It is definitely superior to simple regression analysis as it is more close to reality. The multiple regression equation in symbol is,

$y = a + b_1x_1 + b_2x_2$

Where,

y = Dependent Variable

x_1 & x_2 = Independent Variable

a = Value of 'y' when x_1 & x_2 = 0

b_2 = Partial regression coefficient of y_2 on x_1 when x_2 is constant (amount of change in y, per unit change in x_1, holding x_2 constant)

Coefficient of Multiple Determination for Multiple regression

Symbolically,

$$Ry, X_1, X_2 = \frac{aSy + b_1Syx_1 + b_2Syx_2 + Ny^{-2}}{Sy^2 - Sx^2}$$

The calculated value indicates that two independent variables x_1 & x_2 explain the total variation in dependent variable 'y'. If we want to the accuracy of estimate still further, we may add more independent variable in regression model.

CHAPTER FOUR
PRESENTATION AND ANALYSIS OF DATA

The presentation and analysis of data section is the main text the study of cash management in Nepalese listed manufacturing companies to gain insight into the predetermined objectives of the study. For the purpose of presentation of data, the published most recent financial statements of the listed companies which fall within the sample of the study are analyzed. The collected and tabulated data have been analyzed using different financial and statistical tools. This chapter includes presentation, analysis and integration of collected data with organizing sequentially as per the objectives of the study.

4.1 Analysis of Cash and Bank Balance

Holding of optimum cash balance is the rational cash management practice of a business form. Total cash balance refers to the cash in hand, cash at bank and cash in transit.

The following table presents the level of cash, in sampled manufacturing companies, and the average, during the study period.

Table No. 4.1

Level of Cash and Bank Balance is Selected Manufacturing Companies

(In Million)

Name of Company	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	Average
BN	35.69	3.03	40.83	2.94	20.46	5.34	18.05
SRJM	2.83	0.47	0.20	1.58	3.86	0.81	1.62
UL	5.21	4.40	6.63	8.60	5.70	7.50	6.34
NBG	4.01	3.52	1.90	2.81	2.93	2.06	2.87
NLO	3.06	1.75	2.77	6.13	4.07	2.93	3.28
Average	9.96	2.63	10.47	4.41	7.40	3.73	6.43

Source: (A.R. of Company and FSLC).

The average cash balance held by Nepalese manufacturing companies (selected) has been observed to be 35.69 M in 2005/06, 3.03 M in 2006/07, 40.83 M in 2007/08, 2.94 M in 2008/09, 20.46 M in 2009/10 and 5.34 M in 2010/11. The cash balance of the companies varied widely in all year of study period. The holding of cash position was highest for Bottler's Nepal Limited in 2005/06 (40.83 M) and lowest in NLO in same period (2.83 M). Similarly, it was highest in UL (4.40 M) and lowest for SRJM (0.47 M) in 2006/07. However, in 2007/08, the cash balance was highest for BN by (40.83 M) and lowest for SRJM (0.20 M). Likewise, it was highest for UL (8.60 M) and lowest for SRJM (1.58 M) in 2008/09, highest for BN (20.46 M) and lowest for NBG (2.93 M) in 2009/10, highest for (7.50 M) and lowest for SRJM (0.81 M) in 2010/11.

Above table present that, the average cash balance of individual companies over the study period were 18.05 M for B.N. 1.62 for SRJM, 6.34 M for UL 2.87 M for NBG, 3.28 M for NLO where as overall

industry average during the period of study was 6.43 M. It was presented highest for BN (18.05 M) then lowest was presented for SRJM (1.62 M).

Individual company's cash balance has been observed in a wide variation in different period of study. The cash balance was highest in 2007/08 (40.83 M) and lowest in 2007/08 (0.20 M) for SRJM, highest in 2008/09 (8.60 M) and lowest in 2006/07 (4.40 M) for UL. Similarly, the observation was highest in 2005/06 (4.01 M) and lowest in 2007/08 (1.90 M) for NBG and it was highest in 2008/09 (6.13 M) and lowest in 2006/07 (1.75 M) for NLO.

Unilever Limited and Bottlers Nepal Limited have shown the upper level of cash balance in the majority of study period. SRJM, NBG and NLO have shown the lower level of cash balance in the majority of study period.

4.1.1 Analysis of Changes in Cash Balance in Manufacturing Companies

Table No. 4.2

Cash Balance of Manufacturing Companies During the Period of Study

Year	Cash Balance (in million)	Change
2005/06	9.96	-
2006/07	2.63	-73.55%
2007/08	10.47	297.34%
2008/09	4.41	-57.84%
2009/10	7.40	67.73%
2010/11	7.30	-1.35%

Source: Table 4.1. *(Taking previous year as a base)*

Above table shows the increasing and decreasing trend and average cash balance of selected manufacturing companies during the study period. The holding of cash, at first, has been seen in decreasing trend by 73.55 percent in 2006/07. It has been seen in increasing trend by 297.34 percent in 2007/08. Likewise it was observed decreasing by 57.84 percent in year 2008/09. There after it has been observed in increasing trend by 67.73 percent decreasing 1.35 percent in 2009/10 and 2010/11 respectively.

Table No. 4.3

Cash Balance of Individual Companies in Overall Period of Study

Name of Company	Cash Balance (Av)	Change
BN	18.04	-
SRJM	1.62	-91.02%
UL	6.34	2.91%
NBG	2.87	-54.73%
NLO	3.28	14.29%

Source : Table No. 4.1.

Above table shows the deviation of cash balances in individual companies over the study period. NLO has shown highest positive deviation i.e. 14.29 percent and SRJM has shown the highest negative deviation i.e. 91.02 percent which was compared by over all industry average i.e. 6.43 M.

The observation explains that only UL has contributed for increment and overall cash balance for companies in study period.

4.1.2 Graphical Presentation of Cash Balance in Manufacturing Companies

Figure No. 4.1

Bar Diagram for Cash Balance of Manufacturing Company's During Study Period

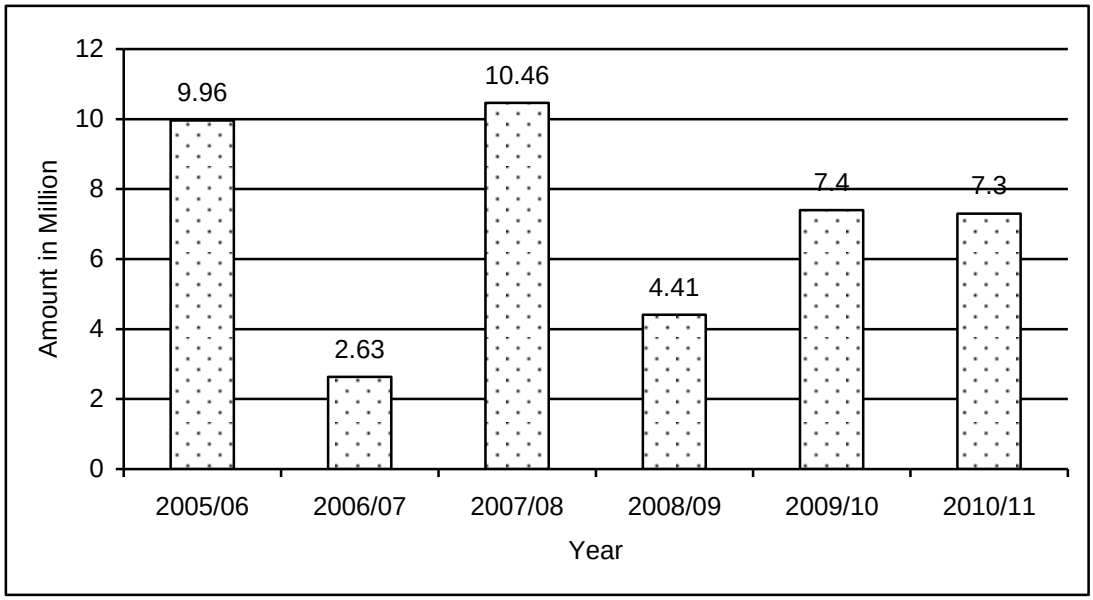
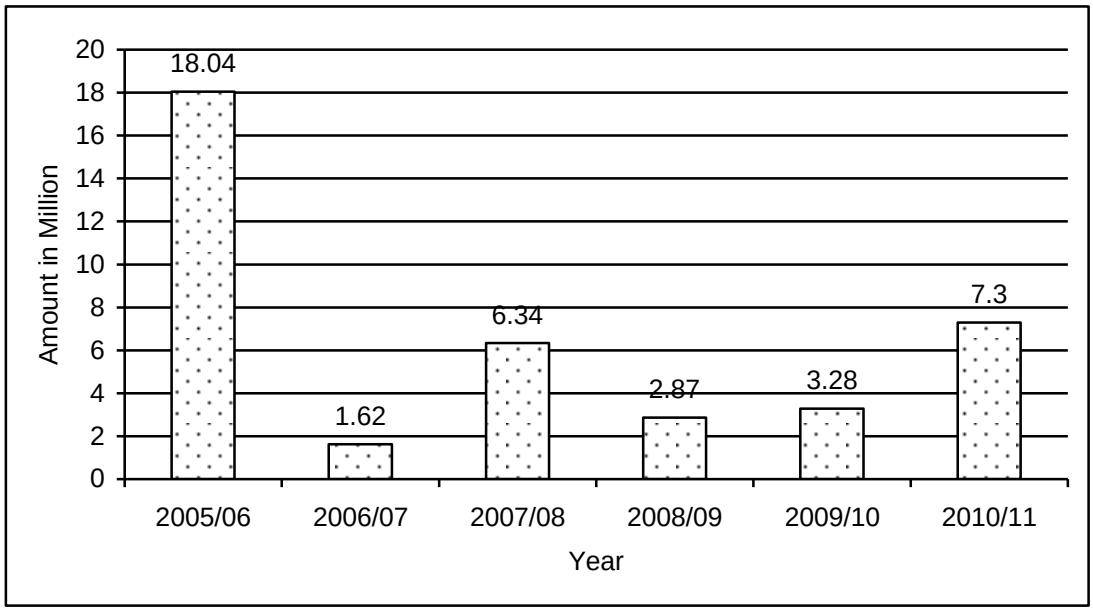


Figure No. 4.2

Bar Diagram for Cash Balance Individual Companies Over the Period



The strong position of cash has been observed in year 2007/08 and weak position has been observed in year 2006/07.

Similarly BN has the strongest position of cash and SRJM has a lowest position of cash in overall study period. Moreover the manufacturing companies have not planned cash inflow and outflow forecasts. It is very importance for the companies to keep careful watch over the cash management.

4.2 Cash and Sales

4.2.1 Analysis of Cash Turnover Ratio

The cash balance of the company should be optimum to meet its current obligation in course of daily business transaction. The cash turnover ratio explains how quickly cash is received from the sales, in other words it measures the speed with which cash more through an enterprise's (company's) operation. Higher ratio represents sound liquidity and vice-versa. However, too high ratio indicates excess cash balance being held idle.

Table No. 4.2

Cash Turnover Ratio of Selected Manufacturing Companies

Name of Company	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	Average
BN	8.23	121.66	9.13	141.01	26.18	114.17	70.06
SRJM	56.11	452.36	1306.45	186.75	109.42	353.25	410.72
UL	229.09	341.75	260.73	179.18	216.85	218.37	240.10
NBG	39.16	53.18	73.70	87.84	144.20	109.81	84.65
NLO	41.82	61.33	38.70	11.78	33.42	40.67	37.95
Average	74.88	206.06	337.74	121.31	106.00	167.25	168.70

Source: Cash and Sales from AR and FSLC.

Erratic fluctuations have been observed in cash turnover ratio of manufacturing companies. The fluctuation of cash turnover ratio is the indication of no definite policy on holding cash balance in relation to sales volume, is applied by listed manufacturing companies of Nepal. The average cash turnover ratio of Nepalese manufacturing companies have been observed to be 74.86 in 2005/06, 206.09 in 2006/07, 337.74 in 2007/08, 121.31 in 2008/09, 106.01 in 2009/10 and 167.25 in 2010/11. Whereas the overall industry average over the study period was 168.79. Cash turnover ratio varied widely across the companies in all the year of study period. The ratio was highest for UL (229.09) and lowest for BN (8.23) in 2005/06, highest for SRJM (452.36) and lowest for NBG (53.18) in 2007/08, highest for SRJM (452.36) and lowest for NLO (61.33) in 2006/07, highest for SRJM (1306.45) and lowest for BB (9.13), highest for UL (186.75) and lowest for NLO (11.78) and highest for UL (216.85) and lowest for NLO (33.42) in 2009/10, highest for SRFM (353.25) and lowest for NLO (40.67) in 2010/11.

Average table shows that same company's cash turnover ratio, in different period, has been observed in fluctuated trend. The average cash turnover ratio of individual company over the period of study has been observed by 70.06 for BN, 410.72 for SRJM, 240.10 for UL 84.65 for NBG and 37.95 for NLO, where overall industry average was 168.70. The highest observation was 141.01 in 2008/09 and lowest was 8.23 in 2005/06. For BN, highest was 452.36 in 2006/07 and lowest was 56.11 in 2005/06 for SRJM, highest was 341.73 in 2006/07 and lowest was 179.18 in 2008/09 for UL, the highest was 144.21 in 2009/10 and lowest was 39.16 in 2005/06 for NBG and highest was 61.50 in 2006/07 and lowest was 11.78 in 2008/09 for NLO.

As a fact the higher turnover ratio of cash indicates the sound liquidity position of the company and vice versa. But too much ratio indicates the excess cash balance being held idle. The fluctuating of this ratio interprets that the cash management practices of the companies has not done by any definite policy and any planned approach.

4.2.2 Analysis of the Relation between Cash (y) and Sales (x)

To analyze the relationship between cash (y) an sales (x), Karl Pearson's correlation coefficient has been determined. The calculated correlation between 'x' and 'y' has been observed to be 0.262. Generally, it indicates the negative relationship between cash and sales. To make confirm, whether it is real or not for overall listed manufacturing companies in Nepal, it is compared with probable error and 6 × PE. $|r| = 0.262 > PE = 0.294$ and $|r| = 0.262 < 6PE = 1.766$ indicates that the correlation coefficient is not practically certain i.e. the value of r is not significant. It is said that it is not sure that of increment of one may not increase in other.

The regression equation of sales (x) and cash (y) has been obtained to be $x = 523.037 - 4.788y$. The regression coefficient, 0.488 explain there occurs 4.788 M change in sales if cash is changed by 1 M in same direction.. It confirms that cash is the significant denominator for sales.

Similarly, the regression equation of cash (y) as sales (x) has been obtained to be $y = 0.614 - 0.0143x$. The regression coefficient, 0.0143 interprets that 1 M changes in x may occur changes in y to be 0.014 M which s not all significant relationship of cash on sales (For detail calculation see Appendix 'J').

4.3 Analysis of Cash to Total Assets Ratio

Investment in money assets differs not only from the industry to another but it also varies from one company to another within the same company thus making cash management task is more difficult.

Table No. 4.5

Cash and Total Assets Ratio in Manufacturing Companies

(Percentage)

Name of Company	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	Average
BN	4.86	0.37	4.85	0.31	1.97	0.51	2.15
SRJM	1.10	0.16	0.07	0.54	1.24	0.27	0.56
UL	1.18	0.81	1.05	1.13	0.10	0.96	0.87
NBG	3.56	2.49	1.02	1.20	1.34	1.07	1.78
NLO	2.20	1.73	2.20	5.23	3.64	2.04	2.84
Average	2.58	1.11	1.84	1.67	1.64	0.97	1.64

Source: Cash and TA from AR and FSLC.

The average investment in cash by Nepalese manufacturing companies has been observed to be 2.58 percent in 2005/06, 1.11 percent in 2006/07, 1.84 percent in 2007/08, 1.67 percent in 2008/09, 1.64 percent in 2009/10 and 0.97 percent in 2010/11, whereas overall industrial average cash to total assets ratio was 1.64 percent.

The ratio of cash to total assets varied widely across the manufacturing companies in all year of study period. The ratio was highest for BN (4.86%) and lowest for SRJM (1.10%) in 2005/06 highest for NBG (2.49%) and lowest for SRJM (0.16%) in 2006/07, highest for BN (4.85%) and lowest fro SRJM (0.07%) in 2007/08, highest for NLO

(5.23%) and lowest for BN (0.31%) in 2008/09, highest for NLO (3.64%) and lowest for UL (0.10%) in 2009/10, and highest for NLO (2.04%) and lowest for SRJM (0.27%) in 2010/11.

According to above table same individual company's cash to total assets ratio has been observed in widely fluctuation trend in different study period. The highest ratio was 4.86 percent in 2005/06 and lowest was 0.31 percent in 2008/09 for BN, highest was 1.24 percent in 2009/10 and lowest was 0.07 percent in 2007/08 for SRJM, highest was 1.18 percent in 2005/06 and lowest was 0.10 percent in 2009/10 for UL, highest was 3.56 percent in 2005/06 and lowest was 1.02 percent in 2007/08 for NBG highest was 5.23 percent in 2009/10 and lowest was 1.73 percent in 2006/07 for UL.

The average cash to total assets ratio of the individual companies over the study period has been observed by 2.15 percent for BN, 0.56 percent for SRJM, 0.87 percent for UL, 1.78 percent for NBG, and 2.84 percent for NLO. Whereas overall industry average cash to total assets ratio was 1.64 percent.

The strong variation in cash to total assets ratio explains that the companies has not been adopted specific policy for investment of cash in total assets.

4.3.1 Graphical Presentation of Cash to Total Assets Ratio

Figure No. 4.3

Cash to Total Assets Ratio of the Manufacturing Companies During Study Period

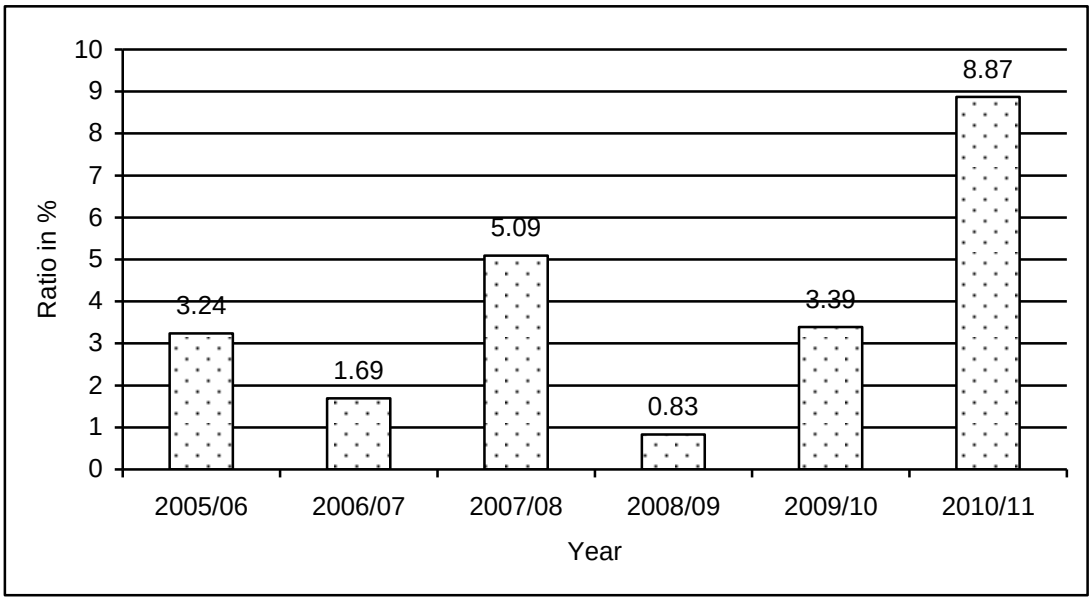
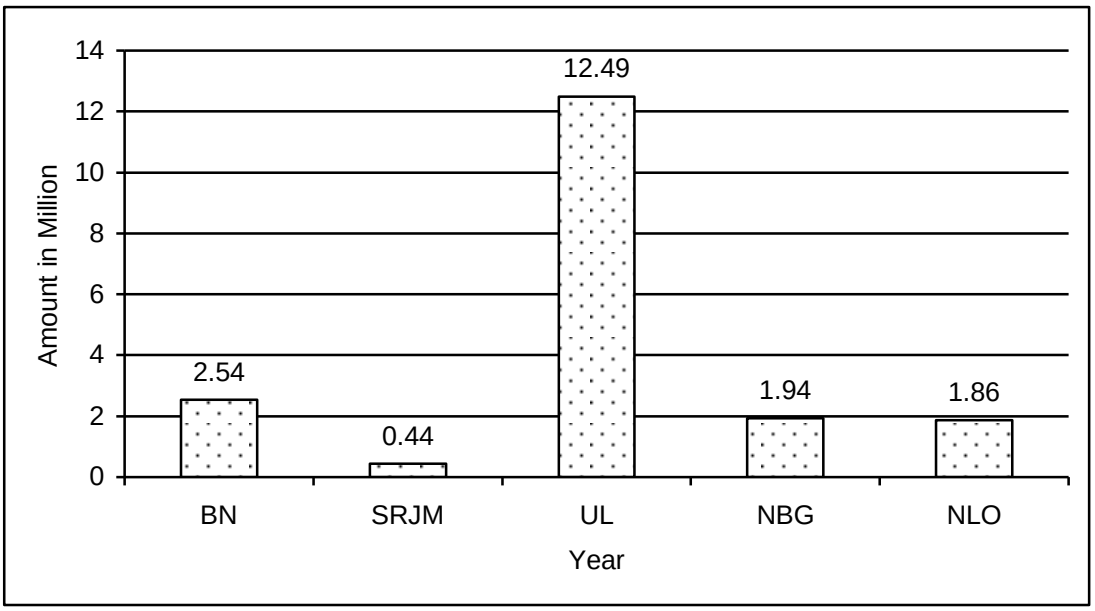


Figure No. 4.4

Cash to Total Assets Ratio of Individual Companies Over the Study Period



4.4 Cash and Bank Balance and Current Assets

4.4.1 Analysis of Cash and Bank Balance to Current Assets Ratio

Cash is the most liquid current asset and as such more the amount of cash balances in a company, more liquid the company in meeting the current obligation. However bearing excess cash signifies cash balance being held idle without any motive.

Table No. 4.6

Cash and Current Assets Ratio of Selected Manufacturing Companies

(In %)

Name of Company	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	Average
BN	12.37	0.86	11.05	0.75	4.04	0.98	5.00
SRJM	6.36	0.68	0.33	2.63	4.79	1.06	2.64
UL	2.21	1.25	1.47	1.52	1.43	1.27	1.525
NBG	4.68	3.04	1.17	1.33	1.51	1.34	2.18
NLO	2.65	2.02	2.64	6.30	4.35	2.38	3.39
Average	5.65	1.57	3.33	2.50	3.22	1.41	2.95

Source: Cash and TA from AR and FSLC.

The average cash to current assets ratio has been observed in selected manufacturing companies in study period to be 5.65 percent in 2005/06, 1.57 percent in 206/07, 3.33 percent in 2007/08, 2.50 percent in 2008/09, 3.22 percent in 2009/10 and 1.41 percent in 2010/11, whereas, the total company average over the study period was 2.95. The ratio varied widely across the companies in all period of study. The highest ratio was 12.37 percent for BN and lowest ratio was 2.21 percent for UL in 2005/06, highest ratio was 3.04 percent for NBG and lowest was 0.68 percent for

SRJM in 2006/07, highest was 11.05 percent for BN and lowest was 0.33 percent for SRJM in 2007/08, highest was 6.30 percent for NLO and lowest was 0.75 percent for BN in 2008/09. Similarly 4.79 percent for SRJM and 1.43 percent for UL in 2009/10 and highest was 2.38 percent for NLO and lowest was 0.98 percent for BN in 2010/11.

As observing this ratio of individual companies over the period of study, the average cash to current assets ratio has been found to be 5.00 percent for BN, 2.64 percent for SRJM 1.53 percent for UL 2.18 percent for NBG and 3.39 percent for NLO. The ratio varied widely across the year for all companies taken as the sample. The highest ratio was 12.37 percent in 005/06 and lowest was 0.75 percent in 2008/09 for BN, highest was 6.36 percent in 2005/06 and lowest was 0.33 percent in 2007/08 for SRJM, highest was 2.21 percent in 2005/06 and lowest was 1.25 percent in 2006/07 for UL, the highest was 4.68 percent in 200/06 and the lowest was 1.17 percent in 2007/08 for NBG, and the highest was 6.30 percent in 2008/09 and the lowest was 2.02 in 2006/07 for NLO.

The overall industry average ratio was 2.95 percent. The erratic fluctuation suggest that the companies haven't been following the definite policy regarding how much cash balance to hold at the end of fiscal year. The manufacturing companies have undergone cash scarcity to meet short term payments during the study period. However, BN and UL have been showing the stronger capacity on making payment of short term obligation, being the ratios greater.

4.4.2 Graphical Presentation of Cash to Current Assets Ratio

Figure No. 4.5

Cash to Current Assets Ratio of Companies During the Study Period

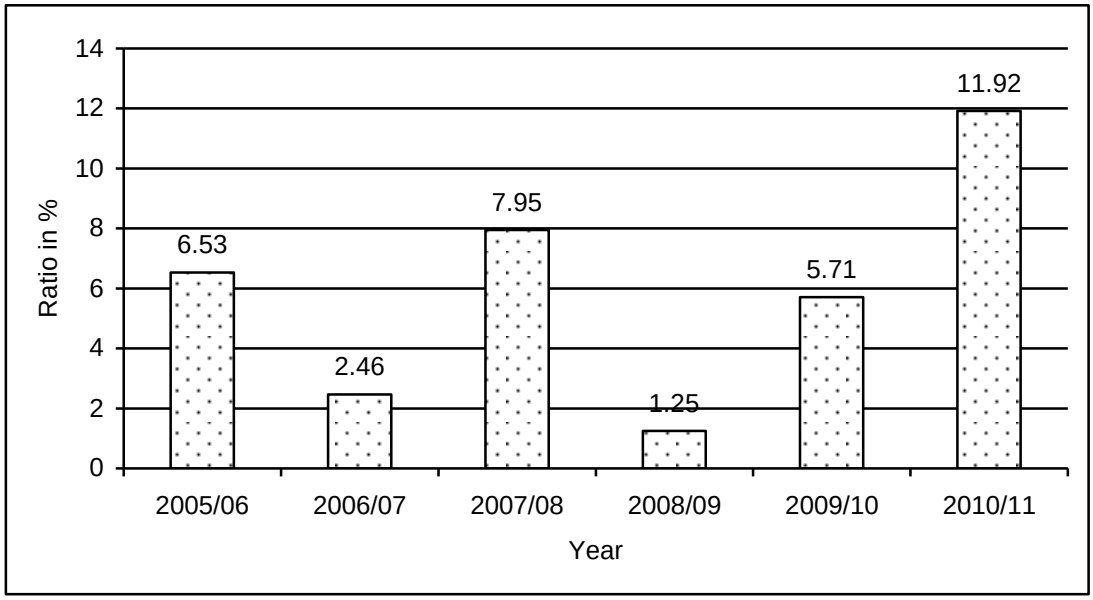
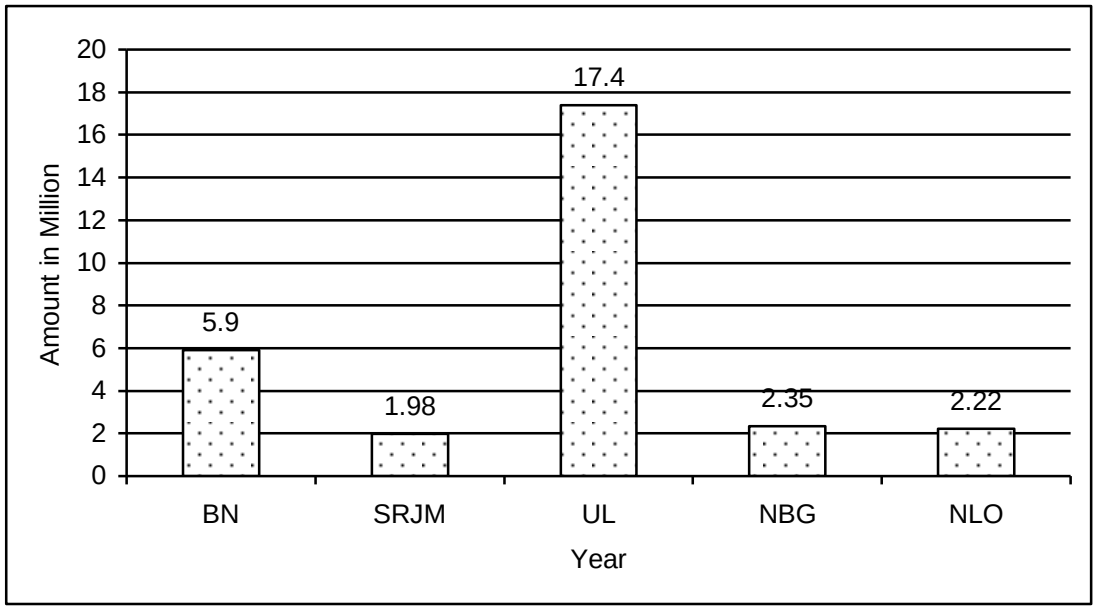


Figure No. 4.6

Cash to Current Assets Ratio of Individual Companies Over the Period of Study



4.4.3 Relationship between Cash and Current Assets

The correlation coefficient between cash (x) and current assets 'Cash' (y) has been obtained to be -0.046. It shows the negative relation between cash and current assets in sampled listed manufacturing companies. But it was found that there is significant relationship of cash and current assets in other word there is no evidence that cash and CA are correlated. PE = 0.2759 > |r| = 0.046 < 6PE = 1.656, explain that it is not sure that increase in cash results to increase in current assets and vice-versa.

The regression equation of cash (x) on CA (y) has been obtained to be x = -0.00283y + 7.0852. The regression coefficient of cash on CA, 0.00283, explains that 1 million changes in current assets to -0.00283 M. Change in cash in same direction.

Similarly the regression equation of CA (y) as cash (x) has been determined to be y = -0.7485y + 226.96. The regression coefficient of CA (y) as cash (x), -0.7485, explain that 1 million change in cash may occur -0.7485 M change in CA in same direction (For detail calculation see Appendix 'K').

4.5 Cash and Current Liability

Among the technique of measuring corporate liquidity the ratio of cash to current liabilities indicates the amount of cash (in percentage) available to pay the current obligation of the firm. I general a low percentage of cash to current liabilities may be regarded as it may lead to corporate insolvency.

4.5.1 Analysis of Cash to Current Liabilities Ratio

The ratio indicates the amount of cash available to pay the current obligation of the firm.

Table No. 4.7

Cash and Current Liabilities Ratio of Selected Manufacturing Companies (in %)

Name of Company	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	Average
BN	19.39	1.53	22.10	1.09	6.41	1.73	8.71
SRJM	23.66	1.55	0.60	4.15	6.65	1.81	6.40
UL	2.73	1.64	2.51	2.43	3.66	2.08	2.51
NBG	3.03	2.14	0.75	0.79	0.83	0.51	1.35
NLO	6.22	4.24	5.96	16.13	9.30	5.05	7.82
Average	11.006	2.22	6.38	4.92	5.37	2.25	5.36

Source: Cash and CL from AR and FSLC.

The average cash to current liabilities ratio has been observed to be 11.006 percent in 2005/06, 2.22 percent in 2006/07, 6.38 percent in 2007/08, 4.92 percent in 2008/09, 5.37 percent in 2009/10, and 2.25 percent in 2010/11. Whereas the overall company average cash to current liabilities ratio was 5.36 percent. The ratio of cash to current liabilities varied widely across the company in all year of study period. The highest ratio was 23.66 percent for SRJM and lowest was 2.73 percent for UL in 2005/06, highest was 4.24 percent for NLO and lowest was 5.53 percent for BN in 2006/07, the highest was 22.10 percent for BN and lowest was 0.60 percent for SRJM in 2007/08, highest was 16.13 percent for NLO and lowest was 0.79 percent for NBG in 2008/09, the highest was 9.30 percent for NLO and lowest was 0.83 percent for NBG in 2009/10, and

the highest ratio was 5.05 percent for NLO and lowest was 0.57 percent for NBG in 2010/11.

As observing the ratio of individual company in different period of study, the average ratio have been found to be 8.71 percent for BN, 6.40 percent for SRJM, 9.51 percent for UL, 1.35 percent for NBG, and 7.82 percent for NLO. The study showed that there is not any occurrence of consistency in the ratios in different year of same company also. It was found that, the highest ratio was 22.10 percent in 2007/08 and lowest 1.09 percent in 2008/09 for BN, highest was 23.66 percent in 2005/06 and lowest was 0.60 percent in 2007/08 for SRJM, highest was 3.66 percent in 2009/10 and lowest was 1.64 percent in 2006/07 for UL, highest was 3.03 percent in 2005/06 and lowest was 0.57 percent in 2010/11 for NBG and the highest observation was 16.13 percent in 2008/09 and lowest was 4.24 percent in 2006/07 for NLO.

The ratio was seen in highly fluctuating trend during the study period. It can be said that manufacturing companies has faced the problem of inefficient cash management practice. The average cash to current asset ratio of the overall company has been observed by 5.36 percent over the study period.

Graphical Presentation

Figure No. 4.7

Cash to Current Liabilities Ratio of Company During the Study Period

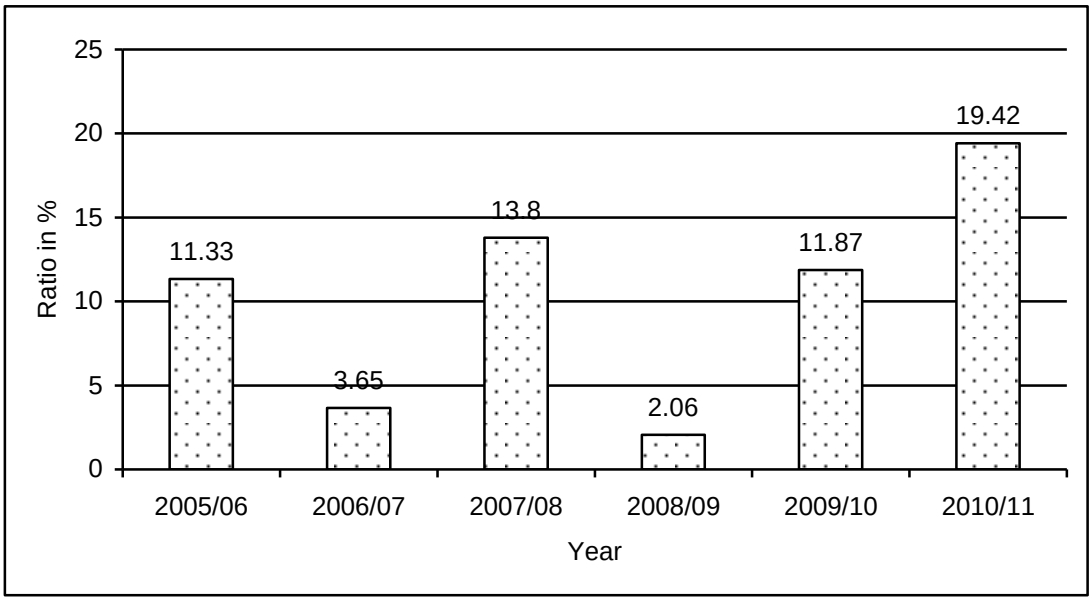
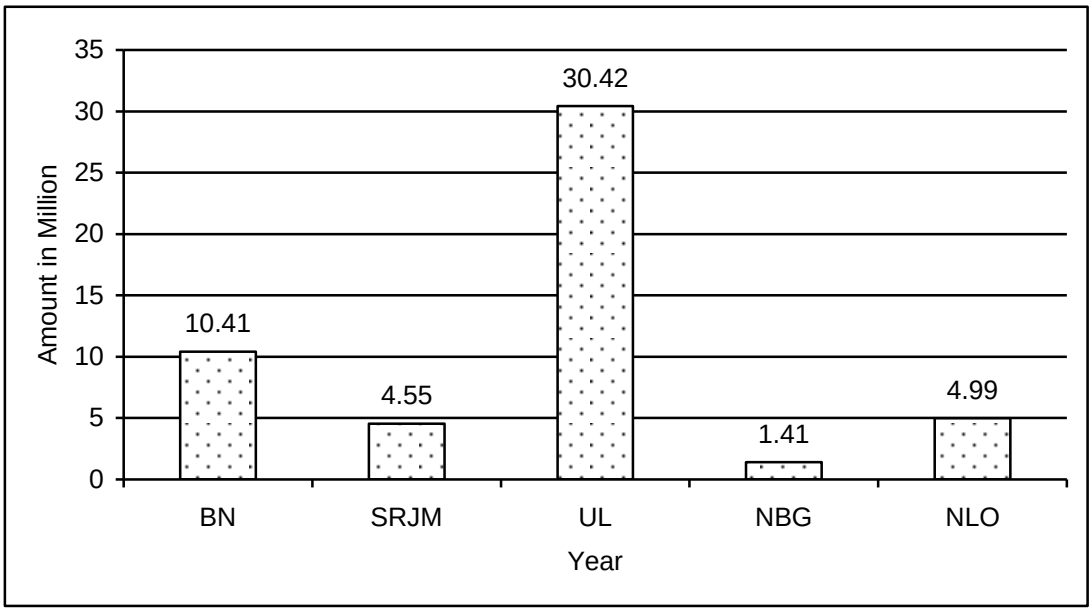


Figure No. 4.8

Cash to Current Liabilities of Individual Company Over the Study Period



4.5.2 Relationship between Cash and Current Liabilities

The correlation coefficient between cash (x) and CL (y) has been derived to be -0.0735. It shows the negative relationship between cash (x) and CL (y) in sampled listed manufacturing companies in Nepal. But it is not significant result for overall is listed manufacturing companies because the result was seen to be PE = 0.2739 < |r| 0.0735 <6PE = < 1.643. So, it is explained increase of one cause may not be increase for other. It is the evidence the adequate (consistent) proportion of cash with CL has not been maintained by the manufacturing companies.

The regression line of cash 'x' on CL 'y' has been determined to be x = 7.379 - 0.00553y. The regression co-efficient 0.00553 explain that the position of cash will be changed by -0.00553 M if CL is changed by 1 M in same direction.

Similarly, the regression line of 'CL' 'y' on cash 'x' has been derived to be y = 165.38 - 0.977x. The regression coefficient 0.977 explain that the portion of CL will be changed by 0.977 M if cash is changed by 1 M in same direction (for detail Appendix 'L').

4.6 Cash and Quick Assets

4.6.1 Analysis of Cash and Quick Assets

Table No. 4.8

Cash and Quick Assets Ratio of Manufacturing Companies (in %)

Name of Company	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	Average
BN	17.65	1.39	16.44	1.17	6.37	1.68	7.45
SRJM	18.03	1.53	0.70	7.39	11.88	3.69	7.20
UL	4.45	2.44	2.075	3.14	2.24	1.60	2.66

NBG	9.63	6.25	1.97	3.10	1.68	2.63	4.21
NLO	3.97	2.83	3.39	8.96	5.48	3.17	4.62
Average	10.75	2.89	4.92	4.75	5.53	2.55	5.23

Source: CA and CL from AR and FSLC.

The average cash to quick asset ratio in to the study period has been studied to be 10.75 percent in 2005/06, 2.89 percent in 2006/07, 4.92 percent 2007/008 in 4.75 percent in 2008/09, 5.53 percent in 2009/10 and 2.55 percent in 2010/11 where the overall average was 5.23 percent. The average cash to QA ratio varied in all year of study period. It was highest in 205/06 (10.75%) and the lowest in 2010/11 (2.55%).

Similarly, the average cash to QA ratio has been observed to be 7.45 percent for BN, 7.20 percent for SRJM, 2.66 percent for UL, 4.2 percent for NBG and 4.62 percent for NLO. The highest ratio was 7.45 percent for UN and lowest was 2.66 percent for SRJM.

4.2.6 Graphical Presentation

Figure No. 4.9

Cash to Quick Assets Ratio of Company During the Study Period

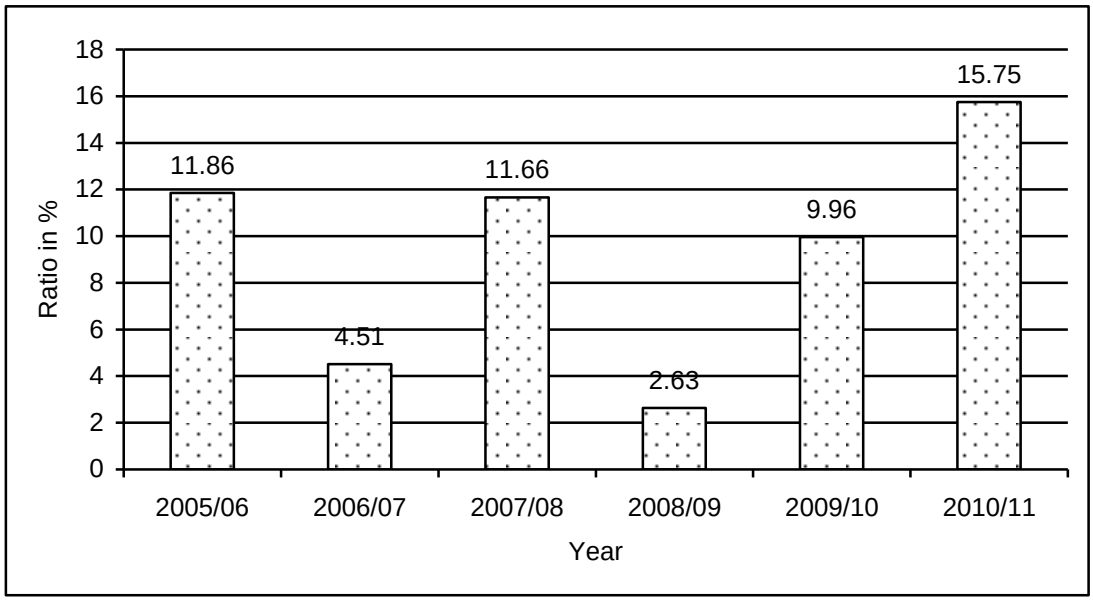
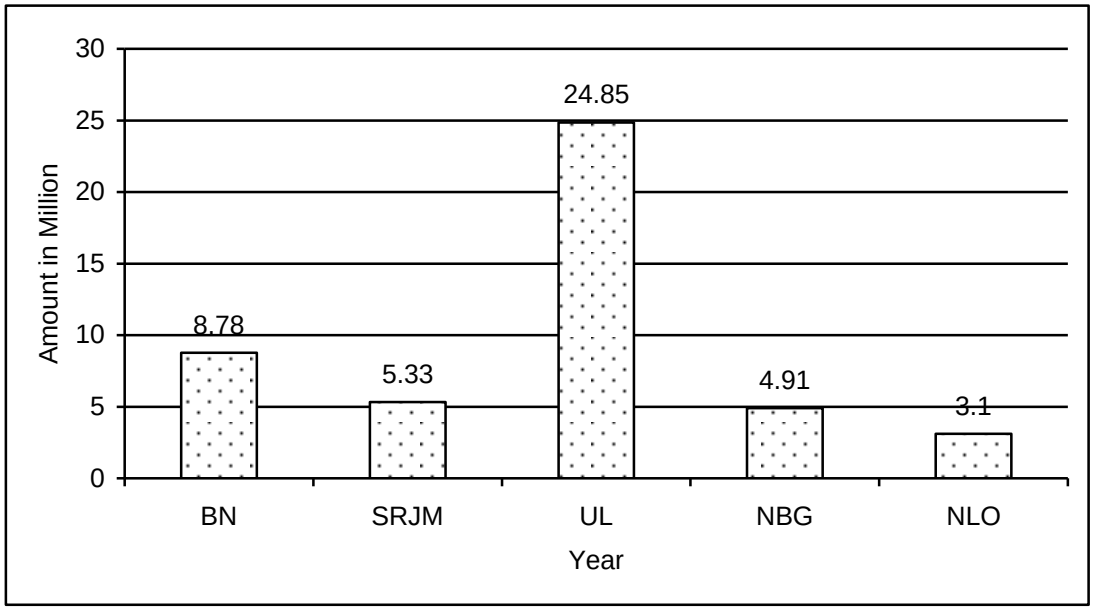


Figure No. 4.10

Cash to Quick Assets Ratio of Individual Company Over the Study Period



4.6.3 Relationship between Cash and Quick Assets

The correlation co-efficient between cash (x) and QA (y) has been derived to be 0.7256. PE = 0.1449 > r = 0.7256 < 6 PE = 0.870. It is the proof that it has significant relationship between cash and quick asset. It shows positive relationship between cash and QA.

The regression line of cash (x) on QA (y) has determined to be x = 2.185 + 0.8180y. The regression co-efficient of cash (x) on QA (y), 0.8180 explains that there occurs 0.8180 M changes in cash if QA is changed by 1 M in same direction.

Similarly, the regression equation of QA (y) as cash (x) has been derived to be y = 1.051 + 0.6437x. The regression of QA (y) on cash (x) 0.6437 explain that there occurs 0.6437 in changes in QA if cash in changes by 1M in same direction (detail calculation see Appendix 'M')

The relationship of cash with CA and QA, separately should quite different result in relation to the level of significantly. The relationship of' cash and CA has been found to be insignificant. But, it was found the significant relationship between cash and QA. It is because the portion of inventory as been reduced from CA to make quick assets. High level of inventory shows the low turnover and high conversion period. It implies that it has occurred low rate of inventory, it makes converted in sales then make receivable and cash is collected. It has direct impact on cash i.e. current assets. So that poor inventory management system of company caused to reach as different result.

4.7 Relationship between Cash and Net Profit

The correlation coefficient cash (x) and profit (y) has been determined to be 0.2598. It shows the positive relationship between cash (x) and profit (y) for sampled manufacturing companies. PE = 0.0715 <r > = 0.2598 < 6PE = 0.429 indicates that there is significant relationship between cash and profit.

The regression line of cash (x) on profit (y) has been derived to be, x = 4.288 + 0.0949y. The regression coefficient 0.0949 indicates that increase in profit by 1 M may occur the increase in cash by 0.784 M.

Similarly, the regression line of profit on cash has been obtained to be y = 17.10 + 0.711x. The regression coefficients 0.711 explain that increase in cash by 1 M may occur the increase in profit by 0.121 M. (for detail Appendix 'N').

4.8 Relationship between Cash and Receivable and Payables

In general, it is said that the amount of cash will increase if amount of receivable is decrease. Because decrease of receivable means the cash in

collected. Similarly, the amount of cash will increase if the amount of payable is increased.

The multiple regression line of cash (y) on receivable (x_1) and payable (x_2) has obtained to be $y = 10.458 + 0.048x_1 + (-0.225)\ x_2$.

The regression coefficient of cash (y) on receivable (x_1) 0.048 means that the amount of cash will increase by 0.048 times if receivable is increased by one times (keeping payable constant). Similarly, the regression coefficient of cash (y) on payable x_2, 0.0225 means that the amount of cash will decrease by 0.0225 times if payable is increased to be 1 times (keeping receivable constant).

The multiple correlation coefficient of cash on receivable and payable has been obtained to be $Ry.x_1.x_2 = 0.883$. Then coefficient of multiple determination $R^2y.x_1x_2 = 0.78$ which means that total change in the level of cash (x) has been explained by the effect of two independent variables i.e. receivable and payable. And remaining 22 percent is due to other factor. It can be said that receivable and payable have contributed as a major source for generating cash in current trend of manufacturing companies. So that companies should manage properly the receivable and payable. In other word, company should make specific policy for effective management of receivable and account payable. (For detail see Appendix 'O')

4.9 Analysis of Liquidity Position of Listed Manufacturing Companies

Liquidity of a firm indicates the position to meet its current/short term obligation when it becomes due for payment. Thus, in cash management, the study of liquidity position of the companies constitutes an important

role. If a firm is adequately liquid or solvent, the short-term creditors are interested in such firm: and therefore such firms get their short-term requirements readily. However, too much liquidity or in other words, holding more than enough cash balance to meet its current payments is also an indication of mismanagement of cash because such cash balances remained after meeting payments would remain idle. So an optimum liquidity is the necessity of the firm.

The liquidity ratios measure the ability of the companies to meet their short term obligations and reflect the short term financial strength of a firm.

4.9.1 CA and CL

4.9.1.1 Analysis of Current Ratio

One of the reliable methods to examine liquidity position of the companies is by means of current ratio. It is calculated by dividing current assets with current liabilities. The standard current ratio is to be measured by 2:1. However, the depending upon the nature of the companies, the development of capital market and availability of long term funds to finance current assets, the satisfactory ratio varies.

Table No. 4.9

Current Ratio of Manufacturing Companies

Name of Company	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	Average
BN	1.57	1.78	2.08	1.47	1.59	1.76	1.71
SRJM	3.72	2.27	1.79	1.58	1.39	1.71	2.08
UL	1.24	1.32	1.71	1.60	2.56	1.63	1.68
NBG	0.65	0.70	0.64	0.60	0.55	0.43	0.60

NLO	2.35	2.09	2.26	2.56	2.14	1.64	2.55
Average	1.91	1.63	1.70	1.56	1.65	1.53	1.66

Source: CA and CL from AR and FSLC.

The average current ratio during the study period have been, studied by 1.91:1 in 1997/98, 1.63:1 in 1998/99, 1.70:1 in 1999/00, 1.56:1 in 2000/01 and 1.65:1 in 2001/02, and 1.53:1 in 2002/03. Whereas, overall average current ratio was 1.66. There was not wide variance in current ratio. However, the result (observation) was not satisfactory in each period of study.

Similarly the average current ratio of individual company over the study period has been observed to be 1 .7 1: 1 for BN, 2.08: 1 for SRJM, 1.68:1 for UL, 0.60:1 for NBG and 2.25:1 for NLO.

The highest ratio was 3.72:1 for SRJM in 1997/98 and lowest was 0.43:1 for NBG in 2002/03.

The study showed that SRJM and NLO had the capability to meet current obligation. Even 13N and UL average ratio was closer to the standard ratio, but NBG was operating with a weak liquidity position.

The result of each period of study showed that listed manufacturing companies were not able to meet their current obligation due to weakened liquidity position. Because the overall average current ratio has been studied by 1.66:1.

4.9.1.2 Relationship between CA & CL

The correlation coefficient of CA (x) and CL (y) has been identified to be 0.9 78. It shows the significant relationship between CA and CL because it has observed PE = 0.0119 <r = 0.978 > 6PE = 0.0714. It is certain that

change in CA may occur change in CL in listed manufacturing companies.

The regression line of CL (y) on CA (x) has been derived to be x = 25.70 + l.2Oy. The regression coefficient, 1.20 explains that if CL is changed by 1 million, CA will be increased by 1.20 M in same direction.

Similarly the regression equation of CL (y) on CA (x) has been derived to be y = -13.69 + 0.80x. The regression coefficient 0.80 explain that, if CA is increased by 1 M the CL will be increased by 0.80 M and vice-versa (For detail Appendix 'P').

4.9.2 QA and CL

4.9.2.1 Analysis of Quick Ratio

The quick ratio is more reliable measure of liquidity than current ratio. The preferable ratio is 1: 1.

Table No. 4.10

Quick Ratio of Manufacturing Companies

Name of Company	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	Average
BN	1.10	1.09	1.40	0.94	1.01	1.02	1.09
SRJM	1.31	1.01	0.85	0.56	0.56	0.49	0.80
UL	0.61	0.67	1.21	0.77	1.63	1.30	1.03
NBG	0.31	0.49	0.41	0.20	0.20	0.22	0.31
NLO	1.56	1.49	1.75	1.80	1.70	1.59	0.65
Average	0.98	0.95	1.12	0.85	1.04	0.92	0.98

Source: CA Inventories and CL from AR and FSLC.

The average quick ratio of the companies during the study period has been observed by 0.98:1 in 2005/06, 0.951 in 2006/07, 1.12:1 in 1, 0.85:1 in 2007/008, 1.04:1 in 2008/09 and 0.92:1 in 2010/11. Whereas the overall company average over the study period, was 0.98: 1. The liquidity position of the manufacturing companies in each period of study was not maintaining standard level.

Similarly, the average quick ratio in overall study period for individual company has been studied by 1.09:1 for BN, 0.80:1 for SRJM, 1.03:1 forUL, 0.31:1 for NBG, and 1.65:1 for NLO.

BN (1.09%), UL (1.03%) and NLO (1.65%) were showing strong liquidity position. SRJM and NBC were showing weak liquidity position.

Above study of current ratio has showed that SRJM (2.08:1) and NLO (2.25:1) had the strong liquidity position. But a different result has been studied for SRLFM in Quick Ratio (0.80:1). It indicates that SRJM has invested more amounts in inventories which is not the measure of quick assets. Similarly the study showed that B.N. has invested lower amount in inventory because it showed that the result of quick ratio was the best (1.09:1) and the result of current ratio was only (1.71:1).

4.3.3 Relationship between QA and CL

The correlation coefficient between QA and CL has been identified to be 0.823. PE 0.108 <r = 0.823 > 6PE = 0.648. It shows that there is significant relationship between QA and CL.

The regression line of QA (x) as CL (y) has been obtained to be. x = 16.24 + 0.71y. The regression coefficient 0.71 explains that if CL is changed by I M, the QA will be changed to be 0.71 M in same direction.

Similarly, the regression line of CL. (y) on QA (x) has been derived to be y = 40.45 + 0.95x, the coefficient 0.95 explain that if QA is changed by 1 M, the CL will be increased to be 0.95 M (For detail Appendix 'Q').

Above explain suggests that firm should try to increase quick assets so that at a time the company will able to reach to the favourable liquidity position.

4.10 Analysis of Account Receivable of the Companies

The company sells goods in credit and cash basis. When the company extends credit to its customers, book debts are credited. Debtors/account receivables are credited. Debtor/account receivable arc to be converted into cash over a short period and therefore are included in current assets. The liquidity position of the company depends upon the quality of debtors to great extents. The increment of account receivable means the decrease the cash position of the company and vice-versa.

Table No. 4.11

Account Receivable of the Companies in Different Period

Year	AR (x) (in M)	(X - A = d)	d^2
2005\006	75.74	-54.67	2988.81
2006\007	106.6	-23.81	566.92
2007\008	144.34	13.93	194.04
2008\009	130.406	0	0
2009\2010	142.10	11.69	136.66
2011\011	192.17	61.76	3814.79
Total	131.89	8.9	7701.22

Source: Appendix' S', AR and FSLC.

Standard deviation (σ) $= \sqrt{\frac{1}{N}\left(\sum d^2 - \frac{(\sum d)^2}{N}\right)}$

$= \sqrt{\frac{1}{6}\left(7701.22 - \frac{(8.9)^2}{6}\right)}$

$= \sqrt{1281.3364}$

$= 35.80$ M

Covariance coefficient (CV) $= \frac{\sigma}{X\square} \times 100\%$

$= \frac{35.80}{131.89} \times 100\%$

$= 27.14\%$

Above table and calculation shows that the industrial average account receivable of the companies during the pen d of study was 131.89 M. The lowest receivable has been observed to be 75.74 M in 2005/06 and it was highest, 192.17 M in 2010/11. Higher receivable explains the inadequate capacity for credit collection. It means the position of cash collection has been decreased. Similarly, the lower the position of AR shows the positive situation for credit collection.

The standard deviation i.e. 35.80 M and its covariance coefficient 27.14 percent explain that there occurred high level of fluctuation in receivable. So that the policy of the company about to receivable have not been seen in the consistent level. The increasing trend of AIR interprets the companies were not able to collect account receivable so there would be the possibility of increasing bad debt. In other word the quality of the debtor's might be weakened. However, the company's receivable might be increase due to increment of net sales. The analysis suggests the company to develop proper credit policy for timely collection of receivable.

Figure No. 4.11

Graphical Presentation of A/C Receivable during the Study Period

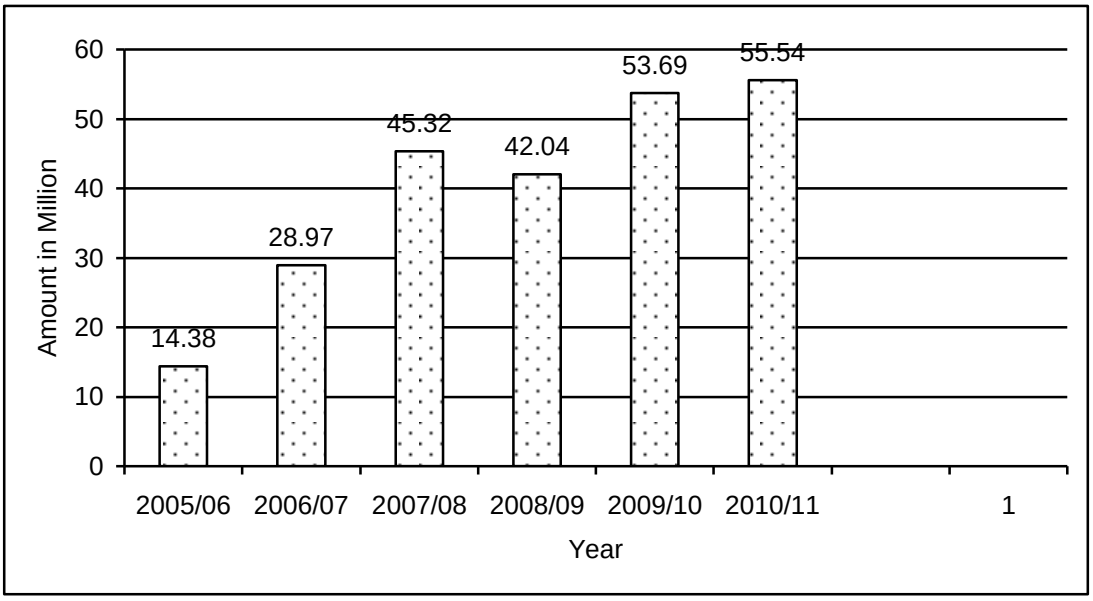


Table No. 4.12

Account Receivable of Individual Company over the Study Period

Name of Company	AR (Million)	$d = \frac{X - X\square}{X\square} \times 100\%$
BN	241.38	83.02
SRJM	23.50	-82.18
UL	262.84	99.29
NBG	65.85	-50.07
NLO	68.42	-48.12
Average	131.89	

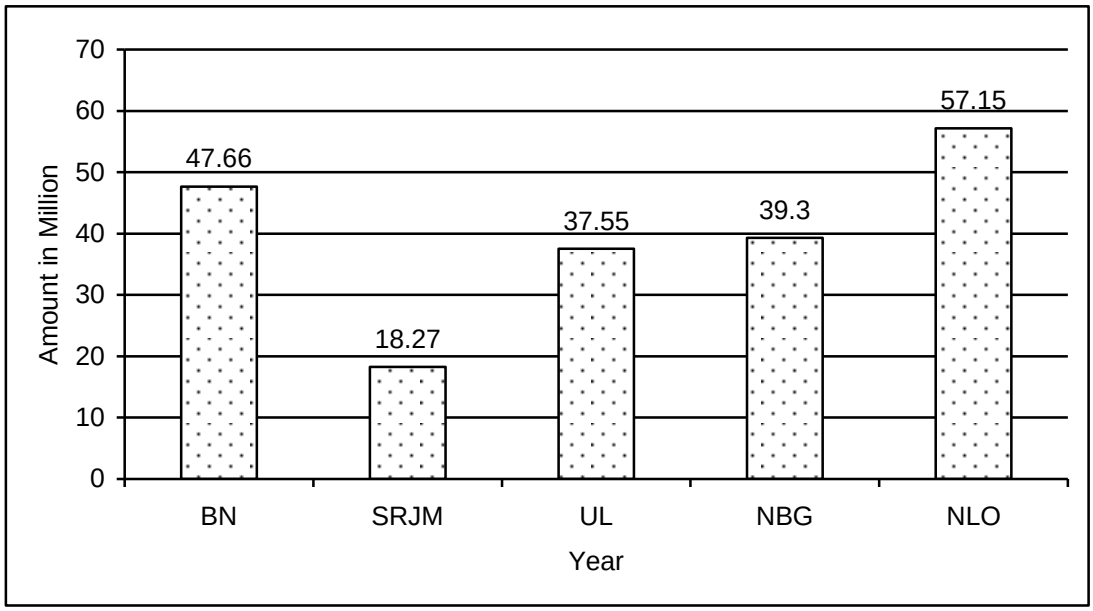
Source: Appendix' V', AR and FSLC.

The above table shows that the overall average of account receivable of the companies was 131.89 M. The receivable was varied widely across the company in over the study period. The lowest amount of receivable was 23.50 M which was observed -82.18 percent lesser than industry

average for SARJM. The highest account receivable was 262.84 which were greater by 99.29 percent than industry average for UL.

Figure No. 4.12

Graphical Presentation of Account Receivable of the Individual Companies Over the Study Period



4.10.1 Analysis of Receivable Collection Period

Receivable collection period is the length of time required to convert the firm's receivable in to cash, that is to collect cash following a sales. Receivable collection period is determined by the help of receivable turnover ratio. It is the indication of efficiency of trade credit. Higher the turnover ratio shorter the collection period. The better is the trade credit management and the better is the liquidity of the debtors, on short collection period and high turnover ratio imply prompt payment by debtors. In general, therefore, short collection period is preferable.

Table No. 4.13

Receivable Collection Period

(In Days)

Name of Company	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	Average
BN	204.08	208.85	200.36	215.50	202.07	104.01	202.48
SRJM	29.15	51.22	38.98	24.17	24.41	20.78	31.44
UL	33.14	42.17	65.14	61.92	72.52	453.86	121.56
NBG	86.29	101.51	242.67	98.38	56.73	121.91	117.82
NLO	207.98	201.21	264.52	310.35	18.57	270.66	212.11
Average	112.24	120.99	162.33	142.06	74.86	210.00	137.08

Source: Sales and Receivable from AR and FSLC.

Above table shows the receivable collection period of listed manufacturing companies during the study period. The average RCP in listed manufacturing companies has been observed to be 112 days in 2005/06, 121 days in 2006/07, 162 days in 2007/08, 142 days in 2008/09, 75 days in 2009/10 and 210 days in 2010/11, whereas overall industry average RCP was 137 days. The receivable collection period varied widely across the companies in all year of study period.

Above table shows that there was a wide variation on RCP for individual companies over the study period. The average RCP, over the period of study, for individual companies has been observed to be 202 days for BN, 31 days for SRJM, 122 days for UL, 118 days for NBG and 212 days for NLO. The highest observation was 216 days in 2008/09 and lowest was 184 days in 2010/11 for BN. Highest was 51 days in 2006/07 and lowest was 21 days in 2010/11 for SRJM, highest was 454 days in 2010/11 and lowest was 34 days in 2005/06 for UL, highest was 243 days in 2007/08

and lowest was 57 days in 2009/10 for NBG and highest was 310 days in 2008/09 and lowest was 18 days for NLO.

The delay in collection of receivable would mean that, a part of interest cost involved in maintaining a higher level of debtors, and the liquidity position of the firm would be adversely affected. Similarly too short of ACP is not necessary good. While it is true that it avoids the risk of receivable being bad debts as well as burden of high interest on outstanding debtors, it may have an adverse effect on volume of sales of the firm.

4.11 Analysis of Inventory

A company requires a optimum level of inventory for efficient management. The incremental trend of inventory would be the direct impact for lowering the cash in for the company and vice-versa. So that level of inventory and its trend must be analyzed for efficiency of cash management.

Table No. 4.14

Inventory of Manufacturing Companies in Study Period

Year	Amt. in Mil. (x)	X - X□ = d	d^2
2005\006	60.80	-30.06	903.60
2006\007	86.27	-4.59	21.07
2007\008	75.06	-15.8	249.64
2008\009	129.14	38.28	1465.36
2009\010	104.23	13.37	178.76
2010\011	101.64	10.78	116.21
Total	92.86	11.98	2934.64

Source: Appendix B, Inventory from AR and FSLC. *(Assume value = 90.86)*

Standard deviation (σ) $= \sqrt{\frac{1}{N}\left(\sum d^2 - \frac{(\sum d)^2}{N}\right)}$

$= \sqrt{\frac{1}{6}\left(2934.64 - \frac{(11.98)^2}{6}\right)}$

$= 22.12$ M

Covariance coefficient (CV) $= \frac{\sigma}{X\square} \times 100\%$

$= \frac{22.12}{92.86} \times 100\%$

$= 23.82\%$

The average inventory of manufacturing companies during the study period has been observed lobe 60.80M in 2005/06, 86.27 in 2006/07, 75.06 M in 2007/08, 129.14 M in 2008/09, 104.23M in 2009/10 and 101 .66 M in 2010/11. Where overall yearly average inventory was 92.86 M. The standard deviation was 22.12 M and its covariance coefficient was 23.82 percent indicates that the company didn't adopt specific policy toward inventory management. In other word, there was no uniformity of inventory in each period of study.

Table No. 4.15

Inventory of Individual Company Over the Study Period

Name of Company	Individual (M)	Deviation from mean in %
BN	149.92	61.44
SRJM	39.94	-56.99
UL	163.68	76.27
NBG	85.28	8.16
NLO	25.46	72.58
Average	$X\square = 92.86$	

Source: Appendix B from AR and FSLC.

The calculation shows the average inventory level of the companies over the study period. It has been observed by 149.92 M for BN, 39.94 M for SRJM, 163.68M for UL, 85.28 M for NBG and 25.46 M for NLO. Whereas overall average level of inventory has been observed to the 92.86 M over study period.

4.11.1 Analysis of Inventory Conversion Period

Inventory conversion period is the length of time required to convert raw material into finished goods and then to sell these goods. The period indicates the efficiency of the firm in selling its product. ICP is calculated by dividing number of year with inventory turnover ratio, where inventory is turning in to receivable and cash through sales.

Table No. 4.16

Inventory Conversion Period of Manufacturing Companies

(In days)

Name of Company	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	Average
BN	107.35	135.19	118.51	125.86	126.30	136.19	124.90
SRJM	66.24	65.30	44.35	47.71	41.52	54.15	53.21
UL	36.35	41.81	27.97	69.66	42.64	35.23	64.10
NBG	102.53	116.24	173.81	209.77	107.04	122.48	167.10
NLO	109.61	84.30	79.18	146.59	51.70	93.59	94.17
Average	84.40	88.58	123.08	119.73	82.70	88.30	101.75

Source: Inventory and Sales from AR and FSLC.

The table shows the ICP of selected manufacturing companies. The ICP was widely varied within and among the companies. The ICP table shows that the highest ICP was 210 days for NBG in 2000/01 and lowest was 28

days for UL in 1999/00. The trend of ICP was fluctuating during the study period.

The average ICP during the study period , has been observed by 85 days in 2005/06, 89 days in 2006/07, 124 days in 2007/08, 120 days in 2008/09, 107 days in 2009/10 and 89 days is 2010/11, where overall industry average ICP was 102 days. Each period of study is not showing satisfactory result. The research identified that Nepalese manufacturing companies are suffering from mismanagement of inventory system. In other word there would be occurrence of over investment in inventory in each period of study.

The overall average ICP was 102 days in overall study period which is the non satisfied result. There would be occurrence of either mismanagement inventory system or over investment in inventories in fact Nepalese manufacturing companies are running without adopting a policy of effective inventory management system.

4.12 Analysis of Payable Deferral Period

PDP is the length of time for payment of labour and purchases in each period of year. By lengthening the PDP, cash conversion cycle (CCC) is shortened: PDP is the indicator the speed of making payment of account payable. A high PDP is favourable for the company but too much period hampers the credit worthiness of the company.

Table No. 4.17

Payable Deferral Period of Manufacturing Companies

Name of Company	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	Average
BN	94.27	67.15	33.73	66.52	72.40	27.10	60.20
SRJM	19.66	46.69	42.80	46.78	47.31	38.28	40.25
UL	37.51	41.59	36.04	31.26	33.36	104.08	47.31
NBG	14.72	17.11	60.70	24.37	16.86	25.40	26.53
NLO	16.91	0	0	0	120.12	172.50	51.59
Average	36.61	34.51	34.65	33.79	58.01	73.47	45.17

Source: Payable cost of goods sold from AR and FSLC.

The average PDP of listed manufacturing companies during the study period has been observed to be 37 days in 2005/06, 35 days in 2006/07, 35 days in 2007/08, 34 days in 2008/09, 58 days in 2009/10 and 74 days in 2010/11, where as the overall average PDP was 46 days.

Similarly the average PDP of individual companies within the study period has been observed to be 61 days for BN, 41 days for SRJM, 48 days for UL, 27 days for NBG and 52 days for NLO. Out of these companies, BN, UL and NLO have higher PDP. The PDP indicates that the firm takes a long time to pay its obligation. The overall average PDP, 46 days, is the satisfactory average for listed manufacturing companies in Nepal.

4.13 Cash Conversion Cycle

The CCC is the length of time between when the company makes payments aid when it receive cash. The CCC net outs three periods i.e. ICP, RCP and PDP, thus equal the length of time between the firm's

actual expenditures for productive resources and its own cash receipts from the sale of products. Once the purchase of raw material is made the inventory conversion period determines the average number of (lays, it takes to produce and sell the product. The average collection period determines the average numbers of days it take to produce and sells the product. The average collection period determines the average number of days which makes the receivables is collected, Payable deferral period measures the days each period of conversion, the payable of cash is made for labour and suppliers. 1-Jence, CCC is determined by differentiating the operating cycle and payable deferral period. Operating cycle is calculated by totalling the ICP and RCP. The CCC should be shortened as much as possible without hurting the operation. This would improve profit because shorter the CCC, the smaller the need for external financing and thus the lower the cost of such financing. So that it plays the effective role on cash management system. The cash conversion cycle is calculated by reducing payable deferral period with the sum of inventory conversion period and receivable collection period.

Table No. 4.18

Cash Conversion Cycle (Period) of Manufacturing Companies

(In days)

Name of Company	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	Average
BN	217.16	276.89	285.14	80.84	255.97	123.10	206.51
SRJM	75.73	69.83	40.53	25.10	18.62	36.65	44.41
UL	32.58	42.39	57.07	100.32	81.80	385.01	116.53
NBG	174.1	200.64	355.78	283.78	146.91	218.39	229.94
NLO	300.68	285.51	343.70	456.94	-49.85	191.15	254.69
Average	160.05	175.054	216.42	189.40	90.69	190.86	170.42

Source: Table 4.13, 4.16, 4.17: RCP + ICP - PDP.

The above table shows that the average CCC of the selected manufacturing during the study period. It has been observed to be 160 days for 2005/06, 175 days in 2006/07, 216 days in 2007/08, 189 days in 2008/09, 91 days in 2009/10 and 191 days in 2010/11, where as the overall average CCC over the study period was 170 days. In fiscal year 2007/08 and 2008/09, CCC has been observed greater than overall average. In other period, it was less than overall average. Similarly, the average CCC of individual companies over (within) the study period has been observed to be 201 days for BN, 44 days for SRJM, 117 days for UL, 230 days for NBG and 255 days for NLO.

The overall CCC, 170 days, is too large period of conversion that inventory and receivable is made in form of cash. It is unsatisfactory result for manufacturing companies. Because long CCC affects the firm's liquidity position. Over the study period SRJM and UL were showing lower cash conversion cycle in other word they had the satisfactory liquidity position.

Figure No. 4.13

Cash Conversion Cycle Manufacturing Company During the Study Period

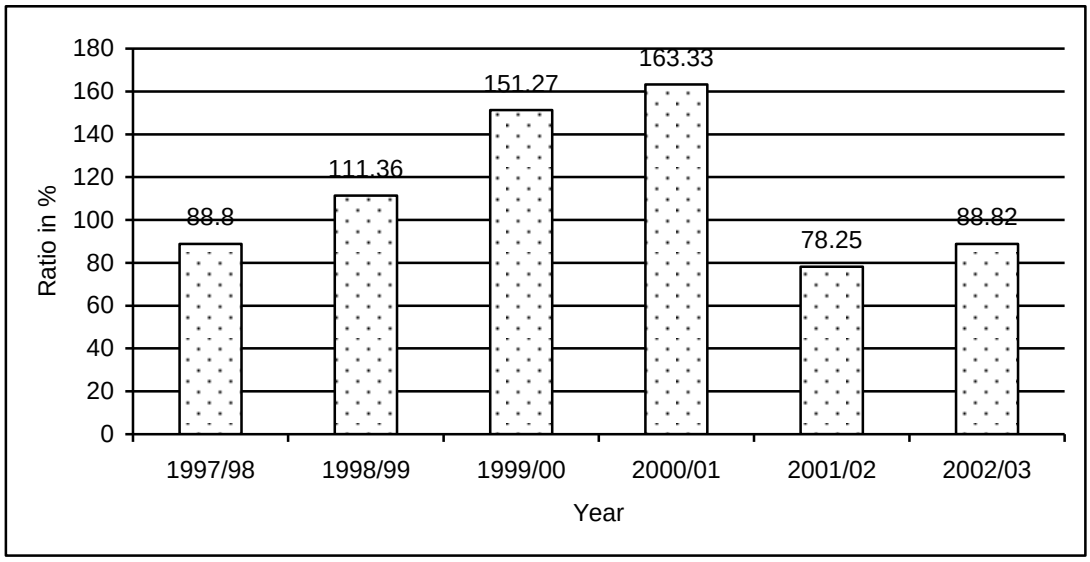
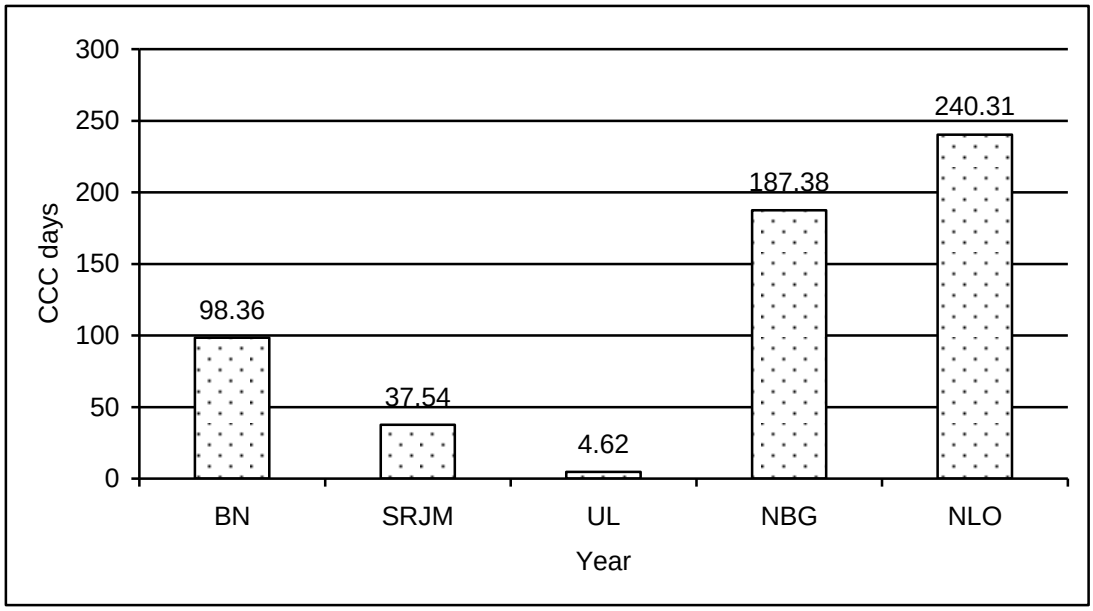


Figure No. 4.14

Cash Conversion Cycle of Individual Company within Study Period



4.14 Profitability Analysis

4.14.1 Analysis of Net Profit

Table No. 4.19

Net Profit of Manufacturing Companies during Study Period

(In Million)

Name of Company	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	Average
BN	58.97	62.18	55.91	35.89	48.61	19.37	46.82
SRJM	(3.18)	0.44	0.60	0.94	5.33	4.74	1.48
UL	99.71	119.03	120.59	68.04	42.61	93.17	90.53
NBG	(10.02)	(21.15)	(46.46)	(45.03)	(13.39)	(42.22)	(29.71)
NLO	5.38	9.66	5.08	(2.21)	4.24	0.21	3.73
Average	30.17	34.03	27.14	11.53	17.48	15.05	22.57

Source: NP from AR and FSLC.

The above table shows that the manufacturing ‘companies were running with profitable condition. The industry average profit was 22.57 M. The average profit of manufacturing companies during study period has been observed to be 30.17M in 2005/06, 34.03 M in 2006/07, 27.14M in 2007/08, 11.53 M in 2008/09, 17.48 M in 2009/10 and 15.05 M in 2010/11. The profit widely varied during the study period.

Similarly, the average profit for individual companies within the study period has been observed to be 46.82 M for BN, 1 .48 M for SRJM, 90.53 M for UL, 29.71 M loss for NBG and 3.73 M for NLO. BN, SRJM, UL and NLO are showing profitable position. But the profit has observed to be more than the average only for, BN and UL. It explains that there was major contribution of UL and BN for maintaining profitable position of selected companies in their overall average.

Figure No. 4.15

Net Profit of Manufacturing Company during the Study Period

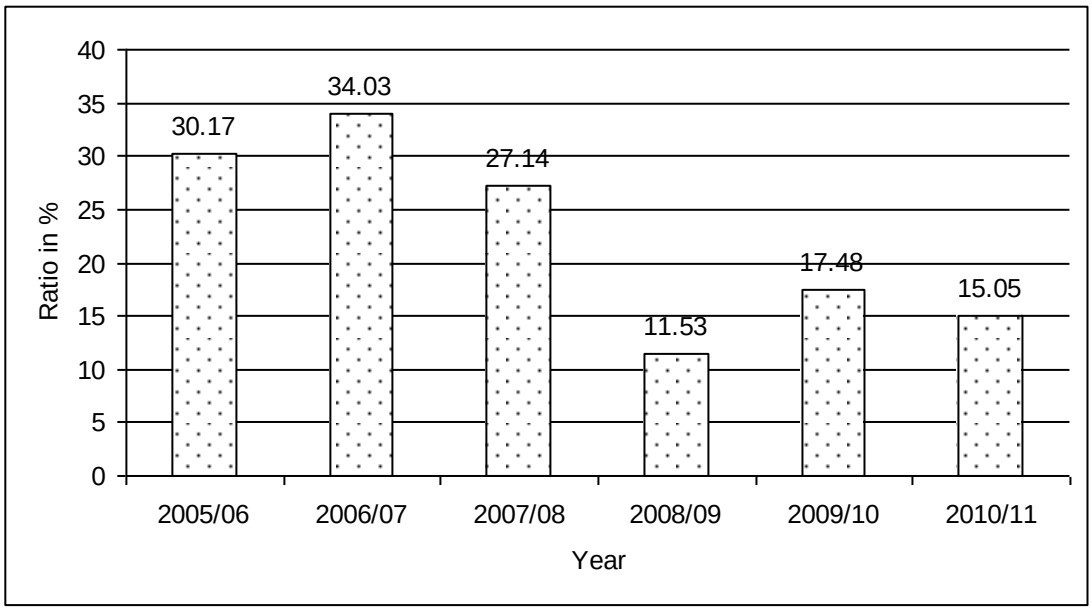
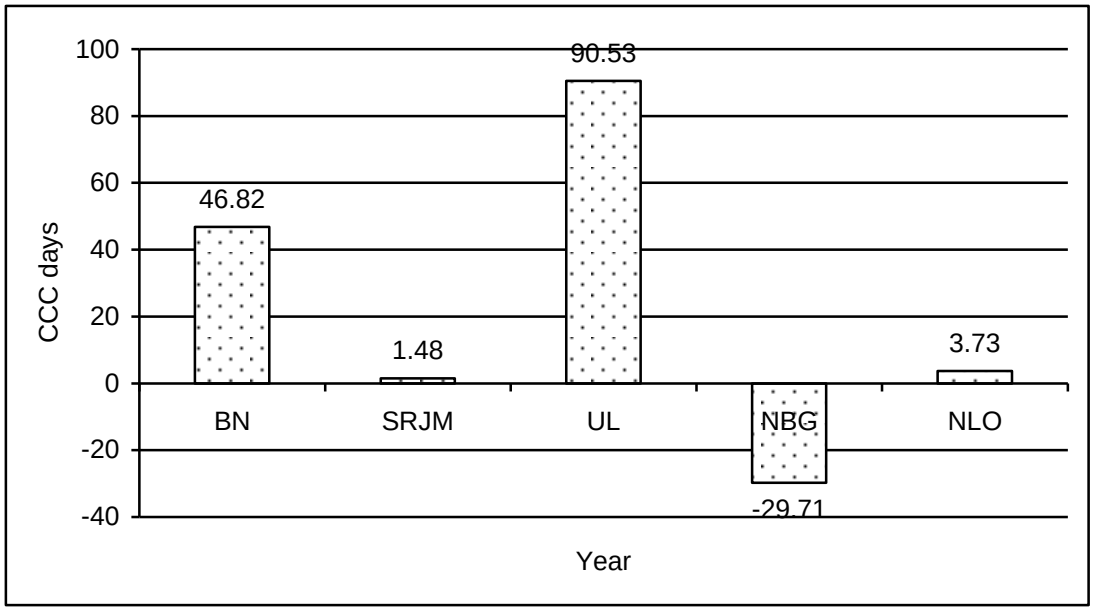


Figure No. 4.16

Profit of Individual Company over the Study Period



4.14.2 Analysis Net Profit Margin

Net profit margin is also known as net margin. It measures the relationship between net profit and sales of a firm.

Table No. 4.20

Net Profit Margin of Manufacturing Companies (in %)

Name of Company	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	Average
B.N.	20.07	16.86	15.00	8.65	9.07	3.17	12.14
SRJM	(2.00)	0.20	0.23	0.32	1.26	1.29	0.22
NL	8.35	7.91	6.97	4.41	3.45	7.48	6.43
NBG	(6.38)	(11.29)	(33.17)	(18.24)	(3.17)	(18.66)	(15.15)
NLO	6.24	9.00	4.74	(3.06)	3.11	0.17	3.37
Average	5.26	4.54	(1.25)	(1.58)	2.74	(1.31)	1.40

Source: NP and sales from AR and FSLC.

The average NPM of the companies during the study period has been observed to be 5.26 percent in 2005/06, 4.54 percent in 2006/07, (1.25) percent in 2007/08, (1.58) percent in 2008/09, 2.74 percent in 200 9/10 and (1.31) percent in 2010/11, where the overall average NPM was. 1.40 percent.

Similarly, the average NPM for individual companies over the study period has been observed to be 12.14 percent for BN, 0.22 percent for SRJM, 6.43 percent for UL, (15.15) percent for NBG and 3.37 percent for NLO. Only NBG was showing negative NPM, remaining other manufacturing companies have positive NPM.

4.15 Liquidity and Profitability

Now bearing in mind conflicting nature of profitability and liquidity, correlation between the two has been analyzed subsequently. In a firm profitability and liquidity contradicts, and as such the firm should seek for trade off between the two. Conflicting nature of two could be justified by following example - if a firm holds large current assets so as to become more liquid, the consequence is that the profitability is adversely affected. Since the firm could have invested a large portion of such current assets, in earning profit. Conversely, if a firm doesn't keep enough current assets, and invests its large portion in earning profit, the consequence is that the firm fails to meet to its current obligation i.e. becomes illiquid and invite the risk of bankruptcy.

The conflicting natures of these two are that when liquidity is being maintained, profitability trend to fall down, and vice versa.

4.15.1 Relationship between Liquidity and Profitability

Relationship between CR mid NPM

The correlation coefficient between CR (x) and NPM (y) has been observed to be 0.306. It shows the positive relationship between CR (x) and NPM (y). PE = 0.25 <r = 0.306 <6PE 1.5 indicates that there is no evidence of correlation between CR and NPM.

The regression line of CR (x) as NPM (y) has been found to be x = 1.65 + 0.01y. It shows there is not significant relationship of CR on NPM (y). The regression coefficient, 0.01 explains that if the NPM is changed by 1 M, CR will be changed by 0.01 times in same direction.

Similarly, the regression equation of NPM (y) on CR (x) has been derived to be y = -7.69 + 6.78x. The regression coefficient 6.78 explains that 1 time increasing on CR may occurs 6.78 percent increased in NPM (For detail Appendix 'R').

Relationship between Quick Ratio and NPM

The correlation coefficient of QR (x) and NPM (y) has been 0btained to be 0.139. It shows the positive relationship between QR and NPM. PE (0.25) > r = 0.139 < 6 PE = 1.614 indicates that there is no evidence of correlation between QR and NPM.

The regression equation of QR (x) on NPM (y) as has been obtained to by x = 0.98 - 0.3x. The regression coefficient of QR on NPM, 0.3 indicates that 1 percent increase in NPM may occur 0.3 time increase in QR.

Similarly, the regression equation of NPM (y) on QR (x) has been to be y = -4.09 + 5.60x. The regression coefficient of NPM on QR 5.60, indicates

that I time increase in QR may occur 5.60s percent increase in NPM and vice-versa (See Appendix 'S').

4.16 Comparative Study of Cash Management Variables

The following comparative study on cash management variables shows that the cash/bank balance, cash turnover, proportionate value of cash to other items, cash calculation and disbursement cycle are important aspects. Rank has been given to the company from I to V as per their relevancy as presented in the following table.

Table No. 4.21

Comparative Study of Cash Management Variables

Com.	Cash/Bank Balance	Cash Turnover ratio	Cash to Ta	Cash to CA	Cash to CL	Cash to QA	CR Ratio	RCP	ICP	PDP	CCC	Net	NPM
BN	I	IV	II	I	I	I	III	II	IV	I	III	I	I
UL	II	II	IV	V	IV	V	IV	III	II	IIII	IV	II	II
NBG	IV	III	III	IV	V	IV	V	IV	V	V	II	V	V
NLO	III	V	I	II	II	III	I	I	III	II	I	III	III
SRJM	V	I	V	III	III	II	II	V	I	IV	V	IV	IV

The above table exhibits the relevancy rank on cash management considerations for each every company. Individually, cash and bank balance is high with BN in comparison to others. The company has higher net profit as well. In general, the table shows higher the cash and bank balance higher the net profit of the Nepalese listed manufacturing companies. It is because the companies can acquire sufficient and cheaper resources with enough cash balance by speed cash conversion cycle.

4.17 Major Findings

After analyzing the relevant data and different aspects of cash management, the researcher got following major findings:

- The selected manufacturing companies are unable to make sufficient cash balance.
- They fail to utilize the cash balance properly.
- Average receivable position in most of the companies is seen higher.
- There is greater fluction in liquidity position of these manufacturing companies.
- There is no uniformity in cash position in these companies.
- So, there is the greater possibility of bad debts. If they do not consider about it, they will be thrown in great cash crisis.
- While comparing the profit and cash position, it is seen that there is no significant bearing of cash balance on net profit in most of the organizations.

CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In this chapter attempt has been made to summarize the whole study. Conclusion of the study is also a issue to be presented here in this chapter. Constructive suggestions and recommendations those can be of immense help to improve and revise, the cash management practices of companies, if pursued, have been presented.

5.1 Summary

Chapter – I describe about the general introduction, objectives, problem and limitations of the study allowing first step to go through study. In chapter –II relevant literatures as obtained from journals, books, articles and different studies have been incorporated. Rearch methodology which includes plans and strategy like research design, population, sample, sources and types of data, tools to be applied have been incorporated in chapter –III. Chapter IV to is data presentation and analysis. Hence an effort has been made in this chapter to present major finding on overall cash management practices in listed manufacturing companies recommendation and make conclusion.

Listed manufacturing companies don't have any definite policy regarding how much cash balance to hold in each period. Cash and bank to hold each period. Cash and Bank balance held during different period of study were observed to be highly fluctuated and thus the fact indicates the firm to be hold in each period. Average cash balance of manufacturing companies over the study period was 6.43M.

Cash Turnover Ratio as a fact the higher cash turnover ratio of cash indicates the sound liquidity position of company and vice versa. The

average cash turnover ratio was found to be 168.70. However, the cash turnover ratio was found to be highly fluctuated. The correlation between cash and sales being Negative 0.262 and the relation PE>|r|<6PE suggested significant relation. The company has not planned to hold cash specific proportion of sales volume in any year of study.

Listed manufacturing companies have failed to maintain adequate proportaion of cash on its current assets. The averaage cash to current ratio has been observed to be 5.6%, 1.5%, 3.33%, 2.505,3.22%,1.41% in 2005\006-2010\011 respectively. The average cash to current assets ratio was found to be 2.95%. Only BN and NLO have been able to maintain adequate properties of cash to current assets 5.0%and 3.39%. The correlation coefficient between cash and CA being 0.046 and PE>|r|<^PE suggested that there is not significant relationship between cash and CA.

Company has not been precisely meeting their current liabilities payment. The propitiation and Cash ti current liabilities, in overall average are low 5.36%. Cash and Bank balance held compared to current liabilities indicates that for some year it was high where as for some other year was very low. This show mismanagement of cash. However BN (8.71%) has shown should liquidity position.

Companies are found to maintain adequate proportion of cash as its quick assets. But there is significant between cash and QA. The overall proportion of cash as QA i.e. 5.23% was very small. However, correlation coefficient, 0.7256, seems to be significant. But the regression coefficient of cash on quick assets, 0.8180. So that the proportion of cash on QA will be maintained at appropriate level if QA is increased.

Listed companies seem not able to maintain the adequate proportion of cash in total assets. The average investment in cash by listed manufacturing companies is just 1.64% which is very low.

Relationship of cash on receivable and payable was found to be of significant level. The multiple correlation coefficients of cash on receivable and payable have been obtained to be 0.883. Its coefficient of multiple determinations has been obtained to be 0.78. It means that 78% of total change in the values of cash been explained by the effect of receivable and account payable. The regression coefficient of cash on receivable -0.257 means 0.257 times decrease in cash if one time increases in receivable, holding payable constant. Similarly, the regression coefficient of cash as account payable 1.64 times change in cash if I1 time change in payable, holding receivable constant.

The average collection period and payable deferral period have been found to be 137 days and 45 days (both are satisfactory). But it is found the gap of 92 days. So, the listed manufacturing companies neither are in better position.

Liquidity position of listed manufacturing companies has not been satisfactory. The overall average of CR and QR has been obtained to be 1.66:1 and 0.98:1. The QR has not bad the standard ratios area CR=2:1 and QR= 1:1. As a whole it is seem that the companies are not able to meet their current obligation within the state time.

Current assets are not being maintained according to current liabilities. The significant positive correlation co-efficient 0.978 has been found between CA and CL. But the regression co-efficient of CA on CL, 1.02, implies that current assets are not maintained in accepted level (pattern) increase in current liabilities. Similarly the regression co- efficient of CL

on CA has been found 0.80. Which shows the level of increase in current liabilities is not satisfactory.

So that CA should be increased to make proper level of CR.

Quick Ratio is not being maintained according to current liabilities. The significant positive correlation co- efficient 0.823 has been found between QA and CL. Regression co –efficient of QA on CL, 0.71 implies that QA are not maintained in accepted level of increase in current liabilities. But the regression co-efficient CL on QA 0.92 is satisfactory level to make appropriate level of quick ratio. So that QA should be increased to make proper level of QR.

Companies have not been able to trade off liquidity and profitability. The CR and NPM are found with insignificant correlation. There is no proof that CR and NPM are positively correlated. Similarly, correlation between QR and NPM is 0.306. There is no evidence that QR and NPM are positively correlated.

Companies are not been able to collect cash considerable time span. The average cash conversion cycle of manufacturing companies have been obtained to be 170 days. Due to the high inventory conversion period the result was seen not satisfactory.

5.3 Recommendation

Financial efficiency is one of the key element to achieved the goal of any business enterprise. The major findings of the study shows that the listed manufacturing companies are not followed any specific and appropriate financial principles financial techniques. Following recommendations are given for better financial performance and good cash management of the company on the basis the findings of the study.

1. Maintaining optimum cash balance every year. The study has identified that manufacturing companies have not been maintaining optimum cash balance. The balances held are at time too high and too low in other time, without any definite purpose as too why the firm has held excess or deficit balance of cash. Holding of optimum cash as per as its sales, profit and other influencing variable is recommended. However, RCP

2. Try to reduce cash conversion cycle: Cash conversation cycle of the companies has been found to be higher. However, RCP and PDP have been found to be considerable period. Inventory conversion period was too long .High level of inventory has affected to make CCC longer. It is recommended that companies should improve their inventory management system

3. Try to trade off liquidity and profitability in order to increase profit.The main objectives of managing cash is too trade off liquidity and profitability in order to increase profit. By maintaining considerable liquidity position of the company should try to increase net profit.

4. Company should prepare cash budget , cash planning and cash budgeting on a formal basis so as to project cash surplus and cash deficit for a period not exceeding one year and broken up in to shorter intervals. Cash budgeting should be prepared with considering the influencing variables on cash management.

5. Surplus cash should be invested in profitable opportunities. Company should manage their cash in such a way as to keep cash balance at a minimum level for daily operating purpose and inverse

surplus cash in profitable opportunities. The idle increase opportunities cost and profit will be decrease.

6. One of the shortcomings of Nepalese listed manufacturing companies is that the cash held are a haphazard guesswork, without any consideration on to its impact on sales and profit of the organization. Hence, the suggestion is to plan cash balance with a respect to change in sales and profit.

7. The relation of cash balance with respect to CA and CL and insignificant. So, it is recommendation that the companies should plan maintain cash balance with respected a CA and CL.

8. The manufacturing company overall average of CR and QR are not maintain standard level. So, it suggested that companies showed increase level of CA and QA to make proper level of CR and QR.

9. Company should try to maintain considerable liquidity position. So that company may be able to meet current obligation.

5.4 Conclusion

In conclusion, it can be stated that cash management system in listed manufacturing companies found to be very poor. Cash management was found traditional way where as no any plan and policy has been made for efficiency of cash management. The companies have low liquidity position. The cash conversion cycle has been found very longer period. The over investment in inventory has been found. The companies has not been able to trade of liquidity and profitability so that the profit was found to be low position.

Cash management being the major elements in financial function. IT is said that main function of financial manager is to apply better technique to improve cash management in companies. There are other numerous aspects of finance involved in the overall financial performance additional of a form. In addition to this, the overall performance of a firm counts for other managerial aspects such as human resources management, organizational structure marketing management etc. However, all down falling trend of the financial position is an indication of the fact that listed manufacturing companies should immediately seek for drastic change in its managerial structure so far cash management is concerned the recommendations suggested above could to a greater extent, uplift the listed manufacturing companies cash management situation.

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APPENDICES

Appendix 'A'

Records of Sales in Listed Manufacturing Companies

In Million

Name of Company	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	Ave.
B.N.	293.82	368.62	372.78	414.58	535.60	609.65	432.51
SRJM	158.81	212.61	261.29	295.06	422.38	366.67	286.13
UL	1193.58	1503.69	1728.63	1540.99	1236.05	1244.73	1407.95
NBG	157.04	187.21	140.03	246.83	422.52	226.19	229.97
NLO	86.15	107.33	107.19	72.22	136.00	119.15	104.67
Average	377.88	475.89	521.98	513.94	550.51	513.28	492.25

Appendix 'B'

Records of Inventory in Listed Manufacturing Companies

In Million

Name of Company	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	Ave.
B.N.	86.35	136.77	121.11	142.73	185.34	227.22	149.92
SRJM	28.80	38.05	31.76	38.56	48.06	54.43	39.94
UL	118.91	172.20	132.46	293.93	144.46	120.11	163.68
NBG	44.07	59.55	66.69	141.48	124.03	75.86	85.28
NLO	25.89	24.78	23.26	28.98	19.27	30.57	25.46
Average	60.80	86.27	75.06	129.14	104.23	101.64	92.86

Appendix 'C'

Records of Total Assets in Listed Manufacturing Companies

In Million

Name of Company	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	Ave.
B.N.	733.76	812.75	842.65	951.86	1036.05	1038.41	902.58
SRJM	257.13	288.18	287.03	292.37	311.93	301.04	289.61
UL	441.81	544.81	629.75	760.42	571.34	784.87	622.17
NBG	112.95	141.30	185.51	233.90	218.40	193.24	180.88
NLO	93.52	101.20	126.05	117.18	111.83	143.33	115.52
Average	327.83	377.65	414.20	471.15	449.91	492.18	422.15

Appendix 'D'

Records of Net Profit in Listed Manufacturing Companies

In Million

Name of Company	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	Ave.
B.N.	58.97	62.18	55.91	35.89	48.61	19.37	46.82
SRJM	(3.18)	0.44	0.60	0.94	5.33	4.74	1.48
UL	99.71	119.03	120.59	68.04	42.61	93.17	90.53
NBG	(10.02)	(21.15)	(46.46)	(45.03)	(13.39)	(42.22)	(29.71)
NLO	5.38	9.66	5.05	(2.21)	4.24	0.21	3.73
Average	30.17	34.03	27.14	11.53	17.48	15.03	22.57

Appendix 'E'

Records of Current Assets in Listed Manufacturing Companies

In Million

Name of Company	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	Ave.
B.N.	288.60	353.65	369.41	393.84	506.43	544.18	409.35
SRJM	44.49	68.77	60.25	59.95	80.56	76.40	65.01
UL	235.97	352.72	451.88	567.58	399.14	589.88	432.86
NBG	85.72	115.86	162.98	211.74	193.54	154.14	154.00
NLO	77.72	86.52	104.79	97.37	93.49	123.08	97.16
Average	146.50	195.50	229.86	216.10	254.63	297.54	231.69

Appendix 'F'

Records of Current Liabilities in Listed Manufacturing Companies

In Million

Name of Company	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	Ave.
B.N.	184.05	198.46	177.53	268.08	319.14	309.56	242.80
SRJM	11.96	30.27	33.59	38.05	58.04	44.74	36.11
UL	190.88	267.72	263.93	354.32	155.85	360.88	265.60
NBG	132.33	164.44	255.09	355.37	353.27	361.58	270.35
NLO	33.14	41.30	46.46	38.01	43.74	58.03	43.45
Average	110.47	140.44	155.32	210.77	186.01	226.96	171.66

Appendix 'G'

Records of Quick Assets in Listed Manufacturing Companies

In Million

Name of Company	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	Ave.
B.N.	202.25	216.88	248.30	251.11	321.09	316.96	259.43
SRJM	15.69	30.72	28.49	21.39	32.50	21.97	25.13
UL	117.06	180.52	319.42	273.65	254.68	469.77	269.18
NBG	41.65	56.31	96.29	70.26	174.27	78.28	68.72
NLO	51.83	61.74	81.53	68.39	74.22	92.51	71.70
Average	85.70	109.23	154.81	136.96	150.40	195.90	138.83

Appendix 'H'

Records of Cost of Good Sold in Listed Manufacturing Companies

In Million

Name of Company	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	Ave.
B.N.	147.32	206.49	206.80	227.01	306.48	376.26	245.06
SRJM	132.95	177.78	220.77	253.57	384.52	315.17	247.46
UL	969.36	1253.61	1424.66	1199.54	937.73	843.13	1104.67
NBG	156.18	183.01	156.17	245.88	401.07	232.33	229.11
NLO	63.25	74.83	82.65	59.76	96.51	94.03	78.51
Average	293.81	379.14	418.21	397.15	425.26	372.18	380.96

Appendix 'I'

Records of Account Payable in Listed Manufacturing Companies

In Million

Name of Company	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	Ave.
B.N.	38.05	37.99	19.11	41.37	60.79	27.94	37.54
SRJM	7.16	22.74	25.89	32.50	49.85	33.03	28.53
UL	99.63	142.86	140.69	102.72	85.70	240.42	135.34
NBG	6.30	8.56	25.97	16.42	18.53	16.17	15.33
NLO	2.93	0.00	0.00	0.00	31.76	44.44	45.99
Average	30.81	42.43	42.33	38.60	49.33	72.40	45.99

Appendix 'J'

Carl Pearson's Correlation Coefficient of Cash (y) and Sales (x) and Regression Line:

Year	X	y	$x-\bar{x}=u$	$y-\bar{y}=v$	u^2	v^2	uv
2005-06	377.88	9.96	-114.37	3.53	13080.50	12.461	-403.73
2006-07	475.89	2.63	-16.36	-3.8	267.65	14.44	62.17
2007-08	521.98	10.47	29.73	4.04	883.87	16.32	120.11
2008-09	513.94	4.41	21.69	-2.02	470.46	4.08	-43.81
2009-10	550.51	7.40	58.26	0.97	3394.23	0.941	56.51
2010-11	513.28	3.73	21.03	-2.70	442.26	7.29	-56.78
Average	$\bar{x}$=492.25	$\bar{y}$=6.43				55.53	-265.53

Carl Pearson's Correlation Coefficient (r) $= \frac{\Sigma uv}{\sqrt{\Sigma u^2}.\sqrt{\Sigma v^2}}$

$= \frac{-265.53}{\sqrt{18538.97 \times 55.532}}$

= -0.262

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

=0.294

6PE =6× 0.294 =1.766

Standard Deviation of Sales (σx) $=\sqrt{\frac{18538.97}{6}}$ = 55.59m

Standard Deviation of Cash (σy) =3.042m

Regression line of sales (x) on cash (y) $x - \bar{X} = r\frac{\sigma x}{\sigma y}(y - \bar{y})$

$x - 492.25 = -.262 \frac{55.59}{3.042}(y - 6.43)$

$x = 523.037 - 4.788y$

Regression line of cash(y) on sales (x)

$y - 6.43 = -.262 \frac{3.042}{55.59}(x - 492.25)$

$y = 0.614 - 0.0143x$

Appendix 'K'

Carl Pearson's Correlation Coefficient of Cash (x) and Current Assets (y)

and

Regression Line:

Year	X	y	$x-\bar{x}=u$	$y-\bar{y}=v$	u^2	v^2	uv
2005-06	9.96	146.50	3.53	-85.27	12.461	7270.97	-301.00
2006-07	2.63	195.50	-3.80	-36.27	14.44	1315.51	137.83
2007-08	10.47	229.60	4.04	-1.91	16.32	3.65	-7.72
2008-09	4.41	266.60	-2.02	34.83	4.08	1213.13	-70.36
2009-10	7.40	254.63	0.97	22.86	0.941	522.58	22.17
2010-11	3.73	297.54	-2.70	65.77	7.29	4325.69	177.58
Average	$\bar{x}$=6.43	$\bar{y}$=231.77			55.53	14651.53	-41.50

Carl Pearson's Correlation Coefficient (r) = $\frac{-41.5}{\sqrt{55.53 \times 14651.53}}$

= -0.046

Probable Error (PE) = $0.6745 \times \frac{1-(-0.046)^2}{\sqrt{6}}$

=0.2759

6PE =1.656

Standard Deviation of Cash (σx) = 3.037m

Standard Deviation of Cash (σy) = 49.42m

Regression line of sales (x) on cash (y)

$$x - \bar{x} = r\frac{\sigma x}{\sigma y}(y - \bar{y})$$

$$x - 492.25 = -.262\frac{55.59}{3.042}(y - 6.43)$$

$$x = 523.037 - 4.788y$$

Regression line of cash(y) on sales (x)

$$y - 6.43 = -.262\frac{3.042}{55.59}(x - 492.25)$$

$$y = 0.614 - 0.0143x$$

Appendix 'L'

Carl Pearson's Correlation Coefficient of Cash (x) and Current Liabilities (y) and Regression Line:

Year	X	Y	x-$\bar{x}$=u	y-$\bar{y}$=v	u^2	v^2	uv
2005-06	9.96	110.47	3.53	-61.19	12.461	3744.22	-216.00
2006-07	2.63	140.44	-3.80	-31.22	14.44	974.69	118.64
2007-08	10.47	155.32	4.04	-16.34	16.32	267.00	-66.01
2008-09	4.41	210.77	-2.02	39.11	4.08	1529.59	-79.00
2009-10	7.40	186.01	0.97	14.35	0.941	205.92	13.92
2010-11	3.73	226.96	-2.70	55.30	7.29	3058.09	-149.31
Average	$\bar{x}$=6.43	$\bar{y}$=171.66			55.53	9779.51	-377.76

Carl Pearson's Correlation Coefficient (r) = $\frac{-377.76}{\sqrt{2697.53 \times 9779.51}}$

= -0.0735

Probable Error (PE) = $0.6745 \times \frac{1-(-0.0735)^2}{\sqrt{6}}$

=0.2739

6PE =1.643

Standard Deviation of Cash (σx) = 3.037m

Standard Deviation of CL (σy) = 40.37m

Regression line of Cash (x) on CL (y)

$$x - 6.43 = -0.0735 \frac{3.037}{40.37} (y - 171.66)$$

$$x = 7.379 - 0.00553y$$

Regression line of cash(y) on sales (x)

$$y - 171.66 = -.262 \frac{40.37}{3.037} (x - 6.43)$$

$$y = 165.38 - 0.977x$$

Appendix 'M'

Carl Pearson's Correlation Coefficient of Cash (x) and Quick Assets (y) and Regression Line:

Year	x	y	$x-\bar{x}=u$	$y-\bar{y}=v$	u^2	v^2	uv
2005-06	9.96	10.75	3.53	5.56	12.461	30.91	19.63
2006-07	2.63	2.89	-3.80	-2.30	14.44	5.29	8.74
2007-08	10.47	4.92	4.04	-0.27	16.32	0.0729	-1.09
2008-09	4.41	4.75	-2.02	-0.44	4.08	0.194	0.89
2009-10	7.40	5.53	0.97	0.34	0.941	0.1156	0.33
2010-11	3.73	2.55	-2.70	-2.64	7.29	6.97	7.13
Average	$\bar{x}=6.43$	$\bar{y}=5.19$			55.53	43.56	35.63

Carl Pearson's Correlation Coefficient (r) = 0.72
Probable Error (PE) = 0.145
6PE = 0.870
Standard Deviation of Cash (σx) = 3.037m
Standard Deviation of QA (σy) = 2.69 m

Regression line of Cash (x) on CL (y)

$$x - 6.43 = .7256 \frac{3.037}{2.694} (y - 5.19)$$

$$x = 2.185 + 0.8180y$$

Regression line of CL(y) on Cash (x)

$$y - 5.19 = .7256 \frac{2.694}{3.037} (x - 6.43)$$

$$y = 1.051 + 0.6437x$$

Appendix 'N'

Carl Pearson's Correlation Coefficient of Cash (x) and Net Profit (y) and Regression Line:

Year	x	y	$x-\bar{x}=u$	$y-\bar{y}=v$	u^2	v^2	uv
2005-06	9.96	30.17	3.53	7.60	12.461	57.76	26.83
2006-07	2.63	34.03	-3.80	11.46	14.44	131.33	-43.55
2007-08	10.47	27.14	4.04	4.57	16.32	20.88	18.46
2008-09	4.41	11.53	-2.02	-11.04	4.08	121.88	22.31
2009-10	7.40	17.48	0.97	-5.09	0.941	25.91	-4.94
2010-11	3.73	15.03	-2.70	-7.52	7.29	56.55	20.30
Average	$\bar{x}$=6.43	22.57			55.53	414.31	39.41

Carl Pearson's Correlation Coefficient (r) = 0.260

Probable Error (PE) = 0.0715

6PE = 0.430

Standard Deviation of Cash (σx) = 3.037m

Standard Deviation of Net Profit (σy) = 8.31m

Regression line of Cash (x) on Profit (x)

$$x - 6.43 = .2598 \frac{3.037}{8.31} (y - 22.57)$$

$$x = 2.185 + 0.8180y$$

Regression line of profit(y) on cash (x)

$$y - 22.57 = .7256 \frac{8.31}{3.037} (x - 6.43)$$

$$y = 17.10 + 0.711x$$

Appendix 'O'

Appendix 'P'

Carl Pearson's Correlation Coefficient of CA (x) and CL (y) and Regression Line:

Year	x	y	x- $\bar{x}$=u	y-$\bar{y}$=v	u^2	v^2	uv
2005-06	146.50	110.47	-85.27	-61.19	7270.97	3744.22	5212.78
2006-07	195.50	140.44	-36.27	-31.22	1315.51	974.69	1129.85
2007-08	229.60	155.32	-1.91	-16.34	3.65	267.00	30.84
2008-09	266.60	210.77	34.83	39.11	1213.13	1529.59	1345.78
2009-10	254.63	186.01	22.86	14.35	522.58	205.92	329.19
2010-11	297.54	226.96	65.77	55.30	4325.69	3058.09	3641.51
Average	$\bar{x}$=231.77	$\bar{y}$=171.66			14651.53	9779.51	11689.95

Carl Pearson's Correlation Coefficient (r) = 0.978

Probable Error (PE) = 0.0119

6PE = 0.0714

Standard Deviation of Cash (σx) = 49.36m

Standard Deviation of Net Profit (σy) = 46.37m

Regression line of CA (x) on CL (y)

$$x - 231.69 = .978 \frac{49.36}{40.37} \frac{49.36}{40.37} (y - 171.66)$$

$$x = 25.70 + 1.20y$$

Regression line of CL(y) on CA (x)

$$y - 171.66 = 0.978 \frac{4037}{4936} x - 231.69)$$

$$y = -13.69 + 0.80x$$

Appendix 'Q'

Carl Pearson's Correlation Coefficient of QA (x) and CL (y) and Regression Line:

Year	x	y	x- $\bar{x}$=u	y-$\bar{y}$=v	u^2	v^2	uv
2005-06	85.70	110.47	-52.42	-61.19	2747.86	3744.22	3207.58
2006-07	10.923	140.44	-28.89	-31.22	834.63	974.69	901.95
2007-08	154.81	155.32	16.69	-16.34	278.56	267.00	-272.76
2008-09	132.68	210.77	-5.44	39.11	29.59	1529.59	-212.76
2009-10	150.4	186.01	12.28	14.35	150.80	205.92	176.22
2010-11	195.9	226.96	57.78	55.30	3338.53	3058.09	3195.23
Average	$\bar{x}$=138.12	$\bar{y}$=171.66			7379.97	9779.51	6995.51

Carl Pearson's Correlation Coefficient (r) = 0.823

Probable Error (PE) = 0.108

6PE = 0.648

Standard Deviation of Cash (σx) = 35,0m

Standard Deviation of Net Profit (σy) = 40.37m

Regression line of QA (x) on CL (y)

$$x - 138.12 = 0.823 \frac{35.07}{40.37} (y - 171.66)$$

$$x = 16.24 + 0.71y$$

Regression line of CL(y) on QA (x)

$$y - 171.66 = = 0.823 \frac{40.37}{35.07} (x - 138.12)$$

$$y = 40.45 + 0.95x$$

Appendix 'R'

Carl Pearson's Correlation Coefficient of Current Ratio (x) and NPM (y) and Regression Line:

Year	x	y	$x-\bar{x}=u$	$y-\bar{y}=v$	u^2	v^2	uv
2005-06	1.91	5.26	0.25	3.86	0.0625	14.90	0.965
2006-07	1.63	4.54	-0.03	3.14	0.0009	9.86	-0.094
2007-08	1.70	-1.25	0.04	-2.65	0.0016	7.02	-0.106
2008-09	1.56	-1.58	-0.1	-2.98	0.01	8.80	0.298
2009-10	1.65	2.74	-0.01	1.34	0.0001	1.80	-0.013
2010-11	1.53	-1.31	-0.13	-2.7	0.0169	7.29	0.351
Average	$\bar{x}=1.66$	$\bar{y}=1.40$			0.092	49.75	1.401

Carl Pearson's Correlation Coefficient (r) = 0.306

Probable Error (PE) = 0.245

6PE = 1.5

Standard Deviation of CR (σx) = 0.13 times

Standard Deviation of Net Profit (σy) = 2.88m

Regression line of CR (x) on NPM (y)

$$x - 1.66 = 0.306 \frac{0.13}{2.88} (y - 1.40)$$

$$x = 1.65 + 0.01y$$

Regression line of NPM(y) on CR (x)

$$y - 1.40 = -0.306 \frac{2.88}{0.13} (x - 1.34)$$

$$y = -7.69 + 4.78x$$

Appendix 'S'

Carl Pearson's Correlation Coefficient of QR (x) and NPM (y) and Regression Line:

Year	X	y	$x-\bar{x}=u$	$y-\bar{y}=v$	u^2	v^2	uv
2005-06	0.98	5.26	0	3.86	0	14.90	0
2006-07	0.95	4.54	-0.03	3.14	0.0009	9.86	-0.0942
2007-08	1.12	-1.25	0.14	-2.65	0.0196	7.02	-0.0371
2008-09	0.85	-1.58	-0.13	-2.98	0.0169	8.88	0.387
2009-10	1.04	2.74	0.06	1.34	0.0036	1.80	0.080
2010-11	0.92	-1.31	-0.06	-2.7	0.0036	7.29	0.162
Average	$\bar{x}=0.98$	$\bar{y}=1.40$			0.028	49.75	0.164

Carl Pearson's Correlation Coefficient (r) = 0.139

Probable Error (PE) = 0.269

6PE = 1.614

Standard Deviation of QR (σx) = 0.01M

Standard Deviation of Net Profit (σy) = 2.88M

Regression line of QR (x) on NPM (y)

$$x - 0.98 = 0.139 \frac{0.07}{2.88} (y - 1.40)$$

$$x = 0.98 + 0.34y$$

Regression line of NPM (y) on QR (x)

$$y - 1.40 = = 0.139 \frac{2.88}{0.07} (x - 138.12)$$

$$y = 4.09 + 5.60x$$