CHAPTER - I
INTRODUCTION

1.1 Background of the Study

Nepal is a landlocked country in South Asia with a per capita national income of US$484 in 2008 (Central Bureau of Statistics, Government of Nepal, 2009). The country is surrounded by two Asian emerging giant economies; Republic of India in the South, East and West and People's Republic of China in the North. The poverty line is 31% of the population in Nepal *(Government of Nepal, 2004).* Presently, the country is politically transformed to a Federal Democratic Republic, and is in the process of transforming the structure of the state. The political transformation was initiated after the year 2006 Broad Peace Agreement. Before that, the internal political conflict which encompassed over a decade seriously affected Nepalese economic and social environment.. It is estimated that Nepal had annually lost 2.1% GDP during the conflict. During this period, a large number of domestic financial institutions retreated from remote and rural areas of the country due to security concerns, which led to magnify inequality for accessing financial services. The country has now entered a period of New Nepal, and is striving to meet the people's heightened expectation in this new context.

Nepal is a developing country and is striving to develop and modernize its economy rapidly on rational and socially desired footings with almost one-third of its population living below the poverty line. Agriculture is still the backbone of the Nepalese economy, providing a livelihood for over three-fourths of the population and accounting for 40 percent of GDP. Although, the country has one of the lowest levels of per capita income in the world, Nepal has considerable scope for exploiting its potential in hydropower and tourism, areas of recent foreign investment interest. Prospects for foreign trade or investment in other sectors will remain poor because of the small size of the economy, its technological backwardness, its remoteness, its landlocked geographic location, its civil strife, and its susceptibility to natural disaster. During the fiscal year 2008/09, the country's economy portrayed the following:

⟩ The Gross Domestic Growth (GDP) at producer's prices grew by 4.9 percent in the F/Y 2008/09 compared to a growth of 6.1 percent in the previous year.

⟩ The annual average consumer inflation increased to 13.2 percent in the F/Y 2008/09 from the level of 7.7 percent in the F/Y 2007/08. It was mainly driven by the significant rise in the prices of food and beverages items.

⟩ The fiscal situation remained broadly stable in the F/Y 2008/09, despite the political transition phase of the economy. The fiscal deficit stood at only 1.9 percent of GDP as against the estimate of 3.9 percent in the budget of 2008/09. The limited foreign borrowing and prudent debt management also helped to reduce public debt to 41.1 percent of GDP in the review year from 44.1 percent in the previous year.

⟩ In the F/Y 2008/09, the external sector depicted a mixed performance. Although there was an increase in exports, there was a significant growth in trade deficit as the growth rate of imports was relatively much higher. Owing to the sharp rise in remittances, both the current account and the balance of payments posted a surplus in the review year. Consequently, there was a rise in foreign exchange reserves that facilitated the maintenance of exchange rate and external stability.

⟩ The ratio of exports to imports declined to 23.6 percent in the F/Y 2008/09 from 26.7 percent in the preceding year, this demonstrates the declining import financing capacity of exports. The share of India in Nepal's total trade went down to 58.2 percent in the review year from 64.3 percent in the previous year.

⟩ Total foreign exchange reserves of the banking system amounted to Rs. 279.99 billion as at mid-July 2009, an upsurge by 31.7 percent compared to the figure of the previous year. This level of reserves was adequate for financing merchandize imports of 12 months and merchandize and service imports of 9.8 months.

⟩ Overall, in terms of the macroeconomic performance, the Nepalese economy displayed a mixed performance in the F/Y 2008/09. Real GDP posted a lower growth compared to the previous year the annual average inflation remained high. While the trade deficit expanded, the current account and the balance of payments remained in surplus primarily due to the significant remittance inflows *(NRB, Current Macroeconomic Situation, Based on Annual Data of 2008/2009 and Economy report 2008/2009).*

In a country like Nepal, banking consciousness is lacking as well as majorities of the people are economically and financial immobile. So, the country is facing great problem to get economically prosperity intermediary channels for efficient allocations of funds. Through intermediary channels such as financial institutions and financial markets, funds should be efficiently channeled from depositors and investors to borrowers in need of funding for example to expand their business or buy a house. By mobilizing the scattered idle resources from the savers intermediary channels pools up the funds in a sizable volume in order to feed the fund requirement of productive sector of the economy. The role played by financial institutions and financial markets in this process is referred to as the function of financial intermediation. Financial institution as important financial intermediary channels need to maintain sound business operations. Financial institutions need to better satisfy various financial demands of customers and enhance profitability by continually improving the ways in which they manage risks and their business operations and to remain as the major contributing factors to the growth of the nation's economy, they have to have sustainable existence and growth of themselves.

A financial institution collects the funds in terms of deposits and extends loan and advance to various sectors. The financial institutions have great importance to the national economy. They are important part of trade, commerce and industry. It provides the information to external users such as potential investors, creditors, government authorities, trade union, as well as internal users.

In Nepal, the concept of financial institution was introduced in 1957. Industrial Development Center was the first financial institution. Later in 1959, it was converted in Nepal Industrial Development Corporation. Due to the change on economic policy of the nation and of the government, the establishment of the financial institutions is increasing rapidly.

Cash is the lifeblood of the organization. To run the organization effectively and smoothly cash is required. Cash as the most liquid assets is of vital importance to daily operation of business firm. Cash is both beginning and ending of the working capital

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cycle i.e. cash, inventories, receivables. It is like the blood stream in the human body that gives vitality and strength to business enterprises. So, cash is the money, which the firm can disburse immediately without any restriction. The term cash includes coins, currency and cheques held by the firm and balance in its bank accounts.

Cash denotes the total expenditure involved in the process of production and purchasing raw materials. It is the process of summarizing, classifying and appropriate allocation of expenditure for the presentation of suitably arranged data for the purpose of control and guidance of management. It deals with the systematic recording and presentation of financial data.

Cash management is one of the main areas of working capital management. It leads organization towards efficiency and success. The cash management involves formulation of policies and programmers of cash receipt and cash payment. "The term cash management has a meaning according to the purpose which it is used and persons with varying branches of knowledge, it implies various meanings. Economist consider as the legal tender money issued by a determinate authority. However, our concern of the meaning of cash is to look from the viewpoint of balance sheet is an asset constituting the most liquid item among the entire asset *(Saksena; 1974:31).*

The focus of the study is on a critical examination of cash management techniques of selected commercial banks in Nepal. The period covered by the study is the five yeas. The present study of cash management in Nepalese listed commercial banks is the first of its kinds. The study of cash management is therefore, considered as an integrated approach to management science. However, it is not an easy task to meet such goals being surrounded by cutthroat competition, widening market and changing in technology, the listed commercial banks have been doing its best to yield good services within the limited sources available and minimizing the cost in comparisons to other.

1.1.1 Banking in Nepal

In the context of Nepal, the history of modern banking system is not very lengthy. This becomes explicit when one compares Nepalese banking system with the banking system of

other countries of the world but this doesn't mean that there was the complete absence of banking activities in Nepal in ancient period. The banking in the form of money leading can be traced track back in the reign of Gun Kam Dev towards the end of eighth century. According to the historical evidence in 723 Gun Kam Dev, the King of Kathmandu had borrowed money to rebuild and to rule Kathmandu.

Another historical example as to the pre-modern banking system is found when Rana Prime Minister Randip Singh was administering Nepal in 1880 A.D. During his regime one financial institution name by 'Tejarath Adda' was establish to give loan facilities to the governmental staff and to afford loan facilities to the public in general in the term of 5% interest. 'Tejarath Adda' may be regarded as the father of modern banking institution in Nepal. During the Prime Minister ship of Juddha Shamsher in 1994 B.S. the 'Tejarath Adda' was replaced by a commercial bank, 'Nepal Bank Ltd.' which marked the beginning of the new era in the history of modern banking in Nepal. Nepal Rastra Bank was established in 2012 B.S. to do the function of a central bank. Rastriya Banijya Bank, as a second commercial bank was established in 2022 B.S.

After the establishment of Nepal Arab Bank Ltd, in 2041 B.S. under the commercial bank acts 2031 B.S. with the allocation of 50% share of Emirates Bank Ltd. Dubai 20% share of Nepalese financial institutions and 30% share of general public, the new phase of development of the commercial bank started. Nepal Indosuez Bank Ltd. (now Nepal Investment Bank) emerged in 2042 B.S. as the second and Nepal Grindlays Bank Ltd. (now Standard Chartered Bank Nepal Ltd.) established in 2043 B.S. as the third joint venture bank in country.

After that, there was a gradual increase in the number of joint venture commercial banks in Nepal. Now, there are 29 commercial banks, 78 development banks, 79 finance companies, 18 micro credit development banks, 16 saving and credit cooperatives (limited banking) and 47 NGOs in operation at present. The open and liberal policy in the financial sector has helped in establishment of commercial and financial institutions in the country.

1.1.1.1 Brief Introduction of Nepal Bank Limited (NBL)

The Nepal Bank Ltd. is obviously a pioneer financial institution, which was established in 1994 B.S. It was at such a time that Nepal Bank stands its operation with the authorized capital of Rs 10 million & issued capital Rs. 2.5 million of which paid-up capital was Rs 842 thousand with 10 shareholders. During the past half century, the bank experienced many ups and downs, but ultimately events helped it to start firmly. At present, it has an authorized capital of Rs 1000 million and the issued capital Rs 500 million and paid up capital of Rs 38.04 crore. The bank has been providing banking through its branch offices in the different geographical locations of the country.

At the time of establishment, there was only one branch with 13 staff. Now in the fiscal year 2065/66, there were 46 branches have been computerized on centralized basis with 3318 staffs.

Nepal Bank provided 51% of share to Government and 49% to the public. Now in the fiscal year 2065/2066, 40.49% is covered by Govt. share and public covers 59.51% of share.

So, Nepal Bank plays great role to develop the economic condition of country. It provides different facilities and services to their customers like collection of bills and cheques, safe keeping of valuables, financial advising etc. Nowadays, it is largest ABBS Network of the nation. Nepal Bank Ltd provides SMS Banking NBL web remit, E-banking, loan/advance, remittance, NBL ATM / debit card to customers.

1.1.1.2 Brief Introduction of Himalayan Bank Limited (HBL)

Himalayan Bank Limited was established in 1992 by the distinguished business personalities of Nepal in partnership with Employee Provident and Habib Bank Ltd. one of the largest banks of Pakistan. It is the first commercial bank of Nepal with maximum shareholding by the Nepalese private sector. Besides commercial activities, the Bank also offers industrial and merchant banking. The bank, at present has the thirty-two branches inside and outside of the valley. The bank has a very aggressive plan of establishing more branches in different parts of the kingdom in the near future. Himalayan Bank's policy is to

extend quality and personalized service to its customers as promptly as possible. All customers are treated with utmost courtesy as valued clients. The Bank, as far as possible, offers tailor. Made facilities to its clients, based on the unique needs and requirements. To extend more efficient services to its customers. Himalayan Bank has been adopting innovative and latest banking technology. This has not only helped the Bank to constantly improve its service level but has also kept it prepared for future adoption of new technology.

Himalayan Bank Limited was registered in 2049/10/05 and started its operation on the same date. Its authorized capital is Rs 60 crores and issued capital is 30 cores. It has 7210 shareholders and issued Rs 100 paid-up shares whose par value is also Rs 100. It has main aim of operation of collecting deposits under different accounts and granting loan to needy persons. It has positive role to strengthening the financial sector of Nepal. It is the first bank to register after the democratic governments of Girija Prasad Koirala which adopted liberal economic policy and called foreign investment in all sectors expect defense and communication 80% of the investment of this bank is made from Nepalese investors and 20% from foreign investors. The share is listed in Nepal Stock Exchange Ltd on 2050/03/21 B.S.

Himalayan Bank Ltd, Bank of Kathmandu and Laxmi Bank Alliance Partnership for extended services on 2009/2/13. MOU has been signed between Himalayan Bank Ltd, Bank of Kathmandu and Laxmi Bank Ltd. on Jan 21, 2008. Nowadays, Himalayan Bank Ltd. has been open their branches outside the country whose conduct has Himal Remittance.

1.2 Focus of the Study

Nepal is one of the least developed countries in the world; the financial situation of the Nepalese banking sector is in a very poor condition. Banking sectors requires effective cash management to improve the financial situation. The main aim of cash management is to maintain adequate control over cash position to keep the firm sufficiency liquid and to use excess cash in some profitable way.

Cash management also plays great role. It is one of the main areas of working capital management. The cash is the most liquid assets so it should be managed well. It should never be underestimated. The cash management involves formation of policies and programmed for cash receipt and cash payment.

The size of cash balance in hand and in an account to be maintained depends on the behaviors of operating cash flows of the banks. Each banking operations is different from each other and matter of cash collection and disbursements as such, a bank needs to follow cash management strategies based on its own financial strength and objectives. Cash management helps organization towards success and efficiency. The focus of the study is on a critical examination of cash management technique of selected commercial banks in Nepal. The present study of cash management in Nepalese listed commercial banks (in which sample of two banks is taken for study).

1.3 Statement of the Problem

Cash management in the banking sector of Nepal is primarily based on traditional practices, lacking in a scientific approach. A most serious aspect of it has been absent of any formalized system of planning and cash budgeting in many of enterprises do have the practice of forecasting cash requirement or a form basis.

It has the most intricate and challenging area of modern corporate finance as much as the management always faces a trade-off between the liquidity and profitability of the firm though most of the enterprises in Nepal have well recognized the importance of proper cash management; they are still facing the problem of cash management.

By and large, most enterprises experience periodic accumulation of surplus cash and corresponding cash storage from time to time. However, none of the enterprises considered the implication of holding idle cash balance and few took in the account the potential benefits of investing surplus cash in marketable securities. Those, which did fail to consider the cost of administrating such investment.

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The holding of cash to transaction motive requires a firm to conduct its business in normal course. The organization needs cash primarily to pay its obligation. Cash is also held for precautionary motive to meet any contingency in the future and lastly the holding of cash to speculative motive to the desire of a firm to take advantage of opportunities. If we look into the financial statements of the commercial banks, we can find that cash management is not satisfactory and encouraging i.e. very low level of cash has been maintained in the organization, which is one of the major problems in Nepalese listed commercial banks.

The questions of the research are:

1. What is the difference between traditional practices and scientific approaches in the banking sector of Nepal?
2. What are the differentiate challenger that management has to face a trade-off between liquidity and profitability?
3. What is the importance of cash management?
4. What are the benefits of investing surplus cash in marketable securities?
5. What are the major problems in Nepalese listed commercial banks?

1.4 Objective of the Study

An objective act as the guideline of the study. It helps to be conducted in systematic manner. So, the objective of the study is to explore how cash is managed by selected commercial banks.

The specific objectives of the study are:

) To see the cash management system of selected commercial banks and their liquidity position.
) To analyze the cash flow structure and cash demand of the selected commercial banks.
) To suggest appropriate cash management policy for the future purpose of the selected commercial banks.

1.5 Significance of the Study

It is evident that management of cash is a daily task for commercial banks, for cash management is one of the most important functions in any organization. A proper cash management considerably contributes to improve the overall financial performance and leads the organization toward success. An organization cannot achieve its goal unless cash is controlled effectively and capital is allocated. In this study, an attempt has been made for drawing the overall picture of stated commercial banks in Nepal. Data has been presented systematically and analyzed over it.

So, this study will be helpful for management of stated commercial banks in Nepal to make sound strategy in future for cash management system. This also will be valuable for researcher, scholars; students who want to investigate into the cash management of stated commercial banks in Nepal.

1.6 Limitation of the Study

However the study has been done on the basis of secondary data on the management of cash in selected commercial banks. Though it has been seen that cash management renders various services to the management its various function, yet it suffers from the following limitation:

⟩ Mostly the data presented on the secondary information and the conclusion will be dependent on the accuracy of data.
⟩ This study is limited to cash management only two commercial banks.
⟩ The study is done on the basis of five-year data only.
⟩ No comprehensive study is done.
⟩ Research is done only partial fulfillment of this M.B.S. degree.
⟩ According to the information provided by the selected commercial banks the results was analysis.

Especially we got the data of two banks are balances sheets, profit and loss account and other financial statements.

1.8 Organization of the Study

The whole study is divided into five chapters. They are as follows:

Chapter one: This chapter includes the background, brief introduction of selected banks, statement of the problem, objective of the study, and significance of the study and limitation of the study.

Chapter two: This chapter includes consists and reviews the existing literature in the relevant areas and includes cash management, reviews of books, review of article and review of earlier studies.

Chapter three: This chapter deals with research methodology, which includes research design, source of data, population and sample and methods of analysis.

Chapter four: This chapter deals with the presentation and analysis of relevant data and information, various financial tools and techniques that have been used to analyze and interpret the results.

Chapter five: This chapter deals with summary and conclusion of the whole study and offers recommendation for the improvement of banks in future.

CHAPTER - II
REVIEW OF LITERATURE

2.1 Conceptual Framework of Cash Management

The amount of cash which any organization keeps or has the requirement laid out its plan depends upon its objective and volume of transaction which it has to operate within a certain time horizon. Thus, the cash requirements, its procurements, and dispersions are privy to an organization. But any company or organization would like an adequate supply of cash repertoire at its disposal, at the same time keeping in mind of the opportunities forgone.

Caution must be exercised when projecting liquidity needs. Unless the cash flows that will be required are absolutely certain (such as progress payments on a construction project), it may be a good idea to project only into the short term three to six months for purposes of identifying this constraint. There are far too many uncertainties in business to let long-term cash projections influence investment decisions in a corporate cash portfolio.

In case of banks, they are bound by law along with transactional obligations emerging from daily business. "Banks must hold cash as reserves to meet the reserve requirements enforced by the Federal Reserve. Banks also hold cash to maintain some liquidity and accommodate any withdrawal requests by depositors. Because banks do not earn income from cash, they hold only as much cash as is necessary to maintain a sufficient degree of liquidity. They can tap various sources for temporary funds and therefore are not overly concerned with maintaining excess reserves".

"Banks hold cash in their vaults and at their Federal Reserve District bank. Vault cash is useful for accommodating withdrawal requests by customers or for qualifying as required reserves, while cash held at the Federal Reserve district banks represents the major portion of required reserves. The Fed mandates that banks maintain required reserves

because they provide a means by which the Fed can control the money supply. The required reserves of each bank depend on the composition of its deposits."

Nepal Rastra Bank requires every commercial bank to maintain a cash reserve ratio of 5.5% compulsorily. As an indicative of tight monetary policy stance the bank rate of 6.25% has been changed to 6.5% under the monetary policy for FY 2008/09. So does the export credit refinancing rate of 2% and sick industry refinancing rate of 1.5%.To facilitate cottage and small scale industries promotion, refinancing rate for the loans advanced to these industries has been fixed at 2.5%. According to Ministry of Finance Economic Survey, Money and Banking 2006/2007, mandatory cash reserve ratio at 5.0 has been changes to 5.5% percent have also been continued."

Excess liquidity as well as shortage of liquidity in the banking sector is considered as non-beneficial in both the cases to the economy. Failure to create the demand of capital in economy for investment drives towards the state of excess liquidity whereas the excess demand of capital than the supply may create the state of illiquidity position. In both of the cases, it may hamper and become a headache to the government, economist, and policy makers and so on. However, heightening liquidity is the major problem of nation as large amount of capital are blocked because of no investment options.

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. It is no doubt, very difficult to point out as to how much cash is needed by a particular company, but it is very essential to analyze and find out the solution to make an efficient use of funds for maximizing the risk of loss to attain profit objectives.

Corporation must adopt such a policy that makes optimum cash management possible for improving the efficiency of cash management. In a developing country, corporation has not given importance in assessing the time value of money. So the methods of cash

management practiced by corporation in developing countries may not be viable due to deficiency of knowledge or lack of consciousness among corporate managers of developing country promptly *(Shrestha; 1980:52).*

Cash is the most liquid assets are of vital importance to daily operation of business firm. It is cash that keeps a business going on. Adequate supply of cash is required to meet the requirement of business. Its shortage may stop the business operation and may degenerate a firm into a state of technical insolvency and even of liquidation. Indeed cash which has a cost whether received internally through generation of funds in business operations or externally through money market procurement is liability and wasted opportunity unless it is not put to its optimal use (*Saksena; 1974:31).*

Cash management is one of the main areas of working capital management. The cash is the most liquid assets so it should never be underestimated. It should be well managed. The cash management involves formulation of policies and programmers for cash receipt and cash payment. A bank has to hold cash to control the loss of interest or to meet day-to-day transactions and unforeseen contingencies. The main aim of cash is to maintain adequate control over cash position to keep the firm sufficiently liquid and to use excess cash in a profitable way.

The management of cash has been regarded as one of the conditioning factors in the decision-making issues. It is very essential to analyze and find out the solution to make an efficient use of funds for maximizing the risk of loss to attain profit objectives.

Cash management is one of the key areas of working capital management. The cash is the most liquid asset so it should never be underestimated. All the current assets can be reduced because the major liquid assets get eventually converted in the cash *(Khan and Jain; 1978:664).* The cash management as effective management is the key determinant of efficient working capital management *(Jain & Narayan; 1988: 174-175).*
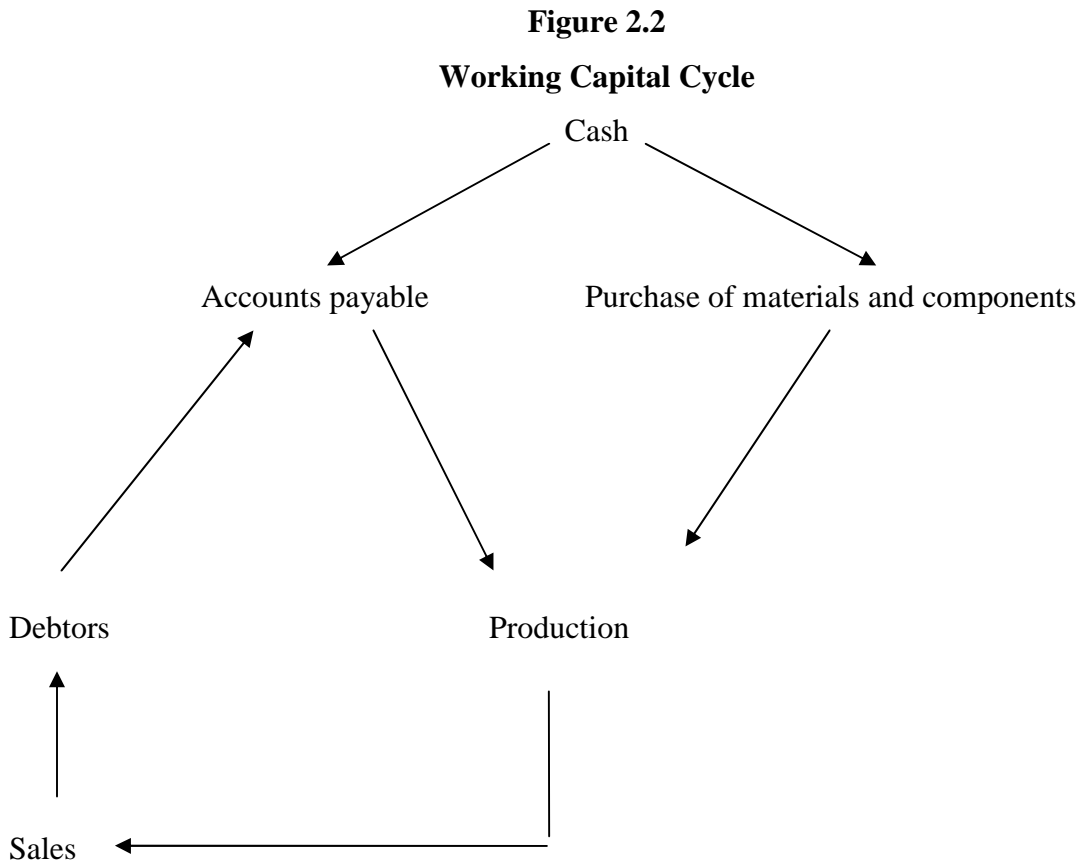
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As we know that cash is used for different purposes. A firm begins with cash to purpose raw materials and other operating suppliers on credit that turns into account payable. Further cash is expected to pay the labor and other manufacturing costs and other further trade credit giving rise to account receivable. The collection of receivables brings cash into the firm and creditors are paid. The average time, which elapses between the acquisition of materials or services entering into the manufacturing, process and the final cash realization constitute an operating cycle *(Jain and Narang; 1998: 174-175).*

Figure 2.1

Circulation of Current Assets

Cash

Receivables

Inventories
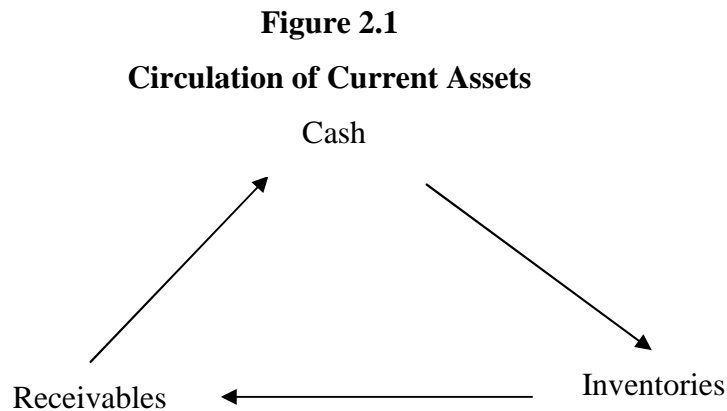
The relation between sales growth and need to finance current assets is closed and direct. The growth of sales means generation of more funds provided such sales constitute cash sales and this enable corporation to be self supporting without any need to top additional funds for current assets but if there are more credit sales, the size of account receivable rises so that for the short period firm have to manage funds either through effective credit policy to have quick collection or arranging a bank loan for short period. The amount of earning also decide how much to indirect in current assets as more earning lead to more inflow of cash enabling corporation to meet cost of operation easily. Their studies help to guide and sound knowledge for the further studies *(Weston and Brigham; 1973:138).*

 In these book they explain the motives for holding cash specific advantages of adequate cash synchronization of cash flows, expending and cheque clearing using float, cost of cash managements, determining the minimum cash balance, marketable securities, arrangement of account receivable. The credit policy, overdraft system, evaluating changes in credit

policy, and substitute for cash criteria for selecting securities investment are alternatives. Cash planning, cash forecasting and budgeting, managing the cash flows, determine the optimum cash balance as well as motive of holding cash *(Pandey; 1999:839).*

Figure 2.2

Working Capital Cycle

Cash

Accounts payable   Purchase of materials and components

Debtors   Production

Sales

Managing collection, transferring funds, control of cash disbursements, balancing cash and marketable securities, compensating balance and fees, model for determining optimal cash balance, optimum level of cash, lock box system, concentration banking and other producers *(Van Horne; 1990: 389-45).*

The relation between sales growth and need to finance current assets is closed. The size of account receivable rises so that for the short period firm have to manage funds either through effective credit policy to have quick collection or arranging a bank loan for short period. The decline in earning put burden of liquidity and additional investment in current assets. The highly developed money market and efficient banking services make easy

availability of credit at any time when it is needed and in such situation corporation can avoid maintenance of higher cash balance and also can easily discount accounts receivable. But lack of this services compel corporation to follow precautionary policy of holding more current assets. In view of consideration of the above factors, current assets management involves a common set of problem concerned with the size of investment required in those assets.

2.1.1 Efficiency of Cash Management

As a matter of fact, financial situation of the Nepalese banking sector is in a very poor shape. Apart from other measure required to improve their performance, banking sector may be expected to have better prospects with effective cash management. The financial manager of the corporation should try to improve the efficiency of cash management, effective method of collection and disbursement should be adopted by minimizing the corporations holding of cash while still efficiency of cash maintaining enough to ensure payment of obligation. Deposit float means the amount of cheque send by customers but not collected yet. The gap between period of collection of cheques and payment of bill will be available for use. If the deposit float is greater, the time taken will also be longer *(Saksena; 1974:34).* There are certain methods for efficiency of cash management, which are described as follows:

I. Concentration Banking

Concentration banking is a system of centralizing corporate cash in order to control the firm's funds and minimize idle cash balances. Under this system a concentration bank is designated to receive funds from the subsidiaries, depository to instruction given by the firm. The concentration bank reports available balances daily so that the firms' treasurer can take maximum advantage of investment opportunities.

Another method of concentration banking is depository transfer check. It can be either in the form of paper or in the form of electronic. By the help of electricity deposit can be transfer during a day.

There must be collection centers in different places so that the cheques from customers can be collected and it can be deposited in the concentration bank.

II.   Special Handling of Cash

Special handling of cash leads organization towards efficiency and success. The aim of handling cash is to maintain adequate control over cash position to keep the firm sufficiently liquid and to use excess cash in some profitable way.

III.   Slowing Disbursement

Apart from the speedy collection of account receivable the operating cash requirement can be reduce by slow disbursement of account payable. It may be recalled that a basic strategy of cash management is to delay payment as long as possible without impairing the credit rating of the firm. Infect, slow disbursements represent a source of funds requirement, no interest payments. There are some techniques to delay are: avoidance of early payment centralized disbursement, floats and accruable.

IV.   Cash velocity

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

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

V.   Minimum Cash Balance

Corporations are required to keep a minimum cash balance requirement of bank either for the services it renders on in consideration of lending arrangement. If there is maximum cash balance the corporation will be in the form of liquidation. So, minimum cash balances are required in the entire corporation for the lending services.

VI.   Synchronized Cash Flows

Synchronized cash flows are necessary to keep the balance in minimum, which helps banks to render the services. So the situation in which inflows coincide with outflows, there by

permitting a firm to hold transaction balance to a minimum. Managing the cash flows so as to accelerate the inflows and as far as possible to decelerate outflows.

VII.   Using float

Float means the differences between the balances shown in a firm's cheque book and the balance on the bank's records. An optimizing the level of cash balance by matching the cost of holding excess cash and the danger of cash deficiency.

VIII.   Overdraft system

Overdraft system is used where by deposits may write cheque in excess of their balances with their books automatically extending loans to cover the shortage.

IX.   Transferring funds

There are two methods of transferring deposits or funds, i.e. in the form of paper or electronic. It can be transmitted in the form of paper like other check or it can be sent electronically unlike a wire, which is sent immediately during the day from one bank to another. Nowadays, there is also use the computerized system in corporation. It is very fast than the paper transferring.

2.1.2   Different Techniques of Cash Management

Cash management is concerned with the management of current assets and current liabilities of the business, which is necessary to day-to-day operation. It concerned with the decision regarding the short-term funds influencing overall profitability and risk involving in the firm.

There are different techniques of cash management which are explained as follows:

i.   Cash Planning

Planning means thinking before what we are doing. Proper planning is dispensable to achieve the goal of maximum profit. Cash planning must be done for success and effective of the organization. It depends upon the size of the business and philosophy of management. On the basis of time period i.e. daily, weekly, and monthly or annually

planning may be done. It helps in anticipating future cash flows and needs of the firm. It also helps to reduce the possibility of idle cash balances and deficit of cash. So for effective and smooth running of business cash planning is to be done. "Cash planning is a technique to plan for and control the use of cash" *(Pandey; 1999:483).*

ii.   Cash Budget

The cash budget is a plan of future cash receipt and payment. The statement showing the statement the estimated cash income and cash expenditure over a projected time period is known as cash budget. It helps management in planning to avoid unnecessary idle cash balance. It also helps to eliminate unneeded expensive borrowing. The cash budget helps a management keep cash balances in reasonable relationship to its needs. It indicates such as cash requirement for a plant or equipment expansion program. A cash budget includes no accrual items. It gives information on the timing and magnitude size or importance or expected cash flows and cash balance over the projected period. A cash budget is a summary statement of the firm expected cash inflows and outflows over a projected period *(Pandey; 1999: 843).*

The time horizon of cash budget may differ from firm to firm. A firm whose business is affected by seasonal variation may prepare monthly cash budget. Daily of weekly cash budget should be prepared from determining cash requirement is cash flows show extreme fluctuation cash budget for longer interval may be prepared, of cash flows are relatively stable.

iii.   Cash Forecasting

It is an estimate of future needs arranged according to an ordinary basis covering some or all of the activities of an enterprise for definite period of time. It is a formal business plan for some future period. Cash forecasting is a useful tool to deal with the forecasting aspect of cash budget. On the basis of short term and long term cash forecasting may be done.

Short-Term Cash Forecasting

There are two methods of short-term cash forecasting which are as follows:

a. Receipt and Disbursement Forecast
b. Adjusted Net Income Method

a) Receipt and Disbursement Forecast

Priority is given to the cash receivable than to the sources of income and cash payment to be made in budgeted period. In cash of those companies where each items of incomes and expenses involves flow of cash during a predetermined period.

b) Adjusted Net Income Method

This method is also called as sources and approach. In this method there are two objectives:

） To protect the company's need for cash at some future date.

） To show if the company can generate this money internally and if not how much will have to borrow or rise from the capital market.

Sources of cash, uses of cash and the adjusted cash balances are three different section of this approach.

Long-Term Cash Forecasting

The forecasting is done for two, three or five years. Long term forecast helps to improve corporate planning long-term cash and also to suit their needs. It is prepared to give an idea of the company's financial requirement of distant future. It can be used to indicate a company's future financial needs for the requirement of working capital. Long-term cash forecast helps to forecast the cash for the longer period of time.

Source:

） To evaluate proposed capital projects

ﾉ It helps to improve corporate planning long-term cash forecasts may be made for two, three or five years. As with the short-term forecasts, company's practices may differ on the duration of long-term forecasts to suit their particular needs. (various articles)

2.1.3 Determining the Optimum Cash Balance

"Cash is the money, which the firm can disburse immediately without any restrictions. The term cash includes coins currency and cheques held by the firm and balance in its bank accounts. Sometimes near cash items, such as marketable securities is also included in cash" *(Pandey; 1999:911).*

Cash is the lifeblood of every organization. It is required to run the firm more effectively and smoothly. Cash as the most liquid assets is of vital importance to daily operation of business firm. Cash is both the beginning and end of the working capital cycle i. e. inventories receivables etc. The financial manager should determine the appropriate amount of cash balances. It is required to improve their performance private and public enterprises, which may be expected to have better prospects with effective cash management.

So the firm should maintain an optimum cash balance to find out the transaction cost, opportunity cost. There must be equal or balance between the transaction cost of small and opportunity cost of large. It will be clearer by following diagram, which shows increase and decrease in the cash balance of transaction costs, and opportunity cost and also shows the minimum cash balance.

Figure 2.3
Optimum Cash Balance
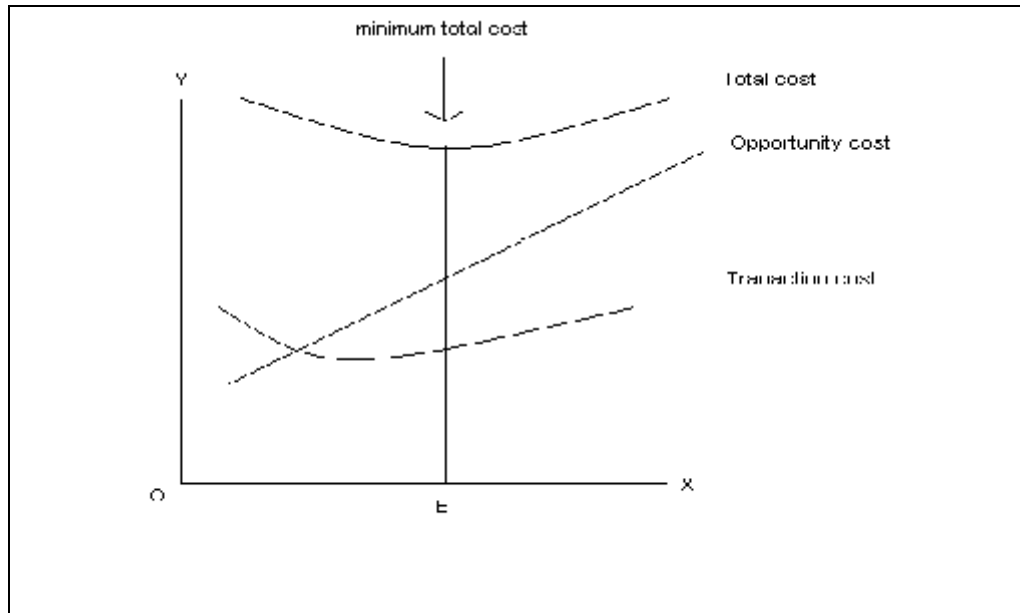
Here, E is the point where the sum of two costs is minimum. If the opportunity cost declines, the transaction cost will increase and vice versa. So, the cash balance play great role in these two costs i. e. if the firm maintains high cash balance the transaction cost will increase but opportunity cost will decrease.

2.1.4 Cash Management Models

Cash management in a business is of great importance for its smooth running and maximum profitability. There are different types of models for cash management as according the view points of different writer:

a. Baumol Model
b. Miller-Orr Model
c. Orgler's Model
d. Cash Management Models

a) Baumol Model

Baumol model is one of the methods that can be used for various purposes. Holding of cash balance is has an implicit cost in the form of its opportunity costs. The highest level of idle cash the greater is the cost of holding it in the manner of loss of interest, which could have been earned either by investing it in securities or by reducing the burden of interest charges by paying off the loans taken. Baumol identifies the maintenance of cash as analogues to

inventory management and demonstrate that the model of economic order quantity that is applicable to inventory management, which is perfectly applicable to inventory management, which is perfectly applicable in cash management.

However, Baumol model is based on certain assumptions:

i. The cash is used at constant rate

ii. The periodic cash requirement is more or less

iii. As cash balance increases opportunity cost also increase and transaction cost will decrease *(Baumol; 1952: 545-556).*

Figure 2.4

EOQ Model of Cash Balance
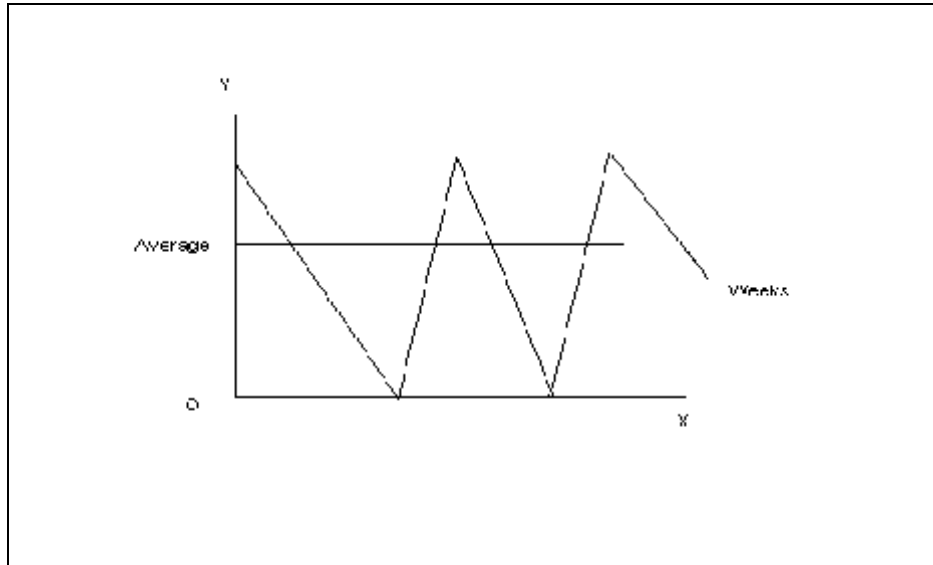
(Baumol, 1952: 545-556)

However, the objective of this model is to minimize the total cost. Unlike the case of inventory purchases, the cash transfer does not take time. Therefore, it is normally not required to maintain safety stock of cash. According to its assumption, it prescribes an optimum size of cash balance and optimal size of cash transfer from marketable securities to cash account or borrowing. What matter for a firm is the total of opportunity cost and transaction cost?

The figure shows the relationship between the average size of cash balance and various costs associated with cash maintenance.

Figure 2.5

Relationship between Cash and Various Costs
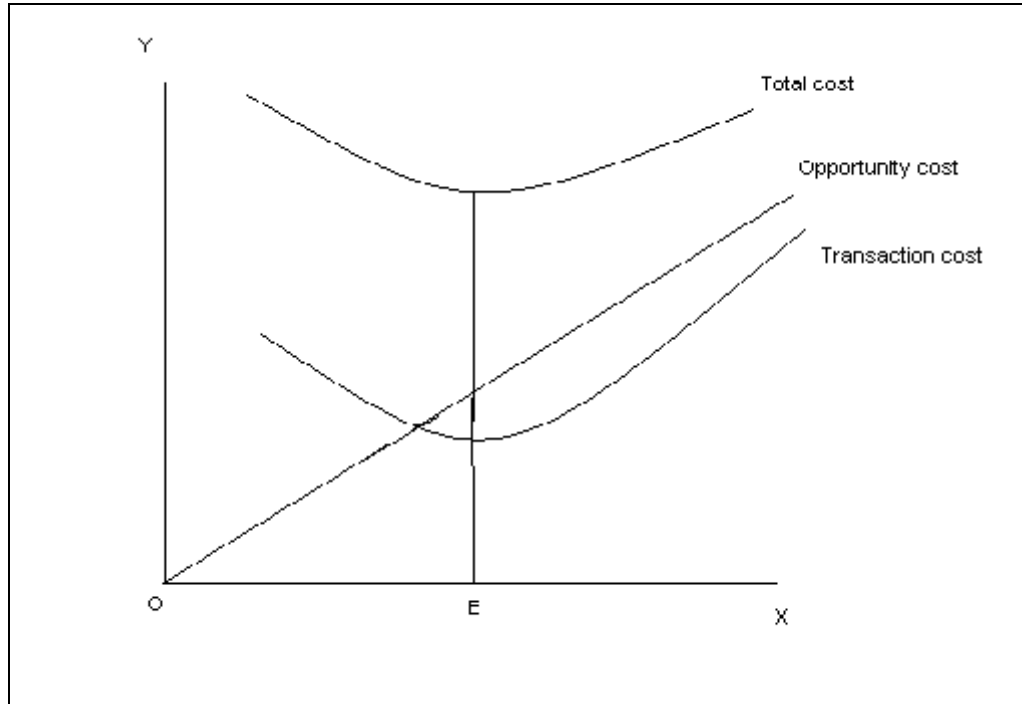
Here, E is the point where fixed transaction cost and requirement of cash per period will be divided by the opportunity cost of holding cash or interest rate on borrowing. Mathematically, the optimal size of cash transfers from investment accounts or line of credit. i.e.

$$E = \frac{\overline{2FR}}{K}$$

Where,

F= Fixed transaction cost

R= Requirement of cash per period

K= Opportunity cost of holding cash

The average cash balance (c) is calculated as follows:

$$C = \frac{E}{} + M$$

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2

Where, M= Minimum Cash Balance *(Baumol; 1952:545-556)*

b) **Miller – Orr Model**

However, Baumol model shows that the cash balance should be maintained at a minimum level and the funds not required from immediate use is invested in the marketable securities to minimize the opportunity cost of holding cash and minimizing the returns on the available funds, but also it has certain assumption. It does not consider the possible irregularity and uncertainty of receipts and payments. So, Merton Miller Dainel ORR known as Miller – Orr Model, developed another model. In his model he prescribed about the needs of cash which depends upon the degree of irregularity in inflows and also when and how much to transfer from cash to investment account.

Miller – Orr Model also has certain assumption:

1. The daily net cash flows are random in size as well as in the negative or positive flows and are normally distributed in the long term.
2. This model sets the target cash balance in between two limits i.e. high and low limits.
3. It also sets a range of two limits with in when the cash balance is allowed to fluctuate *(Miller; 1966: 413-435)*

The model suggest to transfer the amount of cash that is necessary to bring the cash position to its target balance slides down to the lower limit, to transfer the cash in exceed of target balance to the investment account whenever it reaches to the upper limit. The lower limit in the model is set by either management decision to meet emergency need or as required by bank to compensating balance in the account.

Mathematically, this model is set as follows to calculate target cash balance and upper limit and also the average cash balance.

$$Z = \frac{[3F\,\sigma^2]^{1/3}}{4} + L$$

$$U = \frac{3[3F\,\sigma^2]^{1/2}}{4i} + L$$

$$= 3Z - 2L$$

The average cash balance (C) is obtained as

$$C = \frac{4Z - L}{3}$$

Where,

> Z = target cash balance
>
> F = fixed transaction cost per transacts
>
> ^{2} = variance of net daily cash flows
>
> I = daily interest / opportunity cost
>
> L = lower limit

c) Orgler's Model

This Orger's model is also known as linear programming model. It co-ordinates the optimal cash management strategy with the other operation of the firm and also determined through the use of a multiple linear programming. The main objectives of this Orger's model is to minimize the horizon value of the net revenues from the cash budget over the entire planning using the assumption that all revenue generated is immediately re – invested and that any cost is financed.

This objective generates the cash inflow and outflows as adding or subtracting profit opportunities for the firm.

This decision of variables, which generates the cash inflows, have positive coefficient and if the decisions variables generates the cash outflows have negative coefficient.

Orgler's model basically uses one year planning. It comprises are three concept i.e.

i. Selection of the appropriate planning horizon.

ii. Selection of the appropriate decision variables and

iii. Formulation of the cash management strategy, etc.

    a. Payment schedule

b. Short term financing

c. Purchase of marketable securities and

d. Cash balance is the basic concept of decision variables to influence cash management of a firm and must be incorporated into the linear programming.

There are two types of constraints they are institutional and policy constraints. Institutional constraints are those constraints, which are imposed by external factors. It can occur in the model during on monthly period or over several or all the months in a year. The important features of Orgler's model are it allows the financial managers to generate cash management with production and other aspects of the firm *(Orgler; 1970:220).*

Mathematically,

Objective function: Max. Profit $= a_1x_1 + a_2x_2$

Subject to: b_1x_1 production

B_2x_2 constraints

$C_1x_1 + c_2x_2 <$ cash available constraints

$D_1x_1 + d_2x_2 >$ current assets requirement constraints

d) **Cash Management Model**

Cash management is the main areas of working capital. In this model, the optimal size of the cash balance is calculated with the total cash usage for the period of time involved and the most of the transaction in the purchase or sale of marketable securities with the applicable interest rate. Assuming the expenditure occurred evenly over time and that, cash replenishment comes in lump sum at periodic intervals (Weston and Copeland, 1990: 784-785). The optimal size of the cash transfer is formulated as follows:

$$C = \frac{\overline{2bT}}{I}$$

Where,

C = the optimal size of the cash balance

T = the total cash usage for the period of time involved

b = the most of the transaction in the purchase in the purchase or sale of marketable securities

I = the applicable interest rate on marketable securities

(Weston and Copeland; 1990: 784-785)

2.1.5 Cash Cycle

Cash is component that correlated with working capital. Cash as the most liquid asset is of vital importance to daily operation of business firm. It is both the beginning and end of the working capital, and the cycle refers to the process by which cash is used in different purposes like to purchase materials from which goods are produced then it sold to the customers for that customers pays the bill.

There are certain steps of cash cycle, which concerned with the time periods taken while ordering the materials till payment of cash. It takes 60 days or two months from the ordering of materials up to funds collected. It takes at least 14 days to receive materials from suppliers and 22 days for payment including clearance of cheque. Sales of inventory take 48 days to have complete clearing off stocks and customers might pay only after 28 days by mailing cheque. For the payment receipt, cheque deposit and ultimate collection more six days may be required. These days are only applicable for direct selling of customer's goods. More time may be required if it is concern with manufacturing.

Figure 2.6

Cash Cycle
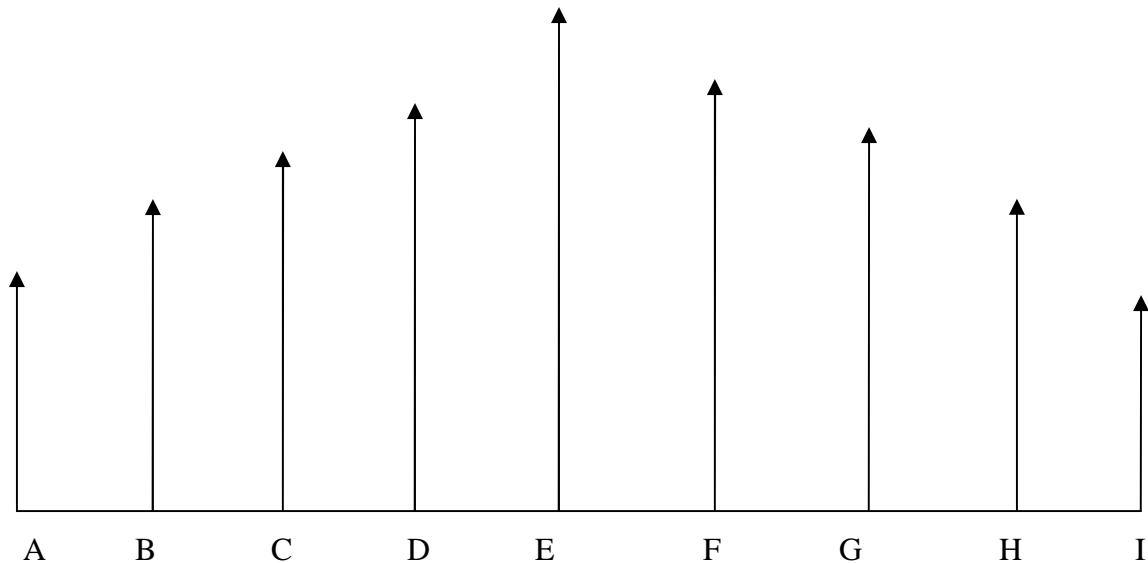
Where,

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A= materials order   B= materials received

C= payment   D= cheque clearance

E= goods sold   F= customers mail payment

G= payment received   H= cheques deposited

I= funds collected

The figure shows the time periods involved in different stages like B, C, D and F, G, H, I. but in A and B stages there is no control over the time involved. The time lag between D and B is determined by the production by credit terms and the payments policy of customers.

2.2 Review of the Related Studies

Cash management is both the beginning and end of the working capital cycle. It has a meaning according to the purpose with varying branches of knowledge; it implies various meanings from different economists since 1950's. It approaches with new techniques.

2.2.1 Review of Journals

Baumol (1952) introduced a deterministic approach to determine the level of cash balances based on economic order quantity of early inventory model. He assumed that the firm faces fixed cash inflow and outflow patterns and sought to minimize the cost will be demanded by rational individuals in proportion to the square root of the value transactions, given the price level. Tobin (1956) interposed interest elasticity of transaction demand for cash with a view to minimizing individual's interest earnings net of transaction cost. This is different from Baumol's prepositions, but the results are quite similar with Baumol's equation. "*The Transaction Demand for Cash: An inventory theoretic Approach*" on quarterly journal of economic *(Vol. LXV, Nov 1952).*

Friedman (1959) introduced the behavior of aggregate cash balance and its velocity. According to him "business holds cash as a productive resource". He explored the question of whether money is like an inventory hold, or is comparable with fixed capital. He concluded with the finding "cash balances are analogous to fixed capital rather than to

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inventories and that some other assets or liabilities serve as stock absorbers for business as for consumers".

Advanced and research based journals of finance are hardly found in Nepal. Very limited numbers of journals of finance cannot cover its full dimensions. Though in this section articles from various national and international journals are reviewed and the attempt is concentrated to build the sound conceptual framework of subject matter, which may helps for the success of the study.

Study cash planning in small manufacturing companies by Joseph Schabacker (1960) University of Wisconson. Several significant investigations have been conducted to explain the causes of failure among small business. The most widely accepted theory forthcoming from such studies is that poor internal management is the predominant factor in failure.

The purpose of this study is to explore one specific phase of the management job in small companies, namely the forward planning of cash requirements. Many small business owners allow themselves to be pressured into ad hoc decisions as a result of no advance planning. The research was designed to test the hypothesis that "the financial health of a small manufacturing firm is directly related to the amount of formal cash planning which done.

A formal cash plan is here defined as written forecasts, as opposed to mental estimates. The definition of a small manufacturing company is a firm with 150 or less employees. The solution of this problem involved a determination of the kinds of financial, planning feasible; an analysis of how much is actually being done, and the formulation of a minimum amount of financial planning that should be accomplished.

Seldom (1961) extended the study and determined the relationship between velocity of cash holding with the asset size of the firm, and directed attention to the velocity of money and its inverse relationship with the assets size of the firm. According to him, the velocity is defined as the ratio of total outlays including tax, and dividend payments but excluded

capital expenditures, debt retirement and securities purchases from year-end cash holdings. According to him, the cost of holding money is much less firms than for small firms.

Statement analysis was prepared for the Dun and Bradstreet fourteen financial ratios for each company for the period 1951-56. These ratios were compared with appropriate industry results by year as published by Dun and Bradstreet. A "score" was then developed for each company representing (a) over-all operating and (b) net profit results.

A random sample of twenty-eight small machinery- manufacturing companies in the Los Angles area was investigated. Financial and operational data were obtained through questionnaires and personal interviews with the president or senior executive. In addition, information was collected from each company's outside auditor, from the bank loan officer, and from Dun and Bradstreet files. This investigation indicates that there is no different correlation between higher profits in the small company and the act of written cash planning. The evidence does not support a preconceived nation that the eight out of twenty-eight presidents who used written cash forecasts experienced any greater profit results or over-all operating improvements thereby.

However, there are times in the life of a small company when format cash forecasts seem to be crucial. These include (a) when a company is under capitalized (b) when a lending institution is approached for a loan and (c) when a company is contemplating or experiencing a growth stage.

W.J. Baumol, at this article, "*The Transaction Demand for Cash: An Inventory Theoretic Approach*" on quarterly journal of economic (Vol, LXV, Nov. 1952) identities cash maintenance as analogues to inventory maintenance and demonstrates that the model of economic order quantities that is applicable to inventory management is perfectly applicable in cash management too. He has presented model in view of minimizing the opportunity cost of holding cash and maximizing the return on the available funds, the cash balance should be maintained at a minimum level and the funds not required from immediate use be invested in the marketable securities.

Birman and McAdams (1962) in their article *"Management Decisions for Cash and Marketable Securities"* on graduate school of business have applied the economic order quantity model like Baumol. Bailey (1962) considered cash balance held by the firm to be productive assets similar to any other asset. He stated that …….. Cash balance held by business firms is obviously a productive resource similar to any other. Presumably, this is because… They reduce the other resources required for a given level of production, by facilitating payment," Meltzer (1963) adjudged wealth as an explanatory variables of cash balance determination and sales as the measure of wealth. He hypothesized that the amount of money held by firms is the function of the market rate of interest and wealth. He concluded, "The results suggest that the cross-section demand for money by firms is a function of sales, to a first approximation linear in the logarithms and unit elastic.

According to Whalen (1966) in his article "A Gross Section Study of Business Demand for Cash" on journal and finance, (September, 1965) has found the speculative demand for money may be considered as a function of wealth. Assets and sales are the explanatory variables to determine the cash balance of the firm. Since, Whalen attempted to incorporate assets as well as transactions into the demand function, the analysis presented by him in order to determine the cash holding of the firm different from Meltzer's Model. He hypothesized that the cash holding of the firm is not only for transaction purpose but also as an investment Miller-Orr (1966) assumed that a stochastic process could analyze a firm's cash flows. He followed Baumol's model, without question and deduced that the firm's pattern of payment and receipt is fixed and that the cost of non-payment is infinite. He added that the firm or the individual is presumed to hold that amount of money rather than bonds, since there is transaction cost associated with the conversion of bonds into money. This reduces the cost of transaction and maximizes profits by an equivalent amount. So, M.H. Miller and Orr. D. in their article "A Model of The Demand for money in firms" on quarterly journal of economic, (vol. LXM, August, 1996) have developed a model known as Miller- Orr Model, that takes into account the realistic pattern of cash flows and prescribes when and how much to transfer from cash to investment account and vice-versa.

Sprinkle (1967) in their article "Large Economic Units, Banks and the Transactions Demand for Money" on quarterly journal of economic, (vol. LXXX, August, 1966: 436-422) have assumed that money had all the attributes of ordinary inventoried goods. Vogel and Maddala (1967) assumed that the demand for cash, government securities and liquid.

Assets are a function of wealth determination. According to them the firm is assumed to allocate its financial holdings among assets so as to equalize the marginal rates of return, adjusted for risk involved. The results differ from Meltzer only in that Meltzer estimated the demand equation for individual industry for each year, whereas, Vogel and Maddala the dummy variables and estimated pooled regression with yearly data. They had also included assets as an explanatory variable in the demand for money equation and determined the economics of scale. Nadiri (1969) suggested that the estimates of elasticity of demand for money with respect to sales or production are unequivocally equal to utility.

Charnes, Cooper and Miller had applied Linear programming model for the first time to finance in their article "Application of Linear Programming to Financial Budgeting and Cost of Funds," ljiri, Y. Levy, F. K. and R.C. Lyon in their article "A Linear Programming Model for Budgeting and Financial Planning" on journal of accounting research have Cooper and Miller, with the marketable securities transactions, but in a very general form and is limited to single period.

Another article propounded by Ram M. Saksena,' Towards more efficient cash management" on quarterly journal of management quality identified that the term cash management has a meaning according to the purpose for which it is used and persons with varying branches of knowledge implies various meaning of cash. Economics considered cash, as the means to satisfy human want, the lawyer the view that cash is the legal tender money issued by a determinant authority. However, our concern of the meaning of cash is an asset constituting the most liquid items among all the assets. But to obtain cash involves cost because corporation has to rise through issue to share or by borrowing with interest. In

through generation money market procurement is liability and wasted opportunity unless it is not put to its optimal use.

2.2.2 Review from Other Independent Study in Nepal

There are few independent studies available in the research purpose, which has been useful to gain more knowledge regarding demand of cash.

There are two studies, one that is conducted by Radhe Shyam Pradhan in a topic of "Demand for working capital by Nepalese Corporations." Kundan Dutta Koirala conducts another in a topic, "Aspects of Working Capital Management in Nepalese Corporations." According to the studies we are able to know about different aspect of working capital and demand for working capital in Nepalese corporation.

Result from the studies:

⌡ Both the studies provide us more knowledge for our research purpose.

⌡ Reviewing various books, journals, thesis and other independent studies by different writers related to the topic.

⌡ It could be concluded that all those works performed are related to the study of cash management.

2.2.3   Review of Previous Thesis

In this section, excerpts and transcripts from previously carried out relevant researches about the practice of cash management in public enterprises of Nepal and the financial and liquid positions of various commercial banks have been presented respectively.

Bajracharya (2008), conducted a study on *Cash Management of Nepal Bank Ltd. and Hiamalayan Bank Ltd.* by using five years data of 2003/04 – 2006/07 and submitted to Shanker Dev Campus in partial fulfillment of the requirement of Degree in Business Studies. The objectives of study are:

1. To present overall cash management picture of the commercial bank in Nepal.

2. To critically analyze the cash management techniques practiced by commercial bank

3. To analyze the cash flow structure

Prithi (2003), conducted a study on "*Cash Management in the title of United Mission Hospital Tanseen*" used six years data of 2054/ 055 to 2059/ 60 or of different objectives, one is " to have true insights into its cash management and to present the existing cash management and to expand few suggestions on the basis of analysis to improve the cash management for future."

The findings on the basis of his study are:
1. Cash management has been the absence of any formalized system of cash planning and cash budgeting. It is based on the traditional approaches.
2. It has not considered the implication of holding idle cash balance.
3. There was very little evidence of the effect of economy of scales on cash balance

Biranji (1999), conducted a study on "*Cash management of Gandaki Noodles Pvt. Ltd*" by using six years data of 2048 / 049 to 2053/ 054. The objectives of study are, "To analysis the cash disbursement needs, minimize funds committed to cash balance and access the credit policy adopted in GNPL and their impact and relationship to each other."

The major findings on the basis of his study are as follows:
1. Modern practices with respect to debt collection, monitoring the payment behavior of customers and relevant banking arrangements in connection with collection of receivables have been virtually ignored in many enterprises.
2. It is also failed to consider the cost of administering such investments.
3. Neither interest rate nor the rate of inflation had any effect on the cash balance.

Bajracharya *(1990)* conducted a study on "*Cash Management on Nepalese Public Enterprises*" by collecting eleven years data from 1977 to 1987. The objectives of the study are as follows:

1. The study of cash management critically review techniques practiced by Nepalese public enterprises.
2. To examine the demand for cash in the case of Nepalese public enterprises.
3. To suggest appropriate cash management policy for the future.

On the basis of these studies, different findings are dawns, which are as follows:

1. Cash management in the public enterprises of Nepal is primarily based on the traditional practices, locking in a scientific approach. A more serious aspect of cash management has been the absence of any formalized system of cash planning and cash budgeting in many of the enterprises do have the practice forecasting cash requirements on a formal basis.
2. Because of the effectiveness of cash planning and budgeting the majority of the enterprises didn't face any serious liquidity problem. The problem of liquidity actually didn't arise due to the coincidence of delay in receivables collection being matched by delays payment to creditors.
3. By and large most enterprises had period accumulation of surplus cash and corresponding cash shortage from time to time. However, none of the enterprises considered the implication of holding idle cash balance and few took into account the potential benefit of investing surplus in marketable securities. Those, which did, failed to consider the cost of administering such investments.
4. There has been wide variations overtime in the state of financial health of the enterprises in terms of the composition of current assets and current liabilities as revealed by the relevant financial ratios.
5. Regression analysis revealed that there was little effect of the opportunity cost of holding cash on the cash balances held by the enterprises. Neither interest rate nor the rate of inflation had any effect on the balance. Further there was very little evidence of the effect of economy of scale on cash balance holding in most cases.

Thus, for the public enterprises in Nepal, it is necessary to highlight the importance of developing appropriate strategies for cash management respect of:

1. Cash planning and cash budgeting on a formal basis so as to project cash surplus or deficit for a period not exceeding one year and broken up into shorter intervals.

2. Managing the cash flows so as to accelerate the inflows and as far as possible, to decelerate outflows.

3. Optimizing the level of cash balance by matching the cost of holding excess cash and the danger of cash deficiency.

4. Investing idle cash balance taking into account the cost of administering investment in marketable securities.

Shrestha (1994), in this regard, review of "Working *Capital Management of Bashbari Leather and Shoe Factory*" was made. It is also prepared by using secondary data. The objective of this study was to operate with setting certain sales target and make regular inspections to find out the excess or deficit of current assets and to adopt suitable credit policy with responsible discount and should have appropriate cash balance and working capital.

Cash is the most important aspect of working capital. Cash is the basic input needed to keep the business running on continuous basis so that cash should be managed efficiently in order to keep the firm sufficient liquid and to use excess cash in profitable way. The firm should held sufficient cash neither more nor less. Cash shortage will disrupt the firms operation while excessive cash will simply remains idle, without contributing anything towards the firm profitability. Thus a major function of the financial manager is to maintain a sound cash position. The cash management of corporations significant enough to have the best use of idle cash balances and to take the advantages from the opportunity interest in cash velocity determined by sales volume and turnover of assets. Corporate manager must be familiar with the cash cycle to undertake measure for improvement of collection and disbursement. The various motives for holding cash and determination of safety level based on normal periods and peak period must be adequately considered. The cash flow balance of corporation can be sufficiently improved by increasing volume of sales and turnover of total assets. But on the whole measure should be taken to have efficient collection combined with disbursement.

Liquidity is the lifeblood of a corporation a want of cash is the only factor, which may free it out of business cash flow in a corporation by direct cash sales of assets. It flows out indirect purchase and payment to creditors, wages and other costs. Cash also flows in the purchase and payments to creditors, wages and other equipment. In the payment of taking interest on important bearing on the overall liquidity position and failure of maintaining sufficient degree of liquidity may cause interruption of regular operation. Besides making corporate manager's unable to pay obligation in time, while each situation in unique the one common threat that runs through all corporation in crisis is a lack of liquidity.

It was observed that the goal of working capital is to manage each of the firm current assets efficiently in order to maintain the firm's liquidity while not keeping any assets as to high level. Cash is the most liquid assets, if the common denominator all can be reduced because the major liquid assets get eventually converted into each.

Corporate must adopt 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 so much attention in assessing the time value of money so certain method of efficient cash management practiced by corporation in developed countries may not viable in view of either the deficiency of knowledge or lack of consciousness among corporate managers of developing country to calculate the interest lost or fund lost if cash is not collected promptly.

In the type of financial managers should not only attain towards the aspect of profitability but he should also turn towards ensuring the liquidity of the corporation. Since every business is a constant debtor an enterprise borrows funds from financial institution and purchase merchandize on credit, there by are fewer obligations to the government. Thus every enterprise owns liabilities unless the payment is made at the maturity of the particular debt, the reputation of the firms is tarnished at worst the creditor may force the firm to terminate its business.

A cash budget shows the planned cash inflows, outflows and ending both long term and short term plans about their cash inflows. The short-term cash budget is included in the annual profit plan. A cash budget basically includes two parts:

1. The planned cash receipt need for financing probable cash deficit or the need for the investment planning to put excess cash to probable uses.
2. Planned cash disbursement, planning cash inflow and outflow give the planned beginning and ending cash position for the budget period planning the cash inflows and outflows will include.

As such whatever cash a corporation has must be utilized efficiently to receive through issue of shares the corporation has responsibility to owners in assuring them to pay favorable rate of return since cash is not easy to obtain the available cash must be prudently spent without incurring loss. Although it is impossible to formulate a set of management assets policy of universal applicability one policy or rule that appears to be unanimously accepted is that cash must be conserved.

The primary purpose of cash budget is:

1. To give the probable cash position at the end of each period as a result of planned operation.
2. To identify cash excess or shortage by time periods.
3. To establish the need for financing and or the availability of idle cash for investment.
4. To co-ordinate cash with total working capital

A firm's major needs for cash are the following:

1. Transaction needs: A firm needs cash to carry out day-to-day function of the business.
2. Contingency needs: The firm must be prepared for contingencies and should be concerned with unexpected occurrences of emergencies that require cash.
3. Opportunity needs: This involves the chances to profit from having cash available.

Collectively, these activities are usually called cash management, which in and of it should be cost effective. Cash management in large company is so important that the related policies and process should be subject to internal audits.

Pradhan (1989), "*Working Capital Policy of Manufacturing Public Enterprises (MPES)*" in Nepal sought to sort out the problem of law economic performance and poor financial management in MPES and examine whether or not there was any association between the various aspects of working capital policy in financial management and the poor financial management performance of MPES and also lack of appropriates assets mix policy in MPES. Hence, this study deals with liquidity position, utilization of working capital, profitability position, sources of financing current assets and determinants of working capital.

According to him the major findings of the study are:
1. Almost all selected MPES had followed a moderate working capital approach. The holding of cash and receivables in relation to total asset was decreasing whereas the inventory was increasing.
2. The selected MPES had sufficient liquidity.
3. There are improvements in the use of current assets in selected MPES there was high turnover of cash and receivables in comparison to inventory.
4. Capacity utilization was the significant factor while sales, cash flow cycle and interest rate were not significant in working capital determinations.

To the end he had made some suggestions for the improvement of working capital management and efficiency in the MPES. He suggested for aggressive sales promotion policy, indicated the need to match production and demand schedule, adoption of standard costing as well as marginal costing techniques, formulation of sound working capital management and training to financial employees to acquaint about latest development in the area of working capital management.

Research Gap

Previous thesis, which are to some extent related to the purpose study are also taken into consideration. In this context, the recent thesis with "Cash Management" on Rastriya Banijaya Bank & NABIL Bank is reviewed here onwards respectively

There was very little evidence of the effect of economy of scales on cash balance by compare previous thesis. The comparative study of suggests appropriate cash management policy for the future. There are improvement in the use of current assets in selected banks there was high turnover of cash and receivables in comparisons to inventory.

There has been lots of article published related to the cash management of Nepalese enterprises and also conducted on cash management and policy of commercial banks, impact and implementation of NRB guideline in commercial banks. The review of relevant literature has contributed to enhance the fundamental understanding and knowledge, which is required to make study meaningful and purposive. This study has tried to analyze the different ratios in order to make meaningful analysis on the cash management of Nepalese commercial banks, which is not clearly, indicate in other studies. So, this study will be helpful to those person who researches like students, businessman, government, professors for academically perspective.

CHAPTER - III

RESEARCH METHODOLOGY

3.1 Research Design

Research design is the plan, structure and strategy of investigation conceived so as to obtain answer to research questions and to control variance. The plan is the overall scheme or program of research. It is a plan that shows how researchers intend to fulfill the goal of purposed study. This research is termed as analytical and descriptive. So as to facilitate the assessment, researcher collected six years data of selected commercial banks and has tabulated them. Different financial tools have been used to analyze and to find out needed result. So the research design is the specification of methods and procedures for acquiring the information needed.

3.2 Sources of Data

Data is a collection of related raw materials on which decision is based. There are mainly two sources of data-Primary data and Secondary data. This study is conducted mainly based on secondary data like financial / annual statement of the bank, bulletins, bank articles and literature, economic survey reports etc. of the fiscal years with amount of primary data like personal interview with the concerned authorities and departments, questionnaire etc. Informal opinion has been taken with security Board of Nepal and Nepal Stock Exchange limited during the period. Financial statements and other related stock prices have been collected from websites of NEPSE. During the study different articles, journals related to cash management of commercial banks also previous reports have been considered.

3.3 Population and Sample

A population is a complete enumeration of each and every unit of the universe as a whole. It is related to the total study of the material in detail. There are 29 commercial banks in

operation at present but this study considers only two commercial banks (NBL and HBL) as the sample study.

Sample is a small separated part showing the quality of the whole. In sample only a part of the universe is considered and conclusions about the entire universe are dawn on that basis. Here, the proposed study is done under Nepal Bank Limited (NBL) and Himalayan Bank Ltd. (HBL) as a sample.

3.4 Data Gathering Instruction

Data is collected on the basis of secondary data. The published data relating to the cash management position of stated commercial banks in Nepal has been obtained from account department. All the data's like balance sheet, profit and loss account, income and expenditure and other required data's are collected from the account department of the bank but the data recording system of related banks were not in proper or specific type due to the limited guidance and supervision from general manager as well as because of less trained.

3.5 Data Collection Procedure

Data is collection of related raw materials on which decision is based. This study is mainly based on secondary data like financial or annual statement of the bank, which are collected from the account department. The data were collected of the five years in the form of yearly financial statement. An opinion survey of annual report and other secondary sources are data.

3.6 Data Processing

Data analysis is the separation of the collected information into parts for the study and interpretation. It is concerned with the detailed examination of the topic for easy reference. For appropriate data analysis different tools and techniques will be used to establish the quantities or numerical relationship between variables. The collected raw data are processed and presented in tabular form with the help of simple arithmetic rules, financial ratios and statistical tools using trend analysis and hypothesis formulation. As according to the requirement of study, data have been complied in one form and processed and

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interpreted. The raw data are converted into approximate and condensed in the tabular form.

3.7 Financial Tools Techniques

For appropriate data analysis different tools and techniques will be used to establish the numerical relationship between variables. The tools will be used:

1) Ratio Analysis

It is widely used tools of financial analysis, which is important to the financial manager. Any financial performance of company summarized or analyzed i.e. balance sheet, profit and loss account, income statement etc. In the study of cash management the ratio is used as meaningful relationship to draw conclusion for judging operational efficiency, the rate of returned on total assets and generation of profit.

a) Analysis of cash turnover

It is computed by dividing sales by cash in hand or bank.

$$\text{Cash turnover} = \frac{\text{Total Sales}}{\text{Cash in Hand or Bank}} \times \text{Times}$$

It indicates the average cash balance is turned over during the year. It measures the speed with which cash moves through as enterprises operation.

b) Account Receivable Turnover

It is computed by dividing sales by account receivable.

$$\text{Account Receivable Turnover} = \frac{\text{Total Sales}}{\text{Account Receivable}} \times \text{Times}$$

It indicates the number of times the receivables are turned over during the year. It gives the general measures of the productivity of the receivable measure. If the ratio is high the working capital becomes high and vice-versa.

c) Account Receivable to Cash or Bank Balance

It measures the relationship between cash and volume of account receivable a period of time.

$$AR \text{ to Cash / Bank Balance} = \frac{\text{Cash or Bank Balance}}{\text{Account Receivable}} \times \text{ Times}$$

It describes the number of times the receivables to cash or bank balance are turned over during the year. It measures the cash or bank balance of the receivable in times.

d) Analysis of Cash to Current Liabilities

$$\text{Analysis of Cash to Current Liabilities} = \frac{\text{Cash or Bank Balance}}{\text{Current Liabilities}} \times (\text{times})$$

It is the analysis of cash to current liabilities. To analyze we have to divide cash or bank by current liabilities and multiple by times.

e) Current Ratio

The major ability of current ratio pays short-term period with in a year. It is the relationship of current assets and current liabilities.

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

The current ratio is the ratio of current assets and current liabilities with in a year.

2) Average Collection Period

It indicates the number of days it takes on an average to collect account receivable. It is computed as to collect account receivable. It is computed as:

$$\text{Average Collection Period} = \frac{\text{Months (Days in a year)}}{\text{Debtor's turnover}}$$

3) Straight-Line Trend, Correlation and Regression

a) Straight-Line Trend

To find out the direction of changes and forecasting trend analysis can be used:

Straight line trend $(Y) = a + bx$

Where,

        Y = values of dependent variables

        a = y intercept

        b = slope of the trend line

        X = values of independent variable (time)

$$a = \frac{y}{N} \qquad , \qquad b = \frac{xy}{X^2}$$

Where,

        y = Sum of the observation in series Y

        xy = Sum of the observation in series X and Y

        X^2 = Sum of square of the observation in series X

b) Correlation (r)

Correlation analysis is the statistical tools that we can use to describe the degree to which one variable is linearly related to another. It helps us in determine the degree of relationship between two or more variable. It does not tell us anything about causes and effect relationship. "In business, correlation analysis enables the executive to estimate costs, sales, price and other variables. On the basis of some other series with which their costs, sales or prices may be functionally related. Some of the guesswork can be removed from

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decisions when the relationship between variables to be estimated and the one or more other variables on when it depends is closed and reasonably in variant.

For the purpose of analysis of cash management in Nepalese commercial banks, the correlation analysis is applied in same related topics. In these topics it can be seen the correlation between dependent and independent variables of cash management. The formula of correlation is as follows:

$$r = \frac{n\ \Sigma xy - \Sigma x.\ \Sigma y}{\sqrt{n\ \Sigma X^2 - (\Sigma x)^2}\ \sqrt{n\ \Sigma y^2 - (\Sigma y)^2}}$$

c) Standard Deviation (S. D. or σ)

The standard deviation of series of value is defined as the square root of the mean of the square deviation from the mean of the distribution. It may be found by finding the differences between each individual frequency and the mean of the distribution squaring these differences individually adding the square deviation and dividing by N and, then extracting the square of the results. The fundamental formula for the standard deviation is as follows:

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

The S. D. or the root mean square deviation is the square root of the mean of the square deviation from their mean of a set of values.

The standard deviation measures the absolute variability of distribution the greater the amount of dispersion or variability the greater the S. D., for the greater will be the magnitude of the deviation of the values from their means. A small S. D. means a high degree of uniformity of the observation as well homogeneity or series.

d) Probable Error (P.E.) of Correlation Coefficient

The probable error of the correlation coefficient is applicable for the measurement or reliability of the computed value of correlation coefficient 'r'.

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

If 'r' is less than P. E., it is not all significant.

If 'r' is more than 6 times, its P. E. and greater than is 0.5 then it is considered significant.

e) Regression Line of Sales (X) on Cash Balance (Y) is (X=Y)

Regression is the determination of statistical relationship between two or more variable. One is independent variable that affects the behavior of dependent variable. Regression can only be interpreted on what exits physically i.e. there must be a physical way in which independent variable (X) can affect dependent variable (Y).

For the analysis of cash management of Nepalese commercial banks, simple regression analysis is applied to locate the relationship between sales on cash balance.

The computation of regression analysis is formula is as follows:

$$(X - \overline{X}) = \frac{r \ x}{y} \ (Y\text{-}\overline{Y})$$

f) The regression line of cash balance (Y) on actual sales:

$$(Y - \overline{Y}) = \frac{r \ x}{y} \ (Y - \overline{Y})$$

CHAPTER - IV

PRESENTATION AND ANALYSIS OF DATA

One of the major responsibilities of management is to plan, control and safeguard the resources of the organization. Cash is a very important asset of organization so, the management of cash is important in enterprises whether the organization is large or small, profit making or not. The basic objective of this study is to have a true insight into "cash management" of selected commercial banks in Nepal. For the accomplishment of these followed, which has been described in chapter three. Now in this section an effort has been made to assess and analyze the actual cash management in selected commercial banks of Nepal.

4.1 Analysis of Selected Commercial Banks under Study

Analysis of individual data itself is crucial for the decision purpose. Ratio analysis, Average collection period, Straight-line trend, Correlation and Regression will be done on the basis of the data provided by the selected commercial banks in their respective period, which has been presented and analyzed here. Analysis of the data is based on the development of various financial and statistical tools. So main focus of this study is to analyze those tools and to make this research valid, it is necessary to analyze these factors, which influence the cash management analysis. Recent Nepalese market movement has been analyzed the diagnosed with special reference to the banking sector. Tables and diagrams (graphs) have been used to make the result more simple and understandable.

4.2 Analysis of Cash Balance

Management of cash plays a significant role in current assets of Nepalese commercial banks. The total cash includes cash in hand, cash at bank and cash in transit. The data below shows the cash position of the selected commercial banks during the period under study.

Table 4.1

Cash/bank balance (Index)

Fiscal Year	2004/05	2005/06	2006/07	2007/08	2008/09
NBL	100	117.68	116.89	109.86	148.47
HBL	100	85.82	88.15	70.55	181.06

(Source: Annexure III)

Figure 4.1

Cash/Bank Balance
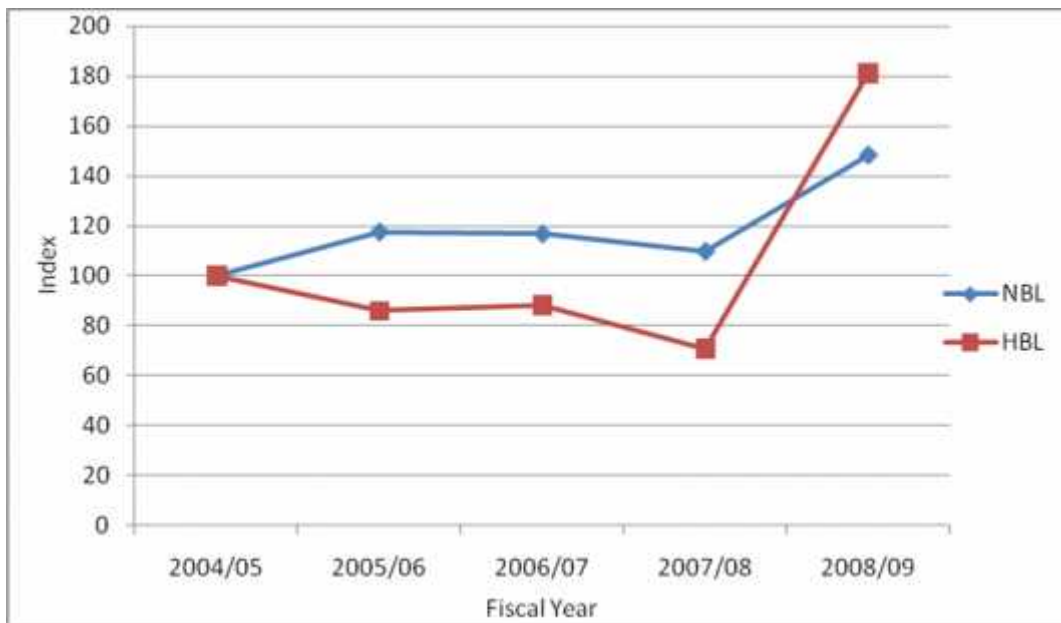
From the analysis of cash balance of two banks i.e. NBL and HBL reveal that:

The growth trend of cash holding shows variation among selected commercial banks for the study period (2004/05 – 2008/09). Almost both of the commercial banks have negative growth for some years; though there is very positive growth for some years.

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This shows that the level of cash balance is changing during the study years. There is no any fixed growth trend for any listed banks.

A very high growth is apparent in the year 2008/09 for NBL. For the year 2008/09, high positive growth was also seen in HBL. So, both the bank has high growth trend in different years.

A negative growth trend was evident in NBL and HBL. NBL has its negative trend in the year 2006/07 and 2007/08. Similarly HBL has also negative trend in different years like 2005/06 and 2007/08. The cash balance for NBL is increasing over the period as compared to HBL.

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A negative growth trend was evident in NBL and HBL. NBL has its negative trend in the year 2006/07 and 2007/08. Similarly HBL has also negative trend in different years like 2005/06 and 2007/08. The cash balance for NBL is increasing over the period as compared to HBL. So, HBL is better than NBL as compared to the cash balance.

4.3 Analysis of Cash Turnover

Cash turnover ratio represents how quickly the cash is received from its sales. Higher turnover is the signal of good liquidity and vice versa. The following table shows the cash turnover during the study period of selected commercial banks.

$$\text{Cash Turnover} = \frac{\text{Operating Income}}{\text{Cash in Hands/ Bank Sales}} \times \quad \text{Time}$$

Table 4.2

Cash Turnover (Time)

Fiscal Year	2004/05	2005/06	2006/07	2007/08	2008/09
NBL	0.32	0.24	0.22	0.28	0.26
HBL	0.60	0.81	0.80	1.10	0.65

(Source: Annexure IV)

Figure 4.2

Cash Turnover
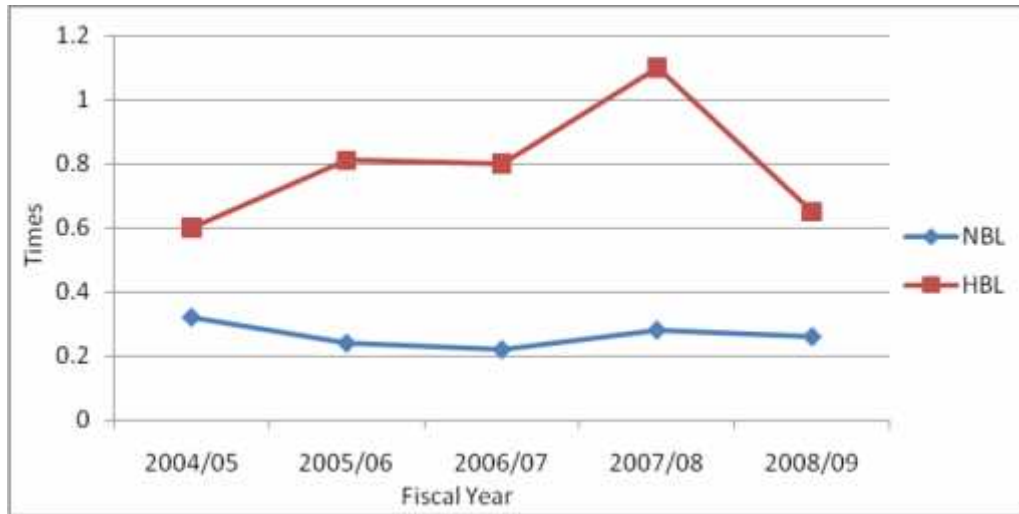
The analysis of cash turnover for listed commercial banks reveals that there is no any fixed trend of cash turnover over the study period (2004/05 – 2008/09). Between these two banks, HBL has higher turnover that is greater than one, while NBL has less than one in the study period. In NBL, every fiscal year is less than one; no one has the greater one but in HBL had only cash turnover greater than one in the year 2007/08, rest fiscal year is less than one. The calculation of the data presented in the table 4.2 indicates that cash turnover is poor in NBL indicating improper cash collection efficiency. However, HBL have relatively better cash turnover, but lower than average. There is no fixed trend (increasing/decreasing) of cash turnover for these banks during the study period. Both bank's cash turnover time is flexible.

4.4 Analysis of Current Ratio

It is the ratio of current assets to current liabilities. It is also called working capital. Generally, current assets should be twice the current liabilities. If the ration is higher than 2, it is very comfortable for the creditors but it is the indicator of idle funds and if the ration is less than 2, difficulty may be experienced in the payment of current liabilities and day to day operations of the business may suffer. The current is calculated by current assets and current liabilities. The current ratio of the selected commercial banks is shown below:

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

Table 4.3

Current Ratio (Time)

Fiscal Year	2004/05	2005/06	2006/07	2007/08	2008/09
NBL	0.75	0.83	0.85	0.83	0.86
HBL	0.80	1.05	1.06	1.08	1.07

(Source: Annexure V)

Figure 4.3

Current Ratio
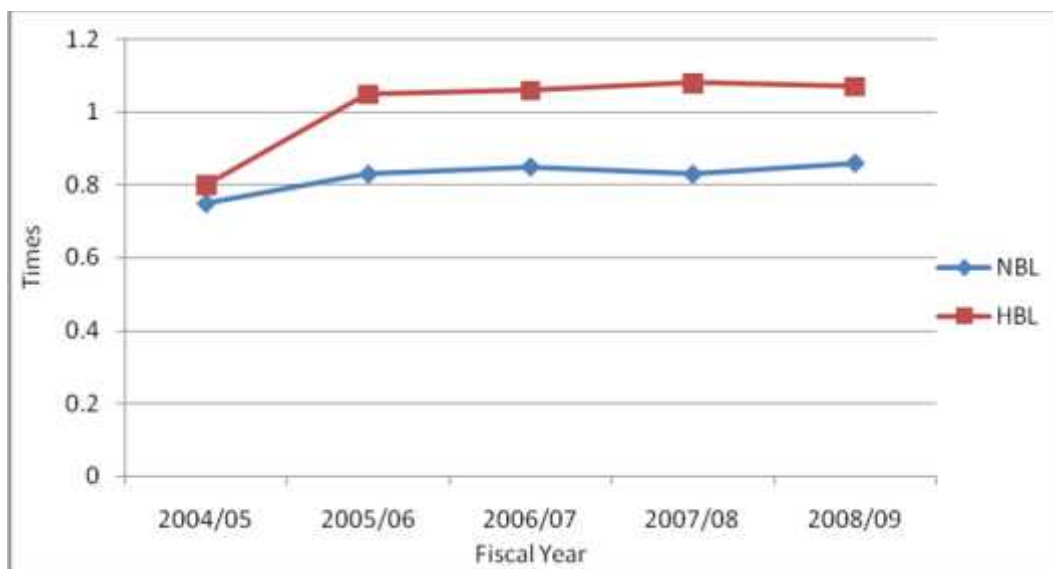
The analysis of current ratio of selected Nepalese commercial banks shows that most of the year it has less than one. From the above table, it is less than one, it is clear that NBL have less than one. From fiscal year 2004/05 to 2008/09 is less than one, it is not fixed

ratio and 2008/09 has 0.86 ratio high than other and in 2005/06 and 2007/08 has same ratio that is 0.83. HBL also has less than 2 (ratio) but comprising NBL and HBL is better than NBL because NBL<HBL i.e. 1.08>0.80. in HBL, fiscal year 2004/05 only 0.80 ratio than rest fiscal year 2005/06 to 2008/09 has more 1 ratio and less than 2. Both of banks comparative HBL has high ratio than NBL. This indicates that the data reveal that the above listed commercial banks have current ratio less than two in the study period indicating that there is cash shortage and poor management of cash in these banks. This is especially critical for NBL and HBL.

4.5 Analysis of Account Receivable

The bank operates its transactions both on cash and credit basis. It also deals with other various related banks. When the bank extends credit to its customers and various banks, book debts are credited. Debtors or account receivable are to be converted into cash over a short period and therefore are included in the current assets. Account receivable turnover in relationship between actual sales and collection period. If turnover is high then there would be little congestion of fund in turnover and vice versa.

$$\text{Account Receivable} = \frac{\text{Operating Income}}{\text{Interest Receivable}} \times \text{time}$$

Figure 4.4

Account Receivable (Ratio in Time)

Fiscal Year	2004/05	2005/06	2006/07	2007/08	2008/09
NBL	0.15	0.33	0.30	0.41	0.61
HBL	2.27	2.53	4.14	4.59	5.78

(Source: Annexure VI)

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Figure 4.4

Analysis of Account Receivable
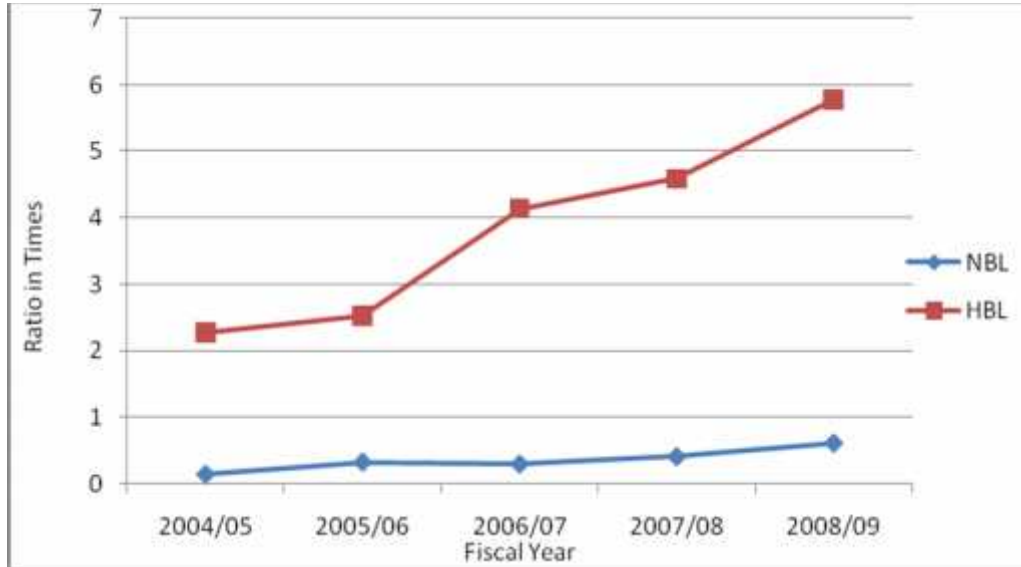
The above table showed that the efficiency of trade credit management. The higher the turnover ratio and shorter the average collection period, the better the trade credit management and the better the liquidity of debtors as short collection period and higher turnover ratio imply prompt payment on the part of debtors. On the other hand, low turnover ratio and long collection period reflects that payments by debtors are delayed. In general, therefore, short collection period (high turnover) ratio is profitable.

The above trend line shows that fiscal year 2008/09 has less interest receivable and greater sales but its ratio is high of NBL. Comparing five years NBL, fiscal year 2004/05 has high interest receivable but its ratio is low. Similarly, fiscal year 2005/06 has high interest receivable but its ratio is low of HBL

The average collection period is ascertained by dividing the month (days) in a year by the debtor's turnover.

Formula:

Months (days in a year)

Average Collection Period = ─────────────────
                              Debtors turnover

Table 4.5

Average Collection Period (Days)

Fiscal Year	2004/05	2005/06	2006/07	2007/08	2008/09	ACP
NBL	2433	1106	1217	890	598	1249
HBL	161	144	88	79	63	107

(Source: Annexure VII)

Figure 4.5

Average Collection Period
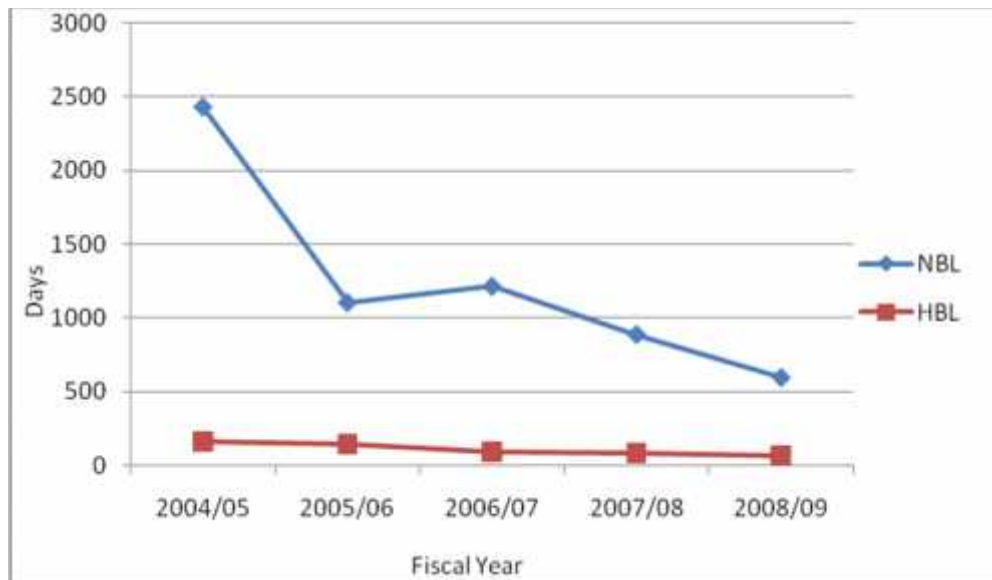
The analysis of average collection period of selected commercial banks shows that NBL have the highest average collection days for all the fiscal years (2004/05 – 2008/09). The average collection period however reached to a time 2433 days in the year (2004/05). According to the table no. 4.5 average collection period of selected commercial banks for periods understudy NBL has 2433 days in the year 2004/05. We know that the shorter the average collection period, the better the trade credit management and the better the liquidity of debtors. On the other period and imply prompt payment on the part of debtors. On the other hand, long collection period reflects that payments by debtors are delayed.

Among these two listed commercial banks, HBL have less average collection days whereas NBL have more average collection days in the study period.

The highest average collection period within the study period of NBL show the management is less concerned to collect debt timely. The quality of the debtor is also not sound. This shows that management turning weak on the collection of book debt timing. The average collection period within the study period of HBL is in decreasing trend. It is good for the bank, but increasing trend of collection ratio is unfavorable for the bank.

HBL have the least collection period for all the fiscal years, which shows that there will be better trade credit management and liquidity of debtors, as short collection period imply prompt payment on the part of debtors.

"An excessively long collection period implies a true liberal and inefficient credit and collection performances."

This certainly delays the collection of cash and empire the corporation debt paying ability. The changes of bad debts losses are also increased. On the other hand, too low a collection period is not necessarily favorable. It indicates a very restrictive credit and collection policy.

4.6 Analysis of Account Receivable to Cash and Bank Balance

Cash and bank balances measure the relationship between the level of cash and bank to account receivable over a period of time. The greater the account receivable, better the cash turnover would be provided that cash and bank balance can be maintained at a desirable level. The following table shows the relationship of account receivable to cash and bank balances.

Table 4.6

Account Receivable to Cash and Bank Balance

Fiscal Year	2004/05	2005/06	2006/07	2007/08	2008/09
NBL	46.75%	137.25%	139.90%	146.97%	231.29%
HBL	379.98%	312.03%	521.91%	416.57%	809.16%

(Source: Annexure VIII)

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Figure 4.6

Receivable of Cash and Bank Balance

The analysis of account receivable to cash and bank balance for selected commercial banks reveals that there is no any fixed trend (increasing/decreasing) cash balance over the study period 2004/05 – 2008/09. Among the selected commercial banks, it has fluctuation in trend during the study period. The figure indicates that ratio fluctuates from 46.75 to 231.29% in NBL and 312.03 to 809.16% in HBL. It shows that there was erratic fluctuation in NBL. In fiscal year 2006/07 and 2004/05 of NBL the ratio are 139.90% and 46.75%, which indicates that the cash balance held is excessive and has been idle. And in the fiscal year 2005/06 and 2008/09 of HBL the ratios are 312.03% and 809.16%. the erratic fluctuation suggested that the banks has not been following definite policy regarding how much cash balance to hold at the fiscal year end. From the calculation of the data presented in the above table indicates that HBL have higher ratio than NBL over the study period and it's fluctuate every fiscal year.

During the study period cash and bank balance is minimum of account receivable in the year, but in the other year it is greater than account receivable being not proportionately, which shows that management is less concerned to speed up collection of collection of

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account receivable. Evaluating this situation cash and bank balance is not satisfactory in bank to account receivable, this can be said that higher account receivable caused lower cash balance and vice versa. Thus, management should follow stringent credit policy to increase cash balance to maintain at a desired level of cash balance.

4.6 Analysis of Investment in Cash / Bank Balance on Current Assets and Total Assets

The ratio of cash and bank balance to current assets and total assets indicate the proportion of cash balance in the current assets and total assets. Stable pattern of ratio for different fiscal years indicate that the banks has been following a systematic policy regarding how much cash balances to hold at the fiscal year end.

Table No. 4.7

C/B Balance on CA and TA

Fiscal Year	2004/05	2005/06	2006/07	2007/08	2008/09
NBL	20.80%	22.70%	20.60%	18.10%	22.50%
HBL	10.65%	5.96%	5.34%	4.07%	7.88%

(Source: Annexure IX)

The above table indicates that the cash and bank balance with respect to the current assets of NBL has fluctuating trend. During the study period it is lowest 18.10 for the year 2007/08 and the highest 22.70 for the year 2005/06. In an average the projection of cash and bank balance to current assets for the study period 20.94. While comparing with the average, it is found that the percentage of cash and bank balance to current assets is lower except for the year 2004/05 and 2008/09. Thus cash position of NBL is not satisfactory. Due to lack of good cash management NBL should face this type of situation. The cash and bank balance with respect to total assets has also fluctuating in every year. While at the same time, fixed assets are in increasing trend. On the average, it is 20.94 during the study period, which is greater than for the year 2005/06 and 2008/09 and less than the year 2004/05, 2006/07 and 2007/08. Among the components of current assets cash and bank balances hold the minimum proportion.

Again it indicates that the cash and bank balance with respect to the current assets of HBL has fluctuating trend. During the study period it is the lowest 4.07 for the year 2007/08 and the highest 10.65 for the year 2004/05. In an average the projection of cash and bank balance to current assets for the study period 6.92. While comparing the average, it is found that the percentage of cash and bank balance to current assets is lower expect for the year 2004/05 and 2008/09. Thus cash position of HBL is not satisfactory. Due to lack of good cash management HBL should face this type of situation. The cash and bank balance with the respect to total assets has also fluctuating in every year. While at the same time, fixed assets are in increasing trend. On the average it is 6.78, during the study period, which is greater than for the year 2005/06, 2006/07 and 2007/08 and less than the year 2004/05 and 2008/09. Among the components of current assets cash and bank balances hold the minimum proportion.

4.8 Analysis of Cash to Current Liabilities

Among the technique of measuring company liquidity the ratio of cash to current liabilities indicates the amount of cash (in percentage) available to pay the current obligation of the firm. In general, a low percentage of cash to current liabilities may be regarded as a favorable indicates. However, very low ratio is also not desirable as it may lead to corporate insolvency *(Bajracharya; 1990).*

Table 4.8

Cash to CL

Fiscal Year	2004/05	2005/06	2006/07	2007/08	2008/09
NBL	16.21%	19.06%	17.50%	15.14%	19.44%
HBL	8.69%	6.37%	5.76%	4.49%	8.72%

(Source: Annexure X)

The above table shows that the ratios fluctuate from the lowest of 15.14% to the highest of 19.44% in the year 2007/08 and 2008/09 in NBL, the lowest ratio 4.48% for the year 2007/08 and highest ratio is 8.72% in the year 2008/09 in HBL.

The analysis of cash and bank balance to current liabilities indicates the proportion of cash balance available to meet the payments of current liabilities. A moderate ratio is

considered satisfactory, too high ratio indicates excess cash balance held idle and too low ratio is indicative of banks being unable to meet its payment of current liabilities in time. The analysis of cash and bank to current liabilities for selected commercial banks reveals that there is no any fixed trend of ratio over the study period (2004/05 – 2008/09). The ratio is highly fluctuating during the study period. Between the two selected commercial banks i.e. NBL have high ratio in the study period whereas HBL have low ratio during the study period. From the calculation of data presented in the above table indicates that HBL is being unable to meet its payment of current liabilities in time due to low ratio. NBL indicate excess cash balance held idle due to high ratio. Since the fluctuation is inconsistent, it could be stated that the banks has been facing situations of cash excess and deficit in making payments during had not been following a systematic cash management practice. It can be concluded that the banks has face the problem of cash management.

From the study of cash management policies and practices it was observed that there has been no uniformity among the banks with regard to cash balance, cash turnover, current ratio, account receivable, average collection period, A/R to cash/bank balance, investment in cash/bank balance on current assets and total assets, cash/bank balance to current liabilities.

The findings revealed that the banks under the study have the practice of preparing cash budget annually, monthly and weekly with the help of ratio analysis, cash budget method, projected balance sheet method and adjusted net income method. However, very few banks treated it as formal document. Among the banks preparing cash budget, some sought assistance from professional accountants while others followed the guidance provided by government agencies. Although most of the banks did not undertake cash budgeting as a formal exercise and even did not prepare cash budgets, executives of the banks towards forecasting cash requirements gave greater importance.

Judged by the relevant financial ratios and the trend thereof, the banking sector revealed a more favorable picture of the effectiveness of cash management as reflected in the

current ratio, although the variation of current ratios with respect to the former was quite large in particular years for the same bank and also between different banks.

Figure 4.7

Cash to Current Liabilities
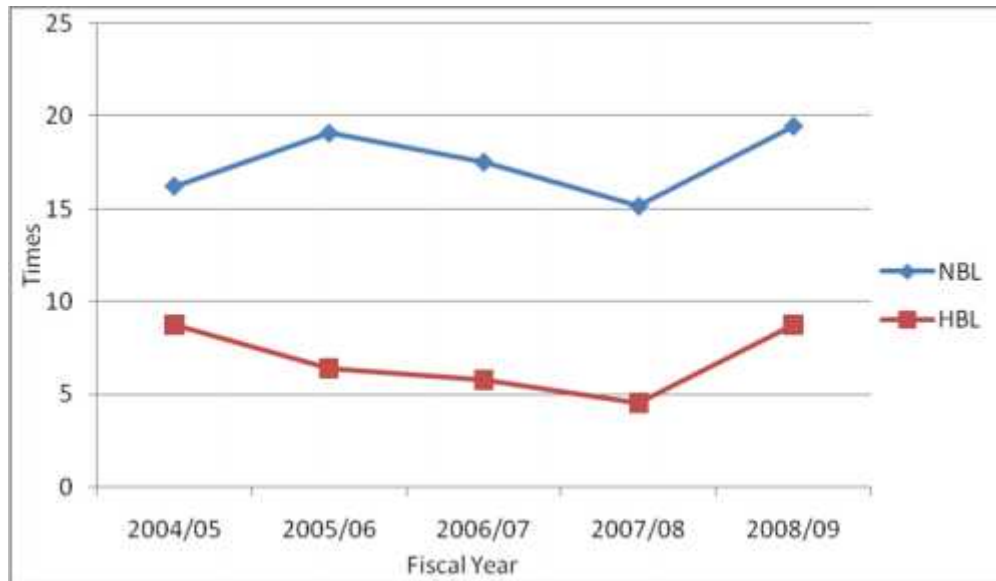
The above table shows that the ratios fluctuations from the lowest of 15.14% to the highest of 19.44% in the year 2007/08 and 2008/09 in NBL, the lowest ratio 4.48% for the year 2007/08 and highest ratio is 8.72% in the year 2008/09 in HBL.

The analysis of cash and bank balance to current liabilities indicates the proportion of cash balance available to meet the payments of current liabilities. A moderate ratio is considered satisfactory, too high ratio indicates excess cash balance held idle and too low ratio is indicative of banks being unable to meet its payment of current liabilities in time. The analysis of cash and bank to current liabilities for selected commercial banks reveals that there is no any fixed trend of ratio over the study period (2004/05 – 2008/09). The ratio is highly fluctuating during the study period. Between the two selected commercial banks i.e. NBL have high ratio in the study period whereas HBL have low ratio during the study period. From the calculation of data presented in the above table indicates that HBL is being unable to meet its payment of current liabilities in time due to low ratio. NBL indicate excess cash balance held idle due to high ratio. Since the fluctuation is

inconsistent, it could be stated that the banks has been facing situations of cash excess and deficit in making payments during the fiscal year under study. This has clearly indicated that the bank has not been following a systematic cash management practice. It can be concluded that the banks has face the problem of cash management.

4.9 Fitting the Straight-Line Trend by least square in cash balance

The following table shows the trend values of cash/bank balance of NBL and HBL for 7 years from 2004/05 to 2010/11.

Table 4.9

Trend value of Cash/Bank Balance of NBL and HBL

(Rs. in million)

Year	Trend value of NBL	Trend value of HBL
2004/05	-2429.11	1629.41
2005/06	2403.09	1811.96
2006/07	7235.29	1994.51
2007/08	12067.49	2177.06
2008/09	16899.69	2359.61
2009/10	21732.13	2545.16
2010/11	26564.41	2724.71

(Source: Annexure XI)

The above table shows that the cash/bank balances of both banks have the increasing trend for the forecasted period. NBL and HBL have also increasing trend value. But NBL trend value of 2004/05 is negative. Comparing both bank HBL is good than NBL. The calculated trend values of cash/bank balance of both banks have been diagrammatically presented in the trend line below.

Figure 4.8

Trend line of Cash/Bank Balance

By using y = a + bx
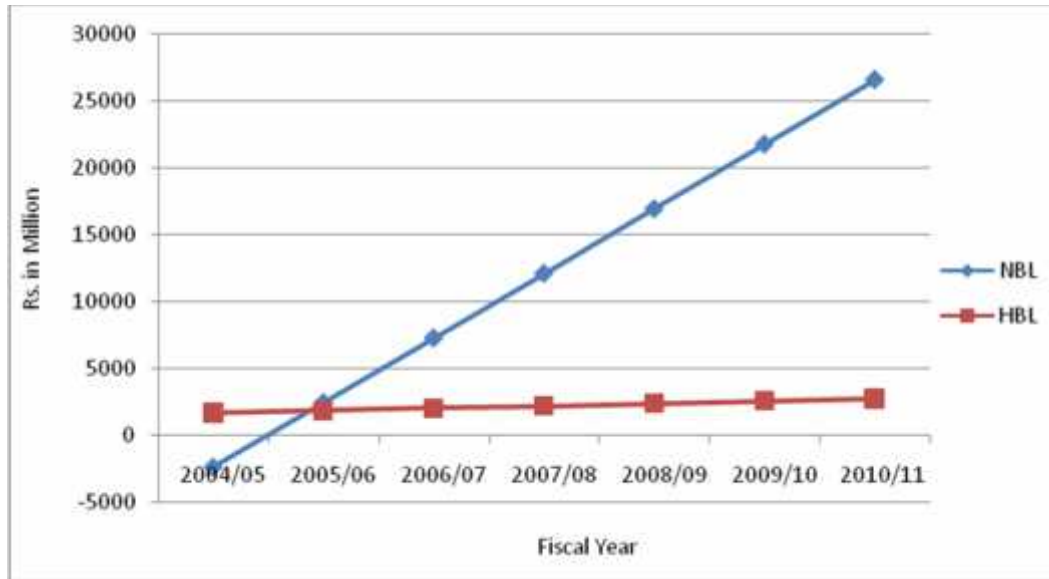
 The above trend shows that the cash/bank balances of both banks have the increasing trend for the forecasted period. If other things remaining the total cash/bank balance of Nepal Bank Ltd. and Himalayan Bank Ltd. will be increase. It shows that when the banks forecast in cash/bank balance there period will be increase.

4.10   Correlation (r) between Cash Balance and Operating Income

To find out the correlation between operating income and cash balance Karl Pearson's coefficient of correlation (r) is determined. For this purpose operating income (x) are assumed to be dependent variable and cash balance (y) are assumed to be independent variable. It is assumed that operating income will increase or vice versa. It means there should be positive correlation (r) is tested with probable error of 'r'.

Correlation(r) between Cash Balance and Operating Income

The table shows explanation of relationship between cash balance and operating income of NBL. From fiscal year 2004/05 to 2008/09 shows operating income (X) and cash/bank balances (Y) are different amount, sometime it high and low, it fluctuate each other. When the bank operating income (X) dependent on cash/ bank balance (Y) that time it shows there operating income is low and the cash/bank balance (X) dependent on operating income (Y) that time it shows there operating income unit is high.

$$X - \overline{X} = \frac{r\ x}{y} \quad Y - \overline{Y}$$

Since,

	X	Y
Mean	1895	7235.29
S.D.	296.16	1043.76

(Source: Annexure XII)

rxy =0.66

The value of r = 0.66 shows that there are positive correlation between cash and operating income. It means the test of significance of the value of r shows that there is significant relationship between cash and operating income.

P. E. (r) =0.17

Since, P. E.> r it is significant i.e. there is evidence of correlation. A regression line also can be fitted to show the degree of relationship between operating income and C/B balance. Cash balance can be forecasted by the value of operating income. For this purpose cash and bank balance and operating income have been assumed interrelated economic variables. So, the regression line of operating income (X) on cash balance (Y) is:

when the operating income (X) dependent on cash balance (Y) that time 0.1873 per unit will increase operating income.

Increase in cash balance next the regression line of cash balance (Y) on operating income (X) or y on x is as under

$$X - \overline{X} = \frac{r\ x}{y}\ Y - \overline{Y}$$

Thus on assumption that cash is a function of operating income achieved unit increase in the cash balance operating income is increased by 2.3260 units.

The table shows that relationship between operating income and cash/bank balance of HBL. From fiscal year 2004/05 to 2008/09 shows operating income (X) and cash/bank balances (Y) are different amount, sometime it high and low, it fluctuate each other. When the bank operating income (X) dependent on cash/ bank balance (Y) that time it shows there operating income is low and the cash/bank balance (X) dependent on operating income (Y) that time it shows there operating income is high.

$$X - \overline{X} = \frac{r\ x}{y}\ Y - \overline{Y}$$

Since,

	X	Y
Mean	1513.66	1994.51
S.D.	269.05	558

(Source: Annexure XII)

rxy = 0.70

The value of r = 0.70 shows that there are positive correlation between cash and operating income. It means the test of significance of the value of r shows that there is moderately significant relationship between cash and operating income.

P.E. (r) = 0.15

Since, r > P. E. (r) it is significant i.e. there is evidence of correlation. A regression line also can be fitted to show the degree of relationship between operating income and C/B balance. Cash balance can be forecasted by the value of operating income. For this purpose cash and bank balance and operating income have been assumed interrelated economic variables. So the regression line of operating income (X) on cash balance (Y) is

When the operating income (X) dependent on cash balance (Y) that time 0.3375 per unit will increase sales.

Increase in cash balance next the regression line of cash balance (Y) on operating income (X) or y on x is as under

$$X - \overline{X} \quad = \quad \frac{r \ x}{y} \quad Y - \overline{Y}$$

Thus on assumption that cash is a function of operating income achieved unit increase in the cash balance operating income is increased by 0.0420 units.

The above correlation shows that NBL has high P.E.(r) than HBL but correlation between operating income and cash/bank balance 'r' of NBL is less than HBL. It shows that HBL is significant than NBL.

Time element is also an important factor with passage of time series achievements and account component of time series. A straight-line trend by the method of least square will show the relationship between year (time) and ratio in term of account receivables and operating income.

Table 4.10

Fitting the straight-line trend of Interest Receivable Turnover by Least Square

Year	Trend value of NBL	Trend value of HBL
2004/05	-0.084	2.046
2005/06	0.138	2.954
2006/07	0.36	3.862
2007/08	0.582	4.77
2008/09	0.804	5.678
2009/10	1.026	6.586

2010/11	1.248	7.494

(Source: Annexure XIII)

The above table shows that the interest receivables turnover of both banks has the increasing trend for the forecasted period. NBL's turnover trend is increasing forecasted period and HBL also is increasing their forecast period. NBL's negative in 2004/05 The calculated trend values of interest receivable of both banks have been diagrammatically presented in the trend line below:

Figure 4.9

Trend Line of Receivable Turnover
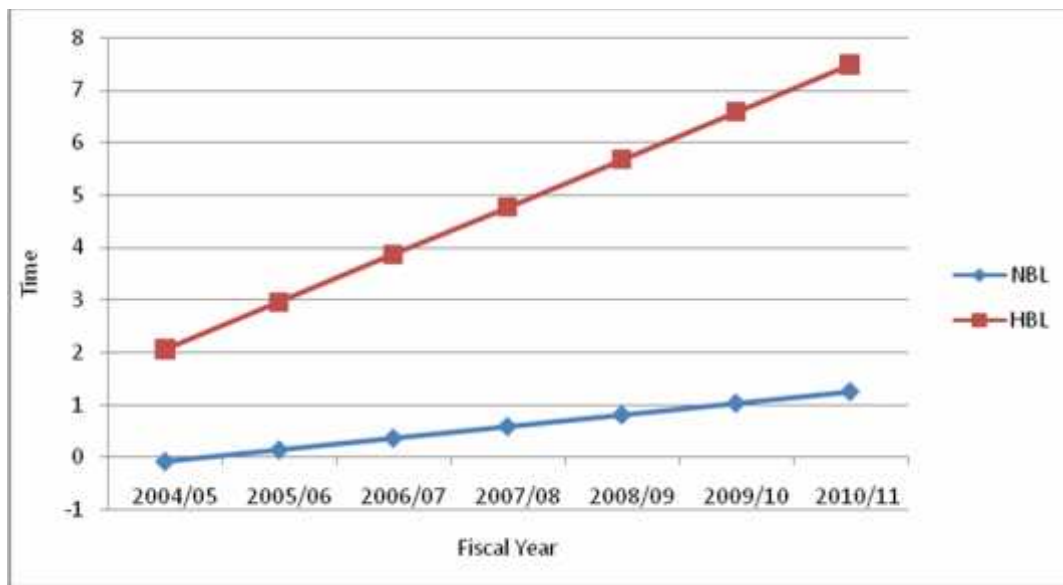
The above trend line shows HBL is high than NBL. When the bank forecast interest receivable that time there ratio also will be high, it show above trend.

4.11 Correlation between Receivable and Operating Income

Following analysis shows the correlation between receivable and operating income based on year's figure.

Correlation (r) between Receivable and Operating Income

To find out the correlation between and account receivable and operating income, Karl Pearson's Coefficient of operating income and receivable are interrelated and explored. First assumed (X) receivable are dependent variables. It is assumed that operating income

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will increase as receivable increased or vice-versa. It means that there should be positive relation between operating income and receivable.

For NBL:

$$\overline{U} = X - \overline{X} \qquad\qquad \overline{V} = Y - \overline{Y}$$

The value of r = 0.005 shows that there are positive correlation between operating income and receivables. It means the test of significance of the value of r shows that there is not good relationship between operating income and receivables as value of ' r ' is small.

P. E. (r) = 0.30

Since

	X	Y
Mean	6364.12	1895
S.D.	3367.28	296.16

(Source: Annexure XIV)

rxy = 0.005

Since, r is greater than P.E., it is significant i. e. there is evidence of correlation. A regression line also can be fitted to show the degree of relationship between operating income and receivable. For these purpose receivables has been assumed to be dependent sales. So the regression line of receivables (X) on operating income (Y) is as follows:

$$X - \overline{X} \quad = \quad \frac{r\ x}{y} \quad Y - \overline{Y}$$

That equation shows that 0.0568 per unit will increase operating income. When operating income is increase that time banks get different opportunity.

For HBL

	X	Y
Mean	427.62	1513.66
S.D.	91.79	269.05

(Source: Annexure XIV)

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rxy = -0.53

The value of r = -0.53 shows that there is negative correlation between operating income and receivables. It means the test of significance of the value of r shows that there is not good significant relationship between operating income and receivables.

P. E. (r) =0.22

Since, r < P. E. (r) the value of ' r ' is not significant i. e. there is no evidence of correlation.

A regression line also can be fitted to show the degree of relationship between operating income and account. For these purpose receivables has been assumed to be dependent operating income.

In these period banks -0.1808 per unit will decrease operating income. When sales are decrease banks get lost in different field, it is not suitable for bank.

Above these data, NBL get advantage than HBL because in this correlation HBL show negative and it is insignificant.

4.12 Correlation between Account Receivable and Cash and Bank Balance

Correlation between Account Receivable and Cash and Bank Balance

In this table shows relations between account receivable and cash/bank balance of NBL.

$U = X - \overline{X}$ $\qquad\qquad$ $V = Y - \overline{Y}$

$Mean(\overline{X}) = 427.62$

$Mean\ (\overline{Y}) = 7235.29$

rxy= -0.33

There is negative correlation between A/R and cash/bank balance. This means when A/R decreases cash balance also decreases and vice-versa. It means this is not good correlation with A/R and cash/bank balance and the test of significance of the value of 'r' shows that there is not good significant relationship between A/R and cash/bank balance. But P.E. is 0.27; it means here, little probability error than r_{xy} and there is not evidence of correlation *(Annexure; XV).*

In this table shows relations between account receivable and cash/bank balance of HBL.

$U = X - \overline{X}$ $V = Y - \overline{Y}$

Mean$(\overline{X})$ = 427.62

Mean $(\overline{Y})$ = 1994.51

rxy= -0.085

There is negative correlation between A/R and cash/bank balance. This means when A/R decreases cash balance also decreases and vice-versa. It means this is not good correlation with A/R and cash/bank balance and the test of significance of the value of 'r' shows that there is not good significant relationship between A/R and cash/bank balance. But P.E. is 0.29; it means here, little probability error than rxy and there is not evidence of correlation.

Above this solution both have get negative relation with receivable and cash/bank balance. It is not good for bank when receivable only increase but cash is not increase *(Annexure; XV).*

4.13   Major Findings of the Study

The major findings of the study as revealed in the analysis of selected commercial banks are briefly highlighted below:

Ratio Analysis

〖   **Analysis of Cash Balance**

From the analysis of analysis of two banks i.e. NBL and HBL reveal that:

The growth trend of cash holding shows variation among selected commercial banks for the study period (2004/05 – 2008/09). Almost both of the commercial banks have negative growth for some years; though there is very positive growth for some years. This shows that the level of cash balance is changing during the study years. There is no any fixed growth trend for any listed banks.

A very high growth is apparent in the year 2008/09 for NBL. For the year 2008/09, high positive growth was also seen in HBL. So, both the bank has high growth trend in different years.

A negative growth trend was evident in NBL and HBL. NBL has its negative trend in the year 2006/07 and 2007/08. Similarly HBL has also negative trend in different years like 2005/06 and 2007/08. The cash balance for NBL is increasing over the period as compared to HBL.

J   Analysis of Cash Turnover

The analysis of cash turnover for listed commercial banks reveals that there is no any fixed trend of cash turnover over the study period (2004/05 – 2008/09). Among these two banks, HBL has higher cash turnover that is greater than one, while NBL has less than one in the study period. In NBL, every fiscal year is less than one; no one has the greater one but in HBL had only cash turnover greater than one in the year 2007/08, rest fiscal year is less than one. NBL cash turnover power is poor than HBL and it indicating improper cash collection efficiency. However, HBL have relatively better cash turnover, but lower than average. There is no fixed trend (increasing/decreasing) of cash turnover for these banks during the study period. Both bank's cash turnover time is flexible.

J   Analysis of Current Ratio

The analysis of current ratio of selected Nepalese commercial banks shows that most of the year it has less than one. But HBL have current ratio greater than one ratio expect 2004/05. This indicates that the data reveal that the above listed commercial banks have current ratio less than two in the study period indicating that there is cash shortage and

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poor management of cash in these banks. This is especially critically critical for NBL and HBL.

〕 **Analysis of Average Collection Period**

The analysis of average collection period of selected commercial banks shows that NBL have the highest average collection days for all the fiscal years (2004/05 – 2008/09). The average collection period however reached to a time 2433 days in the year (2004/05). NBL has 2433 days in the year 2004/05 than other fiscal year. We know that the shorter the average collection period, the better the trade credit management and the better the liquidity of debtors. On the other period and imply prompt payment on the part of debtors. On the other hand, long collection period reflects that payments by debtors are delayed.

Among these two listed commercial banks, HBL have less average collection days whereas NBL have more average collection days in the study period.

The highest average collection period within the study period of NBL show the management is less concerned to collect debt timely. The quality of the debtor is also not sound. This shows that management turning weak on the collection of book debt timing. The average collection period within the study period of HBL is in decreasing trend. It is good for the bank, but increasing trend of collection ratio is unfavorable for the bank.

HBL have the least collection period for all the fiscal years, which shows that there will be better trade credit management and liquidity of debtors, as short collection period imply prompt payment on the part of debtors.

〕 **Analysis of Account Receivable to Cash and Bank Balance**

The analysis of account receivable to cash and bank balance for selected commercial banks reveals that there is no any fixed trend (increasing/decreasing) cash balance over the study period 2004/05 – 2008/09. Among the selected commercial banks, it has fluctuation in trend during the study period. The figure indicates that ratio fluctuates from 46.75 to 231.29% in NBL and 312.03 to 809.16% in HBL. It shows that there was erratic

fluctuation in NBL. In fiscal year 2006/07 and 2004/05 of NBL the ratio are 139.90% and 46.75%, which indicates that the cash balance held is excessive and has been idle. And in the fiscal year 2005/06 and 2008/09 of HBL the ratios are 312.03% and 809.16%. the erratic fluctuation suggested that the banks has not been following definite policy regarding how much cash balance to hold at the fiscal year end. From the calculation of the data presented in the above table indicates that HBL have higher ratio than NBL over the study period and it's fluctuate every fiscal year.

During the study period cash and bank balance is minimum of account receivable in the year, but in the other year it is greater than account receivable being not proportionately, which shows that management is less concerned to speed up collection of collection of account receivable. Evaluating this situation cash and bank balance is not satisfactory in bank to account receivable, this can be said that higher account receivable caused lower cash balance and vice versa. Thus, management should follow stringent credit policy to increase cash balance to maintain at a desired level of cash balance.

ﾉ Analysis of Cash to Current Liabilities

The above table shows that the ratios fluctuate from the lowest of 15.14% to the highest of 19.44% in the year 2007/08 and 2008/09 in NBL, the lowest ratio 4.48% for the year 2007/08 and highest ratio is 8.72% in the year 2008/09 in HBL.

The analysis of cash and bank balance to current liabilities indicates the proportion of cash balance available to meet the payments of current liabilities. A moderate ratio is considered satisfactory, too high ratio indicates excess cash balance held idle and too low ratio is indicative of banks being unable to meet its payment of current liabilities in time. The analysis of cash and bank to current liabilities for selected commercial banks reveals that there is no any fixed trend of ratio over the study period (2004/05 – 2008/09). The ratio is highly fluctuating during the study period. Between the two selected commercial banks i.e. NBL have high ratio in the study period whereas HBL have low ratio during the study period. From the calculation of data presented in the above table indicates that HBL is being unable to meet its payment of current liabilities in time due to low ratio.

NBL indicate excess cash balance held idle due to high ratio. Since the fluctuation is inconsistent, it could be stated that the banks has been facing situations of cash excess and deficit in making payments during had not been following a systematic cash management practice. It can be concluded that the banks has face the problem of cash management.

From the study of cash management policies and practices it was observed that there has been no uniformity among the banks with regard to cash balance, cash turnover, current ratio, account receivable, average collection period, A/R to cash/bank balance, investment in cash/bank balance on current assets and total assets, cash/bank balance to current liabilities.

The findings revealed that the banks under the study have the practice of preparing cash budget annually, monthly and weekly with the help of ratio analysis, cash budget method, projected balance sheet method and adjusted net income method. However, very few banks treated it as formal document. Among the banks preparing cash budget, some sought assistance from professional accountants while others followed the guidance provided by government agencies. Although most of the banks did not undertake cash budgeting as a formal exercise and even did not prepare cash budgets, executives of the banks towards forecasting cash requirements gave greater importance.

Judged by the relevant financial ratios and the trend thereof, the banking sector revealed a more favorable picture of the effectiveness of cash management as reflected in the current ratio, although the variation of current ratios with respect to the former was quite large in particular years for the same bank and also between different banks.

) **Analysis of Investment in Cash / Bank Balance on Current Assets and Total Assets**
The analysis of cash and bank balance with respect to the current assets of NBL has fluctuating trend. During the study period it is lowest 18.10 for the year 2007/08 and the highest 22.70 for the year 2005/06. In an average the projection of cash and bank balance to current assets for the study period 20.94. While comparing with the average, it is found that the percentage of cash and bank balance to current assets is lower except for the year

2004/05 and 2008/09. Thus cash position of NBL is not satisfactory. Due to lack of good cash management NBL should face this type of situation. The cash and bank balance with respect to total assets has also fluctuating in every year. While at the same time, fixed assets are in increasing trend. On the average, it is 20.94 during the study period, which is greater than for the year 2005/06 and 2008/09 and less than the year 2004/05, 2006/07 and 2007/08. Among the components of current assets cash and bank balances hold the minimum proportion.

Again it indicates that the cash and bank balance with respect to the current assets of HBL has fluctuating trend. During the study period it is the lowest 4.07 for the year 2007/08 and the highest 10.65 for the year 2004/05. In an average the projection of cash and bank balance to current assets for the study period 6.92. While comparing the average, it is found that the percentage of cash and bank balance to current assets is lower expect for the year 2004/05 and 2008/09. Thus cash position of HBL is not satisfactory. Due to lack of good cash management HBL should face this type of situation. The cash and bank balance with the respect to total assets has also fluctuating in every year. While at the same time, fixed assets are in increasing trend. On the average it is 6.78, during the study period, which is greater than for the year 2005/06, 2006/07 and 2007/08 and less than the year 2004/05 and 2008/09. Among the components of current assets cash and bank balances hold the minimum proportion.

Correlation Analysis

Coefficient of correlation analysis between different variables of commercial banks (NBL and HBL) revealed that:

丿 **Correlation between Cash Balance and Operating income**

Coefficient of correlation between cash balance and operating income of NBL and HBL found positive relationship that there is significant relationship between cash balance and operating income. It is assumed that operating income will increases as cash balance will increase or vice-versa.

丿 **Correlation between Receivables and Operating income**

Coefficient of correlation between receivable and operating income of NBL is found positive and HBL is negative relationship that there is significant relationship between receivables and operating income of NBL and insignificant of HBL. It is assumed that operating will increase as cash balance will increase or vice-versa.

⟩ **Correlation between Receivables and Cash/Bank Balance**

Coefficient of correlation between receivables and cash balance of NBL and HBL was found negative relationship that there is insignificant relationship between cash balance and receivables. This means when account receivable increases cash balance also increases & vice-versa.

Trend Analysis

Trend analysis of cash balance and account receivable to operating income during the study period of selected commercial banks reveals that:

⟩ **Analysis of Cash/Bank Balance**

Straight-line trend by least square of NBL and HBL shows the positive figure of cash balance for future. But forecast of two years is increase than the actual data and it show that actual data is negative in beginning period (2004/05). This means the annual rate of increment of cash balance will occur and vice-versa.

⟩ **Trend Analysis of Account Receivable to Operating Income**

Straight-line trend square of NBL and HBL show the positive figure of receivable for future. When the trend line is increase its data also automatically increase and actual data of beginning period is negative. The trend line shows that operating income is adversely affected by the account receivable in future.

CHAPTER - V

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

The present study has been carried out to examine various aspects of cash management techniques, practices and policies used by Nepalese Commercial Banks. Besides, attempt has also been made to identity the variables influencing the demand for cash and relevance of the same in the banking sector. The study of cash management in the context of Nepalese Commercial Banks is possibly the first of its kind commercial banks are now growing and there are 26 listed commercial banks in Nepal Stock Exchange Limited. However, the study covers only two commercial banks viz. Nepal Bank Limited and Himalayan Bank Limited. Out of overall listed commercial banks. The period covered in five years from 2004/05 – 2008/09. The data pertaining to the study have been procured through Balance sheet and Profit/Loss statements of the firms were extensively used for secondary data.

The study focuses on the cash management adopted by the commercial banks. It attempts to analyze the cash management of selected commercial bank's for the last five years from 2004/05 – 2008/09. Banking sector contributes significantly to the economic development of the country. Though banking sector has well recognized the importance of proper cash management; banks are still facing the problem of cash management. So, the objective of the study is to have true insights into its cash management. So, the objective of the study is to have true insights into its cash management and to search for appropriate – cash management techniques for listed Commercial Banks in Nepal. An attempt has been made in this study to provide a possible suggestive framework for the better cash management of selected commercial banks and to make sound strategy in future for cash management system.

The basic objective of the study is to examine the cash management of selected commercial banks. To fulfill this objective and other specific objectives as described in chapter one, appropriate research methodology has been applied. Analysis of the data is based on the deployment of various financial and statistical tools, as designed in the methodology chapter. This includes the ratio analysis and ACP as a financial tools and straight-line trend, correlation, regression analysis as statistical tools.

This study is mainly based on the secondary data. The necessary data are derived from the balance sheet and comparative profit/loss account of the respective selected commercial banks for the period of five years from 2004/05 – 2008/09. The data are presented in suitable form and well analyzed on the basis of available information.

5.2 Conclusion

Based on the analysis and interpretation of data, the following conclusions have been drawn.

Cash management in the banking sector of Nepal is primarily based on the traditional practices, which lack in a scientific approach. A more serious aspect of cash management has been the absence of any formalized system of cash planning and cash budgeting in many of the banking sector, although the executives of some banks do practice forecasting of cash requirements on a formal basis.

Modern practices with respect to debt collection, monitoring the payment behavior of customers and relevant banking arrangements in connection with collection of receivables have been virtually ignored in many banking sectors.

The study revealed that majority of banking sector did not face any serious liquidity problem. However, this was not become of the effectiveness of cash planning and budgeting. The problem of liquidity actually did not arise due to the coincidence of delay in receivables collection being matched by delayed payment to creditors.

By and large most banking sector had periodic accumulation of surplus cash and corresponding cash shortage from time to time. However, none of the bank considered the implications of holding idle cash balance and few took into account the potential benefit of investing surplus in marketable securities. Those, which did, failed to consider the cost of administering such investments.

There has been wide variation overtime in the state of financial health if the banking sector in term of the composition of current assets and current liabilities as revealed by the relevant financial ratios.

Regression analysis revealed that there was little effect of the opportunity cost of holding cash on the cash balances held by the banking sector. 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 cases.

Role of banking sector has been gradually improvising. Due to the globalization, the banking environment has been competitive. Apart from other measures required to improve their performance, banking sector may be expected to have better prospects with effective cash management. It is not easy task to meet goals being surrounded by cutthroat competition, widening the market and changes in the technology. However, the listed commercial banks have been doing its best to yield good services within the limited sources available and minimizing the cost in comparison to other. The main objective of this study was to present the existing cash management and to give few suggestions on the basis of analysis to improve the cash management is an important part of the financial decision making variable. Many factors of determinants such as nature of business, capacity level, quality of customers, economic condition etc. has to be considered in cash management. Apart from that level of funds flow, method of creating cash management, establishment of credit terms, techniques of cash management, cash cycle etc are to be considered. Due to lack of good cash management system commercial banks did not provide budget sheet of cash inflows and outflows. The commercial banks must prepare cash budget to plan for and control cash flow.

The cash management of banking sectors is significant enough to have the best use of idle cash balances and to take advantage from the opportunity inherent in cash velocity determined by sales volume and turnover of assets. Banking managers must be familiar with the cash cycle to undertake measures for improvement of collection and disbursement. The various motive of holding cash and determination of safety level based on normal periods and peak periods must be adequately considered. The cash flow balance of banks can be sufficiently improved by increasing volume of sales and turnover of total assets. But on the whole, measures should be taken to have efficient collection combined with disbursement.

5.3 Recommendation

Based on the analysis and interpretation of data, the following are the suggestions that have been recommended for furthered improvement of cash management in commercial banks.

1. Cash planning manager or experts should be appointed. The lack of knowledge of modern financial management's tools and technique among existing employees in the banking sector is one of the causes of poor financial performance of the banks. Therefore, commercial banks must ensure to upgrade the current financial management skill.

2. Cash planning and cash budgeting is needed on a formal basis so as to project cash surplus or cash deficit for a period not exceeding one year and broken up into shorter intervals. Commercial banks should first identity the cash needs for operation and cash budget should be developed monthly, quarterly and yearly basis.

3. The commercial banks should pay much attention towards attention of account receivable and try to decrease average collection period for effective cash management.

4. Management of cash flows is needed so as to accelerate the inflows and as far as possible decelerate outflows.

5. Optimizing the level of cash balance is needed by matching the cost of holding excess and the danger of cash deficiency.

6. Investing idle cash balance is needed taking into account the cost of administering investment in marketable securities.

7. Idle cash should be invested in profitable sector. The commercial banks should manage its cash affairs in such a way as to keep cash balance at a minimum level and invest the surplus cash funds in profitable opportunities.

8. There should be a policy to have proper cash planning to estimate the cash receipt and cash payments it helps to minimize the problem of excess or deficit cash balance.

9. It is recommended to prepare monthly trail balance, cash and funds flow statement and financial reports looking at the banks inefficiency in the areas of internal audit and central system. It is suggested to prepare monthly balance, cash and funds flow statement and financial position to the board time to time.

10. The imp-rest system should operate on a weekly basis expect in cases where large amounts of cash required when it should be reimbursed more frequently from the bank than to carry a large float in the office.

ANNEXURE

Annexure - I

Nepal Bank Limited

Dharma Path, Kathmandu

Comparative Balance sheet

As on …………..

(Rs in million)

Particulars	2004/05	2005/06	2006/07	2007/08	2008/09
(a) Assets and Properties					
1. Cash Balance	1069	1110	1086	1181	1515
2. Balance with NRB	-	5353	5224	4430	6619
3. Balance with bank/ FI	5089	709	806	1004	1036
4. Money at call and short notice	550	-	200	-	400
5. Investment	14199	14490	16072	16570	13397
6. Loan Advances & Bills Purchase	8218	9756	11058	13251	17614
7. Fixed Assets	187	191	205	207	249
8. Non-Banks Assets	-	-	-	-	-
9. Other Assets	17730	4306	4605	5406	6725
Total Assets	**47045**	**35918**	**42053**	**43053**	**47559**
(b) Capital and Liabilities					
1. Share Capital	380	380	380	380	380
2. Reserve & Fund	-7805	-6681	-6388	-6687	-5234
3. Debentures & Bonds	-	-	-	-	-
4. Borrowings	1247	1717	1820	1604	1970
5.Deposits	35934	35829	41829	39014	45194
6. Bills Payable	417	100	52	60	12
7. Proposed & Dividend Payable	-	1115	2	2	2
8. Income Tax Liabilities	-	-	-	-	-
9. Other Liabilities	16871	4571	4357	4824	5234
Total Liabilities	**47045**	**35918**	**42052**	**39258**	**47559**

Nepal Bank Limited

Dharma Path, Kathmandu

Comparative Profit & Loss Account

For the year ending……

(Rs In million)

Particulars	2004/05	2005/06	2006/07	2007/08	2008/09
(a) **Operating Income**					
1. Interest Income	1987	2049	1848	2094	2690
2. Commission & Discount	188	177	181	229	273
3. Exchange Income	1	121	-	119	89
4. Non-Operating Income	1451	22	50	67	57
5. Other Income	542	668	587	157	156
Net Loss Carried Down	-	-	-	-	-
(b) **Operating Expenses**					
6. Income Expenses	748	774	772	772	791
7. Employed Expenses	1305	1067	1125	1346	1640
8. Office Overhead Expenses	382	428	329	259	297
9. Exchange Loss	-	-	46	-	-
10. Non-Operating Expenses	-	-	-	-	-
11. Bad-debt written off	-	-	-	-	-
12. Provision for Loan Loss	-	1813	-	-	-
13. Provision for Staff Bonus	-	120	22	31	94
14.Provision for Income Tax	-	-	-	75	85
15. Provision for Non-Banking Assets	4250	4625	-	-	-
Net Profit Carried Down	**1730**	**1207**	**226**	**239**	**894**
Total	**4171**	**3037**	**2366**	**2666**	**3265**

Himalayan Bank Limited

Thamel, Kathmandu

Comparative Balance sheet

As on …………..

(Rs in million)

Particulars	2004/05	2005/06	2006/07	2007/08	2008/09
(a) Assets and Properties					
1. Cash Balance	286	305	177	278	473
2. Balance with NRB	-	-	1272	935	2328
3. Balance with bank/ FI	1604	1096	307	234	246
4. Money at call and short notice	441	1005	1710	518	1170
5. Investment	11692	10899	11822	13340	8710
6. Loan Advances & Bills Purchase	12242	14642	16997	19497	24793
7. Fixed Assets	295	540	574	726	952
8. Non-Banks Assets	31	21	12	10	22
9. Other Assets	517	645	643	565	622
Total Assets	**27418**	**29460**	**33519**	**36175**	**39320**
(b) Capital and Liabilities					
1. Share Capital	643	772	810	1013	1216
2. Reserve & Fund	898	993	1335	1499	1903
3. Debentures & Bonds	360	360	360	860	500
4. Borrowings	146	146	235	83	-
5.Deposits	24814	26490	30048	31842	34681
6. Bills Payable	68	73	91	102	113
7. Proposed & Dividend Payable	80	238	130	263	162
8. Income Tax Liabilities	3	-	11	19	10
9. Other Liabilities	404	386	494	491	733
Total Liabilities	**27418**	**29460**	**33519**	**36175**	**39320**

Himalayan Bank Limited

Thamel, Kathmandu

Comparative Profit & Loss Account

For the year ending……

(Rs In million)

Particulars	2004/05	2005/06	2006/07	2007/08	2008/09
(a) **Operating Income**					
1. Interest Income	1446	1626	1775	1963	2342
2. Commission & Discount	132	156	193	187	284
3. Exchange Income	137	198	151	207	249
4. Non-Operating Income	2	1	3	9	3
5. Other Income	41	52	40	62	46
Net Loss Carried Down	-	-	-	-	-
(b) **Operating Expenses**					
6. Income Expenses	561	648	767	823	934
7. Employed Expenses	162	173	290	292	360
8. Office Overhead Expenses	277	329	322	344	398
9. Exchange Loss	-	-	-	-	-
10. Non-Operating Expenses	-	-	-	-	-
11. Bad-debt written off	-	-	-	-	-
12. Provision for Loan Loss	-	-	-	-	-
13. Provision for Staff Bonus	58	67	71	94	106
14.Provision for Income Tax	214	214	225	312	313
15. Provision for Non- Banking Assets	-	-	-	-	-
Net Profit Carried Down	**308**	**457**	**491**	**635**	**752**
Total	**1758**	**2042**	**2162**	**2428**	**2924**

Appendix

Himalayan Bank Limited

Thamel, Kathmandu

Comparative Balance Sheet

As on ……1…

(Rs. In million)

Particulars / Years	2003/04	2004/05	2005/06	2006/07	2007/08
(a) Assets and Properties					
1. Cash Balance	274	286	305	177	278
2. Balance with NRB	-	-	-	1272	935
3.Balance with banks / FI	1726	1604	1096	307	234
4. Money at call & short notices	368	441	1005	1710	518
5. Investments	9292	11692	10899	11822	13340
6. Loan, Advance & Bills Purchased	11951	12242	14642	16997	19497
7. Fixed Assets	299	295	540	574	726
8. Non-Banking Assets	-	31	21	12	10
9. Other Assets	848	517	645	643	634
Total Assets	**24762**	**27418**	**29460**	**33519**	**36175**
(b) Capital and Liabilities					
1. Share Capital	536	643	772	810	1013
2. Reserve and Fund	787	898	993	1335	1499
3. Debenture and Bonds	-	360	360	360	860
4. Borrowings	659	146	146	235	83
5. Deposits	22010	24814	26490	30048	31842
6.Bills Payable	64	68	73	91	102
7. Proposed & Dividend Payable	-	80	238	130	263
8. Income Tax Liabilities	-	3	-	11	19
9. Other Liabilities	704	404	386	494	491
Total Liabilities	**24762**	**27418**	**29460**	**33519**	**36175**

Appendix

Himalayan Bank Limited

Thamel, Kathmandu

Comparative Profit and Loss Account

For the Year ending…2…

(Rs In million)

Particulars	2003/04	2004/05	2005/06	2006/07	2007/08
(a) Operating Income					
1. Interest Income	1245	1446	1626	1775	1963
2. Commission & Discount	123	132	165	193	202
3. Exchange Income	112	137	198	151	192
4. Non-Operating Income	3	2	1	3	9
5. Other Income	34	41	52	40	62
Net Loss Carried Down	-	-	-	-	-
(b) Operating Expenses					
6. Income Expenses	491	561	648	767	823
7. Employees Expenses	152	162	173	290	307
8. Office Overhead Expenses	211	277	329	322	329
9. Exchange Loss	-	-	-	-	-
10. Non-Operating Expenses	-	-	-	-	-
11. Bad-debt written off	-	-	-	-	-
12. Provision for Loan Loss	186	-	-	-	-
13. Provision for Staff Bonus	46	58	67	71	94
14. Provision for Income Tax	157	214	214	225	312
15. Provision for Non-Banking Assets	10	-	-	-	-
Net Profit Carried Down	**263**	**308**	**457**	**491**	**635**
Total	**1519**	**1758**	**2042**	**2162**	**2428**

Annexure – III

Comparative Cash Balance of Selected Commercial Banks

For Periods Under Study

(Rs. In million)

Banks	Fiscal Year	Cash / Bank Balance	Increase (Decrease) %	Index
NBL	2004/05	6096.33	-	100
	2005/06	7174.05	17.68	117.68
	2006/07	7117.29	-0.79	116.89
	2007/08	6616.99	-7.03	109.86
	2008/09	9171.79	38.61	148.47
HBL	2004/05	2001.19	-	100
	2005/06	1717.35	-14.18	85.82
	2006/07	1757.34	2.33	88.15
	2007/08	1448.14	-17.59	70.55
	2008/09	3048.52	110.51	181.06

(Source: Annexure I and II)

Annexure - IV

Analysis of Cash turnover for Selected Commercial

Banks for the Periods Under Study

(Rs. In million)

Banks	Fiscal Year	Cash in hands/ Bank sales (b)	Operating income (Sales) (a)	Cash turnover Time (a/b)
NBL	2004/05	6096.33	1970	0.32
	2005/06	7174.05	1714	0.24
	2006/07	7117.29	1544	0.22
	2007/08	6616.99	1828	0.28
	2008/09	9171.79	2417	0.26
HBL	2004/05	2001.19	1195.92	0.60
	2005/06	1717.35	1393.53	0.81
	2006/07	1757.34	1393.36	0.80
	2007/08	1448.14	1597.49	1.10
	2008/09	3048.52	1988.05	0.65

(Source: Annexure I and II)

Annexure - V

Analysis of Current Ratio of Selected Two Commercial

Banks for Periods Under Study

(Rs. In million)

Banks	Fiscal Year	Current assets	Current liabilities	Time (CA/CL)
NBL	2004/05	29125	37599	0.75
	2005/06	31418	37647	0.83
	2006/07	34448	40680	0.85
	2007/08	36440	43702	0.83
	2008/09	40581	47178	0.86
HBL	2004/05	18495.86	23030.89	0.80
	2005/06	28256	269453	1.05
	2006/07	32323	30515	1.06
	2007/08	34805	32309	1.08
	2008/09	37724	34966	1.07

(Source: Annexure I and II)

Annexure – VI

Analysis of A/R of Selected Two Commercial Banks for

Periods under study

(Rs. In million)

Bank	Fiscal Year	Interest Receivable (B)	Operating income (Sales) (A)	Ration (in time) (A/B)
NBL	2004/05	13038.65	1970	0.15
	2005/06	5226.98	1714	0.33
	2006/07	5087.26	1544	0.30
	2007/08	4502.18	1828	0.41
	2008/09	3965.52	2417	0.61
HBL	2004/05	526.65	1195.92	2.88
	2005/06	550.37	1393.53	2.53
	2006/07	336.71	1393.36	4.14
	2007/08	347.63	1597	4.59
	2008/09	376.75	1988.05	5.78

(Source: Annexure I and II)

Annexure - VII

Average Collection Period of Selected Commercial

Banks for Periods under Study

Banks	Fiscal Year	Interest Receivables turnover	Day in a year	Average Collection Days
NBL	2004/05	0.15	365	2433
	2005/06	0.33	365	1106
	2006/07	0.30	365	1217
	2007/08	0.41	365	890
	2008/09	0.61	365	598
			Total	6244 days
			ACP	6244/5=1249days
HBL	2004/05	2.27	365	161
	2005/06	2.53	365	144
	2006/07	4.14	365	88
	2007/08	4.59	365	79
	2008/09	5.78	365	63
			Total	535 days
			ACP	535/5=107days

Annexure - VIII

AR to Cash/ Bank Balance for Selected Commercial

Banks for periods under Study

(Rs. in million)

Banks	Fiscal Year	Account Receivables (B)	Cash in hands / Banks sales (A)	% of A/R (A/B*100)
NBL	2004/05	13038.65	6096.33	46.75
	2005/06	5226.98	7174.05	137.25
	2006/07	5087.26	7117.29	139.90
	2007/08	4502.18	6616.99	146.97
	2008/09	3965.52	9171.79	231.29
HBL	2004/0	526.5	201.19	79.98
	2005/06	550.37	1717.35	312.03
	2006/07	336.71	1757.34	521.91
	2007/08	347.63	1448.14	416.57
	2008/09	376.75	3048.52	809.16

(Source: Annexure I and II)

Annexure - IX

Analysis of Investment in C/B Balance on CA and TA of

Selected CB's for Periods under Study

Particulars	2004/05	2005/06	2006/07	2007/08	2008/09
	Nepal Bank Limited (NBL)			(Rs. In million)	
Cash/Bank Balance	6096.33	7174.05	7117.26	6116.99	9171.79
Current Assets (CA)	29125	21418	34418	36440	40581
% of Cash/Bank balance of CA	20.93	22.83	20.66	18.16	22.60
Fixed Assets (FA)	187.08	191.71	110.58	132.51	176.14
Total Assets (CA + FA)	29312.05	31609.71	34558.58	36572.51	40757.14
% of Cash/Bank Balance of TA	20.80	22.70	20.60	18.10	22.50
	Himalayan Bank Limited (HBL)				
Cash/Bank Balance	2001.19	1717.35	1757.34	1448.17	3048.52
Current Assets (CA)	18495.86	28252	32323	34805	37724
% of Cash/Bank balance of CA	10.82	6.08	5.44	4.16	8.08
Fixed Assets (FA)	299.64	540.82	574.06	726.06	952.19
Total Assets (CA+FA)	18795.5	28792.82	32897.06	35531.06	38676.19
% of Cash/Bank Balance of TA	10.65	5.96	5.34	4.07	7.88

(Source: Annexure I and II)

Annexure - X

Analysis of Cash to CL for Selected Commercial Banks

For Periods under Study

(Rs. in million)

Banks	Fiscal Years	Cash in hands/ Bank sales	Current Liabilities	% (CB/CL) 100
NBL	2004/05	6096.33	37599	16.21
	2005/06	7174.05	37647	19.06
	2006/07	7117.29	40680	17.0
	2007/08	6616.99	43702	15.14
	2008/09	9171.79	47178	19.44
HBL	2004/05	2001.19	23030.86	8.69
	2005/06	1717.35	26945	6.37
	2006/07	1757.34	30515	5.76
	2007/08	1448.14	32309	4.48
	2008/09	3048.52	34966	8.72

(Source: Annexure I and II)

Fitting the Straight-Line Trend by Least Square for Selected

Commercial Banks for Different Periods in Cash Balance

Banks	Fiscal Years (X)	Cash/ Bank balance (Rs. in million) (Y)	X	X^2	XY	Trend value $Y_c = a+bx$
NBL	2004/05	6096.33	-2	4	-12192.66	-2429.11
	2005/06	7174.05	-1	1	-7174.05	2403.09
	2006/07	7117.29	0	0	0	7235.29
	2007/08	6616.99	1	1	6616.99	12067.49
	2008/09	9171.79	2	4	36687.16	16899.69
		Y = 36176.45	X = 0	X^2= 10	XY=48322.76	Y_C=36176.45
HBL	2004/05	2001.19	-2	4	-4002.38	1629.41
	2005/06	1717.35	-1	1	-1717.35	1811.96
	2006/07	1717.34	0	0	0	1994.51
	2007/08	1448.14	1	1	1448.14	2177.06
	2008/09	3048.52	2	4	6097.04	2359.61
		Y=9972.54	X=0	X^2=10	XY=1825.45	Y_C=9972.55

(Source: Annexure I and II)

NBL:

X= Time

Y= Cash Balance

N= Number of observation

Straight-line trend $(Y_C) = a + bX$

$$a = \frac{Y}{N} = \frac{36176.45}{5} = 7235.29$$

$$b = \frac{XY}{X^2} = \frac{48322.76}{10} = 4832.28$$

$Y_C = 7235.29 + 4832.28X$

This trend line shows the positive figure of cash balance for future. The annual rate of increment of cash balance is seemed to be 4832.28*Rs 1000,000 = Rs. 4832280000.

HBL:

X= Time

Y= Cash

N= Number of observation

Straight-line trend $(Y_C) = a+bX$

$$a = \frac{Y}{N} = \frac{9972.54}{5} = 1994.51$$

$$b = \frac{XY}{X^2} = \frac{1825.45}{10} = 182.55$$

$(Y_C) = 1994.51 + 182.55X$

This trend line shows the positive figure of cash balance for future. The annual rate of incremental of cash balance is seemed to be 182.55*Rs.1000, 000 = Rs 182550000.

From the trend line, now we can obtain the forecast of the cash/bank balance for the next two years.

Forecast for next five year

Banks	Year	Time (X)	y = a + bx	Forecasted cash/bank balance
NBL	2009/10	6	y = 7235.29+4832.28 x 3	21732.13
	2010/11	7	y = 7235.29+4832.28 x 4	26564.41
HBL	2009/10	6	y = 1994.51+182.55 x 3	3089.81
	2010/11	7	y = 1994.51+182.55 x 4	2724.71

Correlation (r) between Cash Balance and Operating income of Selected

Commercial Banks for periods under study

(Rs. in million)

Banks	Fiscal Years	Operating income (X)	Cash/Bank balance (Y)	U= X-1895	V= Y-7235.29
NBL	2004/05	1970	6096.33	75	-1138.96
	2005/06	1714	7174.05	-181	-61.24
	2006/07	1544	7117.29	-351	-118
	2007/08	1828	6616.99	-67	-618.3
	2008/09	2417	9171.79	522	1936.5
		X= 9473	Y= 36176.45	U= -2	V = 0

$$\overline{X} = \frac{X}{N} = \frac{9473}{5} = 1895$$

$$\overline{Y} = \frac{Y}{N} = \frac{36176.45}{5} = 7235.29$$

$$U = x - \overline{X} \qquad V = y - \overline{Y}$$

Banks	Fiscal Year	U^2	V^2	UV
NBL	2004/05	5625	1297229.88	-85422
	2005/06	32761	3750.34	11084.44
	2006/07	123201	13924	41418
	2007/08	4489	382294.89	41426.1
	2008/09	272484	3750032.25	1010853
		U^2= 438560	V^2= 5447231.36	UV= 1019359.54

Source: (Annexure I and II)

$$x = \sqrt{\frac{U^2}{N}} = \sqrt{\frac{438560}{5}} = 296.16$$

$$y = \sqrt{\frac{V^2}{}} \qquad \sqrt{5447231.36} = 1043.76$$

$$rxy = \frac{\sum UV}{\sqrt{\sum U^{2*} \sum V^{2}}} = \frac{1019359.54}{\sqrt{438560 * 5447231.36}} = 0.66$$

$$= \sqrt{\frac{\sum}{N}} = \sqrt{5}$$

The value of r = 0.66 shows that there are positive correlation between cash and operating income. It means the test of significance of the value of r shows that there is significant relationship between cash and operating income.

$$P.\,E.\,(r) = \frac{0.6745\,(1 - r^{2})}{\sqrt{N}} = \frac{0.6745\,(1 - 0.4356)}{\sqrt{5}} = 0.17$$

Since, P. E.> r it is significant i.e. there is evidence of correlation. A regression line also can be fitted to show the degree of relationship between operating income and C/B balance. Cash balance can be forecasted by the value of operating income. For this purpose cash and bank balance and operating income have been assumed interrelated economic variables. So, the regression line of operating income (X) on cash balance (Y) is

$$X - \overline{X} = \frac{r\,\sigma x}{\sigma y}\,Y - \overline{Y}$$

Since,

	X	Y
Mean	1895	7235.29
S.D.	296.16	1043.76

rxy = 0.66

$$X - 1895 = \frac{0.66 * 296.16}{1043.76}\,(Y - 1043.76)$$

X– 1895 = 0.1873(Y – 1043.76)

X – 1895 = 0.1873Y – 195.50

X = 0.1873Y – 195.50 + 1895

X = 0.1873Y + 1699.5

This equation shows that 0.1873per unit will increase operating income.

Increase in cash balance next the regression line of cash balance (Y) on operating income (X) or y on X is as under.

$$Y - \overline{Y} = \frac{r\ \sigma y}{\sigma x}\ (X - \overline{X})$$

$$Y - 7235.29 = \frac{0.66 * 1043.76}{296.16}\ (X - 1895)$$

Y – 7235.29 = 2.3260 (X – 1895)

Y – 7235.29 = 2.3260X – 4407.85

Y = 2.3260X – 4407.85 + 7235.29

Y = 2.3260X + 2827.44

Thus on assumption that cash is a function of operating income achieved unit increase in the cash balance operating income is increased by 2.3260units.

Banks	Fiscal Years	Operating income (X)	Bank/Cash balance (Y)	U = X- 1513.66	V=Y- 1994.51
HBL	2004/05	1195.92	2001.19	-317.74	-6.68
	2005/06	1393.53	1717.35	-120.13	-283.84
	2006/07	1393.36	1757.34	-120.3	-243.85
	2007/08	1597.46	1448.14	83.8	-553.05
	2008/09	1988.05	3048.52	474.39	1054.01
		X= 7568.32	Y= 9972.54	U= 0.02	Y = -33.41

$$\overline{X} = \frac{X}{N} = \frac{7568.32}{5} = 1513.66$$

$$\overline{Y} = \frac{Y}{N} = \frac{9972.54}{5} = 1994.51$$

$$U = X - \overline{X} \qquad\qquad V = Y - \overline{Y}$$

Banks	Fiscal Years	U^2	V^2	UV
HBL	2004/05	100958.71	44.62	2122.50
	2005/06	14431.22	80565.15	34097.70
	2006/07	14472.09	59462.82	29335.15
	2007/08	7022.44	305864.30	-46345.59
	2008/09	225045.87	1110937.08	500011.80
		U^2= 361930.33	V^2= 1556873.97	UV= 519221.56

Source: (Annexure I and II)

$$x = \sqrt{\frac{U^2}{N}} \qquad = \qquad \sqrt{\frac{361930.33}{5}} \qquad = 267.05$$

$$y = \sqrt{\frac{V^2}{N}} \qquad = \qquad \sqrt{\frac{1556873.97}{5}} \qquad = 558$$

$$rxy = \frac{UV}{\sqrt{U^{2*} \quad V^2}} \qquad = \qquad \frac{519221.56}{\sqrt{361930.33*1556873.97}} \qquad = 0.70$$

The value of r = 0.70 shows that there are positive correlation between cash and operating income. It means the test of significance of the value of r shows that there is moderately significant relationship between cash and operating income.

$$P.\ E.\ (r) = \frac{0.6745\ (1 - r^2)}{\sqrt{N}} \qquad = \qquad \frac{0.6745\ (1 - 0.49)}{\sqrt{5}} \qquad = 0.15$$

Since, r > P. E. (r) it is significant i.e. there is evidence of correlation. A regression line also can be fitted to show the degree of relationship between operating income and C/B balance. Cash balance can be forecasted by the value of operating income. For this purpose cash and bank balance and operating income have been assumed interrelated economic variables. So the regression line of operating income (X) on cash balance (Y) is

$$X - \overline{X} \quad = \quad \frac{r\ x}{} \quad Y - \overline{Y}$$

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y

Since,

	X	Y
Mean	1513.66	1994.51
S.D.	269.05	558

$r_{xy} = 0.70$

$$X - 1513.66 = \frac{0.70 \times 269.05}{558} \quad Y - 1994.51$$

$X - 1513.66 = 0.3375\,(Y - 1994.51)$

$X - 1513.66 = 0.3375Y - 673.15$

$X = 0.3375Y - 673.15 + 1513.66$

$X = 0.3375Y + 840.51$

This equation shows that 0.3375per unit will increase operating income.

Increase in cash balance next the regression line of cash balance (Y) on actual operating (X) or Y on X is as under.

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

$$Y - 1994.51 = \frac{0.15 * 558}{1994.51}\ (X - 1513.66)$$

$Y - 1994.51 = 0.0420\,(X - 1513.66)$

$Y - 1994.51 = 0.0420X - 63.57$

$Y = 0.0420X - 63.57 + 1994.5$

$Y = 0.0420X + 1930.94$

Thus on assumption that cash is a function of operating income achieved unit increase in the cash balance operating income is increased by 0.0420 units.

Time element is also an important factor with passage of time series achievements and account component of time series. A straight-line trend by the method of least square will show the relationship between year (time) and ratio in term of account receivables and operating income.

Annexure - XIII

Fitting the Straight Line Trend of Interest receivables turnover by

Least Square of Selected Commercial Banks for Periods under Study

Banks	Fiscal Year	Ratio in time (Y)	X	X^2	XY	Trend value $Y_c=a+bx$
NBL	2004/05	0.15	-2	4	-0.3	-0.084
	2005/06	0.33	-1	1	-0.33	0.138
	2006/07	0.30	0	0	0	0.36
	2007/08	0.41	1	1	0.41	0.582
	2008/09	0.61	2	4	2.44	0.804
		Y = 1.8	X = 0	X^2= 10	XY= 2.22	Y_C=1.8

Source: (Annexure I and II)

X = Time

Y = ratio

Straight line trend (Y_C) = a + bx

$$a = \frac{Y}{N} = \frac{1.8}{5} = 0.36$$

$$b = \frac{XY}{X^2} = \frac{2.22}{10} = 0.222$$

$Y_C = 0.36 + 0.222X$

This trend line shows that operating income is adversely affected by the account receivable of future.

Banks	Fiscal Years	Ratio in time (Y)	X	X^2	XY	Trend value $Yc = a+bc$
HBL	2004/05	2.27	-2	4	-4.54	2.046
	2005/06	2.53	-1	1	-2.53	1.828
	2006/07	4.14	0	0	0	3.862
	2007/08	4.59	1	1	4.59	5.896
	2008/09	5.78	2	4	11.56	7.93
		Y= 19.31	X= 0	X^2= 10	XY = 9.08	Y_C=21.562

Source: (Annexure I and II)

X = Time

Y = rate

Straight line trend (Y_C) = a + bx

$$a = \frac{Y}{N} = \frac{19.31}{5} = 3.862$$

$$b = \frac{XY}{X^2} = \frac{9.08}{10} = 0.908$$

$Y_C = 3.862 + 0.908\ X$

This trend line shows that operating income is adversely affected by the account receivable of future.

From the trend line, now we can obtain the forecast of interest receivable ratio for the next two years.

Forecast for next two year of interest receivable ratio

Banks	Year	Time (X)	y = a + bX	Forecasted interest receivable
NBL	2009/10	6	y = 0.36 + 0.222 x 3	1.026
	2010/11	7	y = 0.36 + 0.222 x 4	1.248
HBL	2009/10	6	y = 3.862 + 0.908 x 3	6.586
	2010/11	7	y = 3.862 + 0.908 x 4	7.494

Annexure - XIV

Correlation (r) between Receivable and operating income of Selected Commercial Banks for Periods under Study

Banks	Fiscal Year	Receivable (X)	Operating income (Y)	U= X – 6364.12	V= Y – 1895
NBL	2004/05	13038.65	1970	6674.53	75
	2005/06	5226.98	1714	-1137.14	-181
	2006/07	5087.26	1544	-1276.86	-351
	2007/08	4502.18	1828	-1861.94	-67
	2008/09	3965.52	2417	-2398.6	522
		X = 31820.59	Y = 9473	U = -0.01	V = -2

Source: (Annexure I and II)

$$\overline{X} = \frac{X}{N} = \frac{31820.59}{5} = 6364.12$$

$$\overline{Y} = \frac{Y}{N} = \frac{9473}{5} = 1895$$

$$U = X - \overline{X} \qquad\qquad V = Y - \overline{Y}$$

Banks	Fiscal Year	U^2	V^2	UV
NBL	2004/05	44549350.72	5625	500589.75
	2005/06	1293087.38	32761	205822.34
	2006/07	1630371.46	123201	448177.86
	2007/08	3466820.56	4489	124749.98
	2008/09	5753281.96	272484	-1252069.2
		U^2= 56692912.08	V^2= 438560	UV = 27270.73

$$x = \sqrt{\frac{U^2}{N}} = \sqrt{\frac{56692912.08}{5}} = 3367.28$$

$$y = \sqrt{\frac{V^2}{N}} = \sqrt{\frac{438560}{5}} = 296.16$$

To find out the correlation between operating income and account receivable, Karl Pearson's Coefficient of operating income and receivable are interrelated and explored. First assumed (X) receivable are dependent variables. It is assumed that operating income will increase as receivable increased or vice-versa. It means that there should be positive relation between operating income and receivable.

$$\text{rxy} = \cfrac{UV}{\sqrt{U^{2*} \quad V^2}} \qquad = \cfrac{27270.73}{\sqrt{56692912.08*438560}} \qquad = 0.005$$

The value of r = 0.005 shows that there are positive correlation between operating income and receivables. It means the test of significance of the value of r shows that there is not good relationship between operating income and receivables as value of ' r ' is small.

$$\text{P. E. (r)} = \cfrac{0.6745\ (1-r^2)}{N} \qquad = \cfrac{0.6745\ (1 - 0.000025)}{5} \qquad = 0.30$$

Since, r < P. E. (r) it is significant i. e. there is evidence of correlation. A regression line also can be fitted to show the degree of relationship between operating income and account. For these purpose receivables has been assumed to be dependent operating income. So the regression line of receivables (X) on operating income (Y) is as follows:

$$X - \overline{X} \qquad = \cfrac{r\ x}{y}\ (Y - \overline{Y})$$

Since,

	X	Y
Mean	6364.12	1895
S.D.	3367.28	296.16

rxy = 0.005

$$X - 6364.12 = \cfrac{0.005 * 3367.28}{296.16}\ (Y - 1895)$$

X – 6364.12 = 0.0568 (Y -1872.8)

X – 6364.12 = 0.0568Y – 106.46

X = 0.0568Y – 106.46+ 6364.12

X = 0.0568Y +6257.66

The equation shows that 0.0568 per unit will increase operating income.

Banks	Fiscal Year	Receivables (X)	Operating income (Y)	U= X – 427.62	V= Y- 1513.66
HBL	2004/05	526.65	1195.92	99.03	-317.74
	2005/06	55037	1393.53	122.75	-120.13
	2006/07	336.74	1393.36	-90.91	-120.3
	2007/08	347.63	1597.46	-79.99	83.8
	2008/09	376.75	1988.05	-50.87	474.39
		X = 2138.11	Y= 7568.32	U= 0.01	V = 0.02

$$\overline{X} = \frac{X}{N} = \frac{2138.11}{5} = 427.62$$

$$\overline{Y} = \frac{Y}{N} = \frac{7568.32}{5} = 1513.66$$

$$U = X - \overline{X} \qquad\qquad V = Y - \overline{Y}$$

Banks	Fiscal Year	U^2	V^2	UV
HBL	2004/05	9806.94	100958.71	-31465.79
	2005/06	15067.56	14431.22	-14745.96
	2006/07	8264.63	14472.09	10936.47
	2007/08	6398.40	7022.44	-6703.16
	2008/09	2587.76	225045.87	-24132.22
		U^2= 42125.29	V^2= 361930.33	UV = -66110.66

Source: (Annexure I and II)

$$x = \sqrt{\frac{U^2}{N}} = \sqrt{\frac{42125.29}{5}} = 91.79$$

$$y = \sqrt{\frac{V^2}{}} = \sqrt{\frac{361930.33}{111}} = 269.05$$

$$rxy = \frac{N\ UV}{\sqrt{U^{2*}\ V^2}} = \frac{5\ \ -66110.66}{\sqrt{42125.29*361930.33}} = -0.53$$

The value of r = -0.53 shows that there is negative correlation between operating income and receivables. It means the test of significance of the value of r shows that there is not good significant relationship between operating income and receivables.

$$P.\ E.\ (r) = \frac{0.6745\ (1 - r^2)}{N} = \frac{0.6745\ (1 - 0.2809)}{5} = 0.22$$

Since, r < P. E. (r) the value of ' r ' is not significant i. e. there is no evidence of correlation.

A regression line also can be fitted to show the degree of relationship between operating income and account. For these purpose receivables has been assumed to be dependent operating. So the regression line of receivables (X) on operating income (Y) is as follows:

$$X - \overline{X} = \frac{r\ x}{y}\ (Y - \overline{Y})$$

Since,

	X	Y
Mean	427.62	1513.66
S.D.	91.79	269.05

rxy = -0.53

$$X - 427.62 = \frac{-0.53 * 91.79}{269.05}\ (Y - 1513.66)$$

X – 427.62 = -0.1808 (Y – 1513.66)

X – 427.66 = -0.1808Y + 273.67

X = -0.1808Y + 701.29

The equation shows that -0.1808 per unit will decrease operating income.

Annexure - XV

Correlation between Account Receivable and Cash and Bank Balance of Selected

Commercial Banks for periods under Study

Banks	Fiscal Years	Receivables (X)	Cash/Bank balance (Y)	U= X-427.62	V= Y – 7235.29
NBL	2004/05	526.65	696.33	99.03	-1138.96
	2005/06	550.37	7174.05	122.75	-61.24
	2006/07	336.71	7117.29	-90.91	-118
	2007/08	347.63	6616.99	-79.99	-618.3
	2008/09	376.75	9171.79	-50.87	1936.5
		X = 2138.11	Y = 36176.45	U = 0.01	V = 0

$$\overline{X} = \frac{X}{N} = \frac{2138.11}{5} = 427.62$$

$$\overline{Y} = \frac{Y}{N} = \frac{36176.45}{5} = 7235.29$$

$$U = X - \overline{X} \qquad\qquad V = Y - \overline{Y}$$

Banks	Fiscal Years	U^2	V^2	UV
NBL	2004/05	9806.94	1297229.88	-112791.21
	2005/06	15067.56	3750.34	-7517.21
	2006/07	8264.83	13924	10727.38
	2007/08	6398.40	382294.89	49457.82
	2008/09	2587.76	3750032.25	-98509.75
		U^2 = 42125.49	V^2= 5447231.36	UV = -158632.97

Source: (Annexure I and II)

$$rxy = \frac{UV}{\sqrt{U^{2*}\ V^2}} = \frac{-158632.97}{\sqrt{42125.49*5447231.36}} = -0.33$$

There is negative correlation between A/R and cash/bank balance. This means when A/R decreases cash balance also decreases and vice-versa.

$$P.E.\ (r) = \frac{0.6745\ (1 - r^2)}{N} = \frac{0.6745\ (1 - 0.1089)}{5} = 0.27$$

If r is more than 6 times it's P. E. or greater than +/- 0.5, then it considered significant.

Since 'r' is > P.E. therefore the value of 'r' is considered significant.

Banks	Fiscal Year	Receivable (X)	Cash/Bank balance (Y)	U = X – 427.62	V = Y – 1994.51
HBL	2004/05	526.65	2001.19	99.03	6.68
	2005/06	550.37	1717.35	122.75	-277.16
	2006/07	336.71	1757.34	-90.91	-237.17
	2007/08	347.63	1448.14	-79.99	-546.37
	2008/09	376.75	3048.52	-50.87	1054.01
		X=2138.11	Y=9972.54	U=0.01	V=-0.01

$$\overline{X} = \frac{X}{N} = \frac{2138.11}{5} = 427.62$$

$$\overline{Y} = \frac{Y}{N} = \frac{9972.54}{5} = 1994.51$$

$$U = X - \overline{X} \qquad\qquad V = Y - \overline{Y}$$

Banks	Fiscal Year	U^2	V^2	UV
HBL	2004/05	9806.94	44.62	661.52
	2005/06	15067.56	76817.66	-34021.39
	2006/07	8264.62	56249.60	21561.12
	2007/08	6398.40	298520.17	43704.13
	2008/09	2587.75	1110937.08	-53617.48
		U^2= 42125.27	V^2= 1542569.13	UV= -21712.1

Source: (Annexure I and II)

$$rxy = \frac{UV}{\sqrt{U^{2*}\ V^2}} = \frac{-21712.1}{\sqrt{42125.27*1542569.13}} = -0.085$$

There is negative correlation between A/R and cash/bank balance. This means when A/R increases cash balance also increase and vice-versa.

$$P.E.\ (r) = \frac{0.6745\ (1 - r^2)}{N} = \frac{0.6745\ (1 - 0.007225)}{5} = 0.29$$

If r is more than 6 times it's P. E. or greater than +/- 0.5, then it considered significant.

Since 'r' is > P.E. therefore the value of 'r' is considered significant.

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