Chapter - I

INTRODUCTION

A. Background

Commercial banks play a very dynamic and diversified role amongst the financial institutions of a country. The funds deposited by the public are used by the banks as a main source to purchase a slew of assets such as home mortgages, business loans, government securities etc. The range and the quantity of the deposits and assets bought utilizing them are of immense importance to the monetary economists because through credit creation banks can alter the money supply of the entire economy. This provides the banks with a potent tool to influence the economy. Recurrent supervision is thus required to monitor and supervise such power because excess money supply is said to be the chief reason for economic inflation. Cash and near cash reserves of the whole banking system are the indicators of such money supply of the economy.

Analysis of the correlation between the total money supply of the economy and the total cash and liquid assets in the banking system can substantiate this relationship. Discrepancies in deposits, withdrawal habits of the customer from banks and the amount of cash and near cash reserves held by banks are major indicators regarding the position of money supply of the economy. This liquidity affects the banks at their individual cores, as these assets represent the less or no interest bearing assets. At least in conjectural theory, liquidity should have an inverse relationship with profitability. Such relation is greatly significant in the context of Nepal, so this study is an effort to comprehensively delve into them.

"The history of financial system in Nepal is not very long. It is still in its primary stage of development. Small and fast growing financial sector comprises of commercial banks and other financial institutions like development banks, finance companies, cooperatives etc."[1] The establishment of Nepal Bank Limited in 1937 laid the foundation for development of banking sector in Nepal.

Nepal Rastra Bank, the central bank, was established in 1956 to supervise commercial banks and guide the basic monetary policy of the nation. Its major aims were to regulate the issue of paper money; secure countrywide circulation of Nepalese currency and achieve stability in its exchange rates; mobilize capital for economic development and for trade and industry growth; develop the banking system in the country, thereby ensuring the existence of banking facilities; and maintain the economic interests of the general public.

According to the latest data from NRB's official website, currently there are 25 commercial banks licensed by Nepal Rastra Bank. Six are joint venture banks in collaboration with the foreign investment partners and remaining nineteen banks are owned by Nepalese investors.

After the liberalization of financial sector in mid eighties by HMG Nepal, the number of private sector in collaboration with foreign partners invested in commercial banks. As a result, many commercial banks were established. The table given below shows the establishment date of commercial banks in Nepal.

[1] Banking Supervision Annual Report 2001-2002, NRB

S.N.	Name of Bank	Established Date
1.	Nepal Bank Limited	1937
2.	Rastriya Banijya Bank	1966
3.	Nabil Bank Limited	1984
4.	Nepal Investment Bank Limited	1986
5.	Standard Chartered Bank Nepal Limited	1987
6.	Himalayan Bank Limited	1993
7.	Nepal SBI Bank Limited	1993
8.	Nepal Bangladesh Bank Limited	1994
9.	Everest Bank Limited	1994
10.	Bank of Kathmandu Limited	1995
11.	Nepal Credit and Commerce Bank Limited	1996
12.	Lumbini Bank Limited	1998
13.	Nepal Industrial and Commercial Bank Ltd.	1998
14.	Machhapuchhre Bank Limited	2000
15.	Kumari Bank Limited	2001
16.	Laxmi Bank Limited	2002
17.	Siddhartha Bank Limited	2002
18.	Agriculture Development Bank	2006
19.	Global Bank Limited	2007
20.	Citizens Bank International Limited	2007
21.	Prime Commercial Bank Limited	2007
22.	Bank of Asia Nepal Limited	2007
23.	Sunrise Bank Limited	2007
24.	Development Credit Bank Limited	2008
25.	NMB Bank Limited	2008

Source: NRB

Table 1: List of commercial banks

"Cash is the important current asset for the operations of the business. Cash is the basic input needed to keep the business running on a continuous basis; it

is also the ultimate output expected to be realized by selling the service or product manufactured by the firm."[2]

The relevance of cash management in terms of banks in Nepal: as with all the corporations and firms who must have a sound cash management system to balance a judicious repertoire of liquid assets and invested assets is of no lesser consequence. As the banking sector denotes the well being or not of a country's economy, it holds even much pertinence as a whole. Equating cash management with liquidity management, both objectively meaning the same thing, concerns the strategic investment in liquid assets such as a saving account in a bank and/or in illiquid non quick-cash convertible assets such as land or real estate. Liquidity means the easiness and quickness with which an asset can be converted into cash without loss of its value.

"Liquidity, in general, means for the sell and buy of stocks with minimal impact on the price. And for an investment to be liquid, it must be reversible and marketable. The difference between reversibility and marketability is that reversibility is the process whereby the transaction is reversed or terminated while marketability involves the sale of the investment in the market for cash in any time." [3]

The concern for a bank with its liquidity just like any other organization or institution becomes a critical issue in its profit earning process and continued existence. "A bank raises funds by attracting deposits, borrowing money in the inter-bank market, or issuing financial instruments in the money market or a capital market. The bank then lends out most of these funds to borrowers. However, it would not be prudent for a bank to lend out all of its balance sheet. It must keep a certain proportion of its funds in reserve so that it can repay depositors who withdraw their deposits. Bank reserves are typically kept in the

[2] Pandey I. M., Financial Management, 1997 P. 765

[3] Bhalla, V.K. "Investment Management", Delhi University, S. Chand & Company, Delhi

form of a deposit with a central bank. This behavior is called fractional-reserve banking and it is a central issue of monetary policy."[4]

"Cash management is concerned with the managing of: (i) cash flows into and out of the firm, (ii) cash flows within the firm, and (iii) cash balances held by the firm at a point of time by financing deficit or investing surplus cash."[5]

Financial management has long recognized as the necessity of maintaining a portion of the firms' assets in liquid balance and cash management is regularly faced with the decision of how they should be investing of cash. The liquidity of an organization is pertinently linked to its existence in the short run, meaning certain allocations of its investments in cash, inventories and receivables with which to pay for the exigent daily expenses arising out of daily activities. But with due care as not to over expend its resources as such it affects the profitability. This delicate act of balancing between the excess of cash for daily requirements and its paucity is cash management.

B. Focus of the Study

The study will mainly focus on the cash (liquidity) management status of the current in-operation Nepalese banks. The impetus of the study lies in deciphering and elucidation of the effectiveness and the success achieved by the banks on planning, forecasting, formulating and implementation of its cash management policy and practice. The study will analyze the past investment data and balance sheet of the banks to serve its purpose.

C. Statement of problems

[4] http:// www.wikipedia.org/Bank
[5] Pandey I. M., Financial Management, 1997 P. 765

Cash management, although it doesn't occupy a major portion of managements' decision making time in developing countries, nevertheless is an indispensable and imperative component of successful management.

In a book published by the World Bank titled 'Excess Liquidity & Monetary Overhangs'[6], it was stated that there is mostly excess liquidity in the financial institutions of the developing economies. Similarly, the IMF opines that excess liquidity is a great problem for developing economies and results not from the dearth of lending opportunities or demand for funds but from a number of system & institutional shortcomings.

As the above topic being relevant to our concern, we can discern of the problem of excess liquidity prevalent in our economy as well. It thus becomes necessary for us to conduct and divulge off the situated trends in our financial institutions and its impact on the whole financial system of our nation.
Therefore, this study tries to elucidate upon the actual trend situations and effects resulting from the cash management policies and/or liquidity impact on the Nepalese financial market via aggregate impact study of prevalent cash situations of currently in-operation Nepalese Commercial Banks.

D. Objectives of the study

The major objectives of this study are enlisted below:

a) To analyze the effectiveness of the banks' cash management policy.

b) To ascertain the cash structure and avenues of its utilizations.

c) To analyze the relationship between the liquid assets and profitability of the commercial banks in the Nepalese context.

---

[6] Caprio, Gerard & Hondran Patrick, "Excess Liquidity and Monetary Overhangs", The World Bank. P.764

E. Rationale of the study

The cash policy which a bank espouses affects its profitability. The cash and liquid assets which a bank holds earn little or no interest. The cash and liquid assets it holds are an investment opportunity, thus a profit opportunity lost somewhere else. For a bank to act judiciously upon its cash management policy also implies macro-economic repercussions. In the macro-economic scenario, the amount of liquid assets in the whole banking system is an indicator of the money supply of the economy and hence is an important variable, because the soundness of banks' cash policies reflects a sound or an unsound aggregate economy.

The importance of profitability of the banking sector is explained by the following remarks, "Bank profits are important to every group in the economy. Even economic groups that may not directly use the services of commercial banks are benefited indirectly by adequate bank profits, inasmuch as a strong banking system, in part the result of bank profits, results in the safety of deposits and availability of credit to the economy on which the business firms and consumers depend."[7] Thus the objective of the study is very significant for the individual banks as well as for the whole macro-economic scenario.

F. Scope and Limitations of the study

There is a scope of the study and along with it the eventual limitations which follow; this study is no paradox to that. This study is a partial requirement in fulfillment of the Master of Business Studies. Lack of research experience, time constraints and information asymmetry are the major limitations. Others are listed below along with the scope of the study under consideration:

- The study elucidates cash policies and trends of the liquid assets of the commercial banks of Nepal.

[7] Reed, Edward W., Cotter, Richard V., Gill, Edward K. and Smith, Richard K., "Commercial Banking.", 1984

- The relation between the profitability and the liquidity of the commercial banks is then examined.
- The study covers data relating to the representative commercial banks.
- The study period is of fixed duration for studying the relation between profitability and liquidity in commercial banks.
- One of the major limitations of the study is the selection of the samples according to the availability of the data.
- The unavailability of empirical research based data for this research creates a considerable limitation to this study.
- Actual cash management policies of the sample banks couldn't be acquired due to the reluctance of the banks to disclose them.
- Time limitation hinders this research to some extent.

G. Organization of the study

The study will be divided into five parts as follows:

Part one will contain the introductory framework including research problems, focus of the study, objectives of the study, scope and limitations of the study.

Part two will contain the conceptual setting including the review of literature.

Part three will contain the research methodology and tools used while conducting research for this study.

Part four will contain the presentation and analysis of data and information. Various tools (financial and statistical) will be used to diagnose and interpret the data and information which will ultimately answer the questions stated above in the statement of problems.

Finally, part five will contain the part of suggestive framework including the main findings and conclusions of the study, along with the suggestions and recommendations for the issues and gaps that will be found.

CHAPTER – II

REVIEW OF LITERATURE

This chapter is devoted to the conceptual framework of the topic, other relevant literatures and results of some relevant researches. The review of literature provides the basic foundation to this study.

A. Conceptual Framework of Cash Management

The amount of cash which any organization keeps or has the requirement laid out in its plans 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.

"The general level of cash the company will need to keep very liquid to meet commitments will be as unique as the firm's business plan, and may account for specific expenditures. Liquidity needs must be clearly articulated so that appropriate policy measures can be taken. 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."[8]

[8] Fabozzi, Frank J. "Cash Management: Products and Strategies", John Wiley and Sons, 2000 P.21

In case of banks, they are bound by law along with transactional obligations emerging from daily businesses. “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.”[9]

Nepal Rastra Bank requires every commercial bank to maintain a cash reserve ratio of 5% compulsorily. “The bank rate of 6.25 percent has been continued under the monetary policy for FY 2006/07. So does the export credit refinancing rate of 3.5 percent and sick industry refinancing rate of 1.5 percent. To facilitate cottage and small scale industries promotion, refinancing rate for the loans advanced to these industries has been fixed

[9] http://books.google.com/books

at 3.5 percent. Mandatory cash reserve ratio at 5.0 percent has also been continued." [10]

"The term liquid asset is not only used to describe money but also those assets that are readily convertible into money. Different assets may be said to exhibit different degrees of liquidity. Money itself is, by definition, the most liquid of assets; other assets having varying degrees of liquidity, depending upon the ease with which they can be turned into cash. For assets other than money, liquidity has two dimensions: (1) the time necessary to convert the asset into money and (2) the degree of certainty associated with the conversion ratio, or price realized for the asset."[11]

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.

i.) Cash Planning and Forecasting

"Cash planning is the foremost need in the cash management, which cannot be ignored since it involves consideration of alternative courses of action so as to synchronize cash flows with the liquidity position of the

[10]"Money and Banking", Finance ministry's Economic Survey, 2006/07 Pg.32, Sec 4.4

[11] Van Horne, James C "Financial Management & Policy; Eighth Edition", Prentice- Hall of India, Pvt. Ltd. 1990. P. 379.

firm. Cash plans contribute to managerial efficacy by assisting management to identify the possible future cash problems in advance and decide on policies and procedures to solve them, if and when they arise.

Cash is the only asset without any substitute.

Therefore, forecasting of cash must provide the best approximations to future requirements. The integrated approach to cash planning can be effective only with the help of good forecasting techniques. To ensure that an enterprise does not run short of cash, or accumulates wasteful cash, scientific forecasting of cash in advance is a must. Eventualities of cash shortage and surpluses can be reduced through accurate forecasting.

Since decisions regarding liquid assets and liabilities are related with the cash management decisions, cash forecasting period should not be extended over one year."[12]

As mentioned by Subarna Lal Bajracharya, it is an arduous task to estimate cash requirements, requiring proper forecasting techniques. Forecasting can number in days, depending upon the short term horizon, up to years for longer term. Usually, cash requirements for a whole fiscal year are forecasted; later to be allocated for days, weeks and months. Forecasting techniques number in their best in the current epoch of technically dynamic environment, whereas being interrelated and supplementary; a collection can be used selectively and suitably. Some are mentioned in brevity below:

---

[12] Bajracharya, Subarna Lal, "Cash management in public enterprises." – An unpublished Ph.D thesis, University of Delhi, 1990

- **Cash Receipt and Disbursement Method**

Listing of every cash receipt and disbursements are listed to facilitate the forecasting procedure in this method. This thus provides a clear picture of the magnitude of the expected cash inflow within the enterprises. Sales budget finalization usually precedes this method and production and relevant expenses are finalized subsequently. The combined total of the cash effect forms the basis for this method of forecasting. This method is majorly influenced by variables such as lags, environmental scanning and the assistance of operating departments. Further, economic variables such as interest rates, exchange rates, tax rates, import-export policies tend to play a role in effecting its forecasts. This method takes an amalgamation of variables to realistically forecast the future cash requirements of a firm.

- **Adjusted Net Income Method**

This method concerns of periodic recording of the cash transactions, all the cash inflows and outflows and the cash balance, which might affect the income statement of an organization. The variables recorded and calculated for the forecasting generally include net income, depreciation and other non-cash items, changes in the working capital items and non-operating cash transactions. This system provides an accurate forecasting for a specific period of time in the future. However, since it is not an analogy of the daily movements of cash items, operational needs of the enterprise are not heeded to.

ii) Cash Management Models

If too much cash is held high opportunity cost will have to be borne with the tying up of excess cash. But if too low levels are kept then risks of running short of cash and the more quantifiable transactions costs

associated with borrowing funds or converting marketable securities to cash will be present. Since the opportunity cost rise while holding more cash and transaction cost with less cash, there is some optimal level of cash and transfer size which curtails the total cost of cash management. Several types of mathematical models have been developed for determining optimal cash balances.

a) Baumol's Inventory Model:

An early model developed by William Baumol fundamentally applies the inventory model to cash management. "In this model, it is assumed that the firm on average is growing and is a net user of cash. Marketable securities represent a buffer stock between episodes of external financing, which is drawn down as required periodically. Ordering costs are represented by the clerical and transactions costs of making transfers between the investment portfolio and the cash account. The holding cost is the interest foregone on cash balances held. Assuming that expenditures occur evenly over time and that cash replenishments come in lump sums at periodic intervals, the optimal size of the cash transfer is formulated as follows:

$$C^* = \sqrt{\frac{2bT}{i}}$$

Where,

C* = the optimal size of the cash transfer

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

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

i = the applicable interest rate on marketable securities."[13]

[13] Weston, J. Fred, Copeland, Thomas E., "Managerial Finance" Ninth edition, pp. 784, 785

b) Miller-Orr model:

Miller and Orr expanded the Baumol model by incorporating a stochastic generating process for periodic changes cash pattern. In contrast to the completely deterministic assumptions of the Baumol model, Miller and Orr assume that net cash flows behave as if they were generated by a "stationary random walk." This means that changes in the cash balances over a given period are random in both size and direction and that they form a normal distribution as the number of periods observed increases. The model allows for a priori knowledge, however, that changes at a certain time have a greater probability of being either positive or negative.

The Miller-Orr model is designed to determine the time and the size of transfers between an investment account and the cash account according to a decision process illustrated in Figure 1. The changes in cash balance are allowed to reach at some level 'h' at time 't_1' which is set as the upper limit and a lower limit 'r' which is reached at time 't_2,' at this time activities are carried out to return it to 'z' the return point.

"The cost function for the Miller-Orr model can be stated as E(c) = bE(N)T + iE(M), where E(N) = the expected number of transfers between cash and the investment portfolio during the planning period; b = the cost per transfer; T = the number of days in the planning period; E(m) = the expected average daily cash balance; and i = the daily rate of interest earned on the investments. The objective is to minimize E(c) by choice of the variables h and z, the upper control limit and the return point, respectively.

The solution derived by Miller and Orr becomes

$$z^* = \left(\frac{3b\sigma^2}{4i}\right)^{1/3}$$

The variance of daily changes in the cash balance is represented by σ^2. As would be expected, a higher transfer cost, b, or variance, σ^2, would imply a greater spread between the upper and the lower control limits. For the special case where p (the probability that cash balances will increase) equals 0.5, and q (the probability that cash balances will decrease) equals 0.5 (and r = 0), the upper control limit will always be three times greater than the return point, *z*:"[14]

$$h^* = 3z^*$$

(Please refer to figure-1 Miller-Orr Cash Management Model on the next page.)

[14] Weston, J. Fred, Copeland, Thomas E., ibid., pp. 785, 786, 787

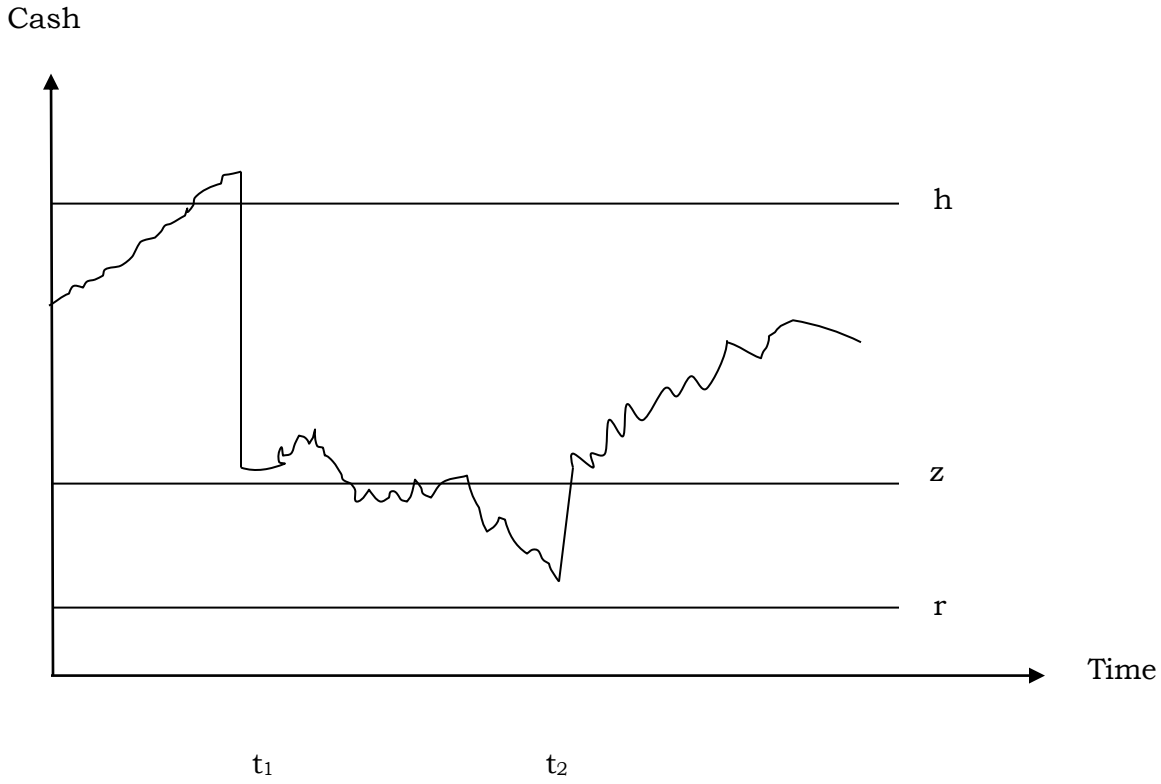

Figure 1: Miller-Orr Cash Management Model

c) Orgler's Model:[15]

According to his model, an optimal cash management strategy can be determined through the use of a multiple linear programming model. The advantage of this model is that it enables coordination of the optimal cash management strategy with the other operations of the firm such as production and with less restriction on working capital balances. In this model, there are three areas: (a) Planning horizon (b) decision variables (c) formulation of cash management strategy. Orgler's objective function is to minimize the horizon value of the net revenues from the cash budget over the entire planning period. In the objective function, decision variables which cause inflows, such as payments on receivables have

[15] Acharya, Yagna Prasad, "Cash management practices of manufacturing companies of Nepal"- an unpublished Master's degree thesis, T.U. 2003 pp. 25, 26

positive co-efficient, while decision variable which generate cash outflows such as interest on short-term borrowings have negative co-efficient. The purchase of marketable securities would, for example, produce revenue and thus have a positive co-efficient while the sales of those securities would insure conversion costs and have negative co-efficient.

The constraints of model could be (a) institutional or external constraints (b) policy or, internal constraints. The financial manager may be prohibited from selling securities before maturity. The constraint can occur either one monthly period or several months. An example of the linear programming is as follows:

Maximize profit = $a_1x_1 + a_2x_2$

Subject to,

$b_1x_1 \leq$ production

$b_2x_2 \leq$ constraint

$c_1x_1 + c_2x_2 \leq$ cash available constraints

$b_1x_1 + c_2x_2 >$ current assets requirement constraints

$x_1 \geq = 0_i =$ n, non-negativity constraint

d) Tobin's Model:

Tobin's theory of cash management is basically based on transactions of two assets, namely bond and money. Although he doesn't determine the reason for the generation of cash or money he has expounded the effect of interest rate on the monetary part of the transaction.

"Results expounded by Tobin are similar to Baumol's, but he interposed interest elasticity of transaction demand for cash with a view to maximizing individuals interest earning net of transaction cost which is different than that proposed by Baumol. Tobin and Baumol mainly have

indicated that there are important economies of scale in cash holding and an inverse relationship between interest rates and the demand for cash."[16]

e) Meltzer's Model:

A cross sectional analysis of the demand for money by business firms was done by Alan H. Meltzer. Forced on by the theories propounded by Baumol, Tobin and Friedman, his theory focuses on the factors affecting the demand of money, if and what is the effect of interest rate in its short term fluctuations and if there are economies of scale associated with the holding of cash. He has developed his demand function as follows,

$$M = f(r, W)$$

based on his assumption of cash being part of asset portfolio consisting of other assets as well and the decision regarding the amount of cash to be held being subjective to yield of various alternative assets and wealth constraints.

"For empirical investigation, he has developed the function in a particular form,

$$M = kr^{\propto} W^{\beta} \qquad \text{(i)}$$

Where,

M = money (currency and demand deposit held by the public)

r = market rate of interest

W = net wealth of the public

k = constant, $\beta \propto$ coefficients on W & r

The result he derived from the cross section data of business firms was approximately $\beta = 1.0$ and $\propto = (-)\ 0.9$.

[16] Acharya, Yagna Prasad, ibid., pp. 22, 23

Further considering Wij as the non human assets involved in the i^{th}firm of the j^{th} industry, Sij as the sales or gross income of the firm and pj as the internal rate of return on assets for an industry, he specifies the function as

$$Sij = Pj\ Wij \qquad \text{(ii)}$$

He has assumed capita labor ratio to be constant and either firms to use all of their assets all the time (i.e. to define W as assets in use). In case the assumptions are violated, then he has derived alternative equation for such a case:

$$Sij = Kij\ Pj\ Wij \qquad \text{(iii)}$$

Where, K varies over the cycle with changes in demand for the firm's product and changes in the capital – labor ratio.

Substituting (iii) to (i) and letting Mij to be the cash balance of a particular firm, he derives

$$Mij = \frac{kr^{\propto}}{(Kij\ Pj)}\ Sij \qquad \text{(iv)}$$

Thus he states that with the absence of internal and external interest rates the firm's cash balance should increase in relation to its sales. Meltzer thus comes to a conclusion that a rise in the market rates accompanied by an increase in sales will result in less than proportionate increase in the cash balance. On the other end of the spectrum if the internal rate rises and the proportion of assets used in production, will decrease cash balance relative to sales.

Meltzer's estimating equations of demand for cash were

l. $\text{Log } M = a + b \log s$

2. $M = ks$ and

3. $M = b + c\sqrt{s} + ds$

His log linear equation performed better than linear equations."[17]

iii) Liquidity and Profitability of Commercial Banks

Bank management always faces a challenge in striking a balance between liquidity and profitability. The more the liquid assets which includes cash reserves and cash equivalents, the less is the earnings and the earning capacity for a commercial bank. But since a large part of its liabilities are payable on demand and on instant cash or cash equivalents, banks need liquidity. Thus liquidity management is always a dilemma for a commercial bank. There are various theories of liquidity management of commercial banks. Some of the theories as described in the book "Commercial Banking" by Reed, Cotter, Gill and Smith[18] are as follows:

a) The Commercial Loan Theory:

This is one of the older theories of liquidity management. According to this theory a commercial bank's liquidity is assured only if its assets are held in short-term loans that would be liquidated in the normal course of business. In other words commercial banks should finance inventory or working capital type of loans only.

The theory's principal limitation was that it failed to take into account the credit needs of the nation's expanding economy. Rigid adherence to the theory prohibited banks from financing expansion of plant and equipment, home purchases, livestock acquisition, and land purchases.

---

[17] Bajracharya, Subarna Lal, ibid., pp. 233, 234, 235, 236

[18] Reed, Edward W., Richard V. Cotter, Edward K. Gill and Richard K. Smith, "Commercial Banking.", 1984 pp. 138, 139, 140

This theory fails to take into account the relative stability of the bank deposits. Bank deposits may be withdrawn on demand, but all depositors are unlikely to remove their funds at the same time. This stability of deposits enables a bank to extend funds for a reasonably long period without being non-liquid. Further, the theory assumed that all loans will be liquidated in the normal course of business. The theory's final limitation is that the short term self liquidating commercial loan provides liquidity during normal economic circumstances, but may not do so during periods of economic recession when liquidity is most needed.

b) The Shiftability Theory:

The shiftability theory is based on the proposition that a bank's liquidity is maintained if it holds assets that could be shifted or sold to other lenders or investors of cash. If loans are not repaid, the collateral from secured loans (marketable securities, for example) could be sold in the market for cash; if funds are needed, loans could be shifted to the central bank. Thus the individual commercial bank should be able to meet its liquidity needs, provided that it always has assets to sell; similarly the banking system would be liquid, provided that the central bank stands ready to purchase assets offered for discount.

c) The Anticipated Income Theory:

The anticipated income theory of commercial banking holds that a bank's liquidity can be planned if scheduled loan payments are based on the future income of the borrower. This theory doesn't deny the applicability of the commercial loan and shiftability theories. It emphasizes instead the desirability of relating loan repayment to income than relying heavily on collateral. Also, it holds that a bank's liquidity can be influenced by the maturity pattern of the loan and investment portfolios.

d) The Liability Management Theory:

Advocates of the liability management theory of liquidity maintain that banks can meet liquidity requirements by bidding in the market for additional funds. Banks as one of its sanctuaries rely for liquidity on borrowing at the Federal Reserve banks, in the Eurodollar market, or from a parent bank holding company.

The liquidity managers of commercial banks probably don't follow any one liquidity theory. The theories are relevant according to preference of those in charge of managing liquidity and the environment in which the bank operates. The Anticipated Income Theory for example seems to be more relevant in case of Nepal because of the present trend of growth in consumer loans.

"It is possible to distinguish two distinct policies followed by banks in managing their reserve position. At one extreme is the policy of close supervision or reserves to assure that no nonearning funds, or virtually no funds, are held in excess of the requirement. At the other extreme is the policy of maintaining reserves sufficiently large at all times to meet the reserve requirements when deposits are at their peak. The majority of banks probably fall within these extremes. All large banks find it profitable to manage their money positions closely, and small banks are becoming more aware of the contribution that cash management can make to overall profitability.

The first task in planning for the liquidity needs of a bank is to manage the money position, that is, to comply with the legal reserve requirements and have a sufficient amount of coin and currency on hand to meet customer demands. The holding of cash balances is affected constantly during banking hours as numerous transactions cause a flow of payments in and out of bank. This task is as important as it is difficult.

Cash yields no income; consequently, the objective of bank management is to hold it to a minimum."[19]

As described in the first chapter in the rationale of the study, the profitability of banks is very important. In general, banking is a business that has moderate but secure profits. There are various direct and indirect factors that determine the profit of a commercial bank. In his book, "The Management of Bank Funds", Roland I. Robinson put forward the following major determinants of bank profit:

Asset Structure (Especially the ratio of loans to the investments).
Interest rate structure.
Income Taxes.

According to him asset management is one of the most important factor that the bank management has control over to enhance their profitability as other factors are generally out of the control of the individual banks. He also concluded that sometimes adequate liquidity may contribute indirectly to the profitability of the bank. According to him, "While losses on bank loans come in all years, they tend to be much bunched in depression years. A bank may avoid some of these losses if it can carry its difficult loans over bad times and wait for better liquidation periods. The adequate liquidity reserves that make this possible thus contribute indirectly to bank profits."

iv) Developing Economy and Excess Liquidity in Commercial Banks

[19] Reed, Edward W., Richard V. Cotter, Edward K. Gill and Richard K. Smith, "Commercial Banking.", 1984, p. 141.

In the book "Excess Liquidity and Monetary Overhangs", as described in the statement of the problem, it was stated that there is mostly excess liquidity in the financial institutions of the developing economies. According to the book, the causes of over liquidity in financial institutions are as follows:

Asymmetry of information between borrowers and lenders.(e.g. no credit raters, no reliable public information about the borrowers etc). Inflation in developing economies is accompanied by greater price variability and thus is correlated with the riskiness of investment conditions. This riskiness causes banks to hold more liquid assets.

Unconstrained profit maximizing banks add to their holdings of liquid assets until the marginal return to doing so is offset by the expected foregone cost of not investing in additional loans (taking account of default risks). Bank holdings of liquid, readily marketable assets above that consistent with the legal cash reserve or liquidity requirements thus are determined by factors affecting those benefits and costs.

The book thus suggests that attention should be given more to the development of short-term money market which has been over-shadowed by the growing attention towards stimulating directly the long term finance in the developing economies.

The Finance Ministry also realizes this excess liquidity problem in our country, based on which it has promulgated appropriate policies to curtail such excesses. According to the Finance ministry Economic report 2006/07, [20]"The monetary policy for FY 2006/07 underlines the commercial banks' excess liquidity as operation target and continues to treat the commercial banks as counterparts in the operationalization of

[20] "Money and Banking", Finance ministry's Economic Survey 2006/07 Pg. 32, Sec 4.3

the policy. The NRB has continued to use weekly balance sheet based liquidity monitoring and projection framework in order to make the liquidity measuring scientific and reliable. Its use has facilitated the Bank's monetary management to make it responsive to excess liquidity situation and to operate open market interventions."

"In the management of the money position, many computations and reports are required by regulatory authorities."[21]

"To maintain financial stability, inspection and supervision system has been made more effective in addition to the updated regulatory works. Following this a separate monitoring committee has been established to cater for the banks in problem and in-depth supervision and monitoring of such banks has been started. As per the policy of preparing annual reports on commercial banks, inspection of 15 commercial banks has been completed by 14 March, 2007. In addition, 14 special inspections in 7 commercial banks have also been completed. To improve the weaknesses and shortcomings observed in the course of supervision, timely directives based on the inspection reports are being issued to the concerned banks and financial institutions. Providing preliminary clearance to the banks prior to approval of their financial statement has also been started. ... "[22]

v) Liability management for Liquidity in Commercial Banks

Banks can borrow to provide liquidity. Such borrowing has come to be known as liability management. The banks have at their disposal the

[21] Reed, Edward W., Richard V. Cotter, Edward K. Gill and Richard K. Smith, "Commercial Banking.", 1984, P. 141.
[22] "Money and Banking", Finance ministry's Economic Survey, 2006/07 Pg. 54, Sec 4.72

following as a resource for borrowing; Reed, Cotter, Gill and Smith in their book "Commercial Banking" have arrayed:

a) The Discount Window

Borrowing from a Federal Reserve Bank or a correspondent bank (supposedly in case of Nepal, the Nepal Rastra Bank) is one method of acquiring funds to adjust a bank's reserve position and, consequently its liquidity position. The length of the borrowing period depends on many factors, such as the condition of the bank that wants to borrow and the current economic environment. The length of the time funds can be borrowed depends on the duration of the bank's seasonal pattern of needs. Funds made available by Federal Reserve Banks must be fully by eligible commercial or agricultural paper, bankers' acceptances, or U.S. government securities. (As in case of Nepal, the Nepal Rastra Bank monetary policy 2005/06 states "To help commercial banks manage emergency payment crisis, standing liquidity facility (SLF) initiated in FY2004/05 was continued in FY2006/07 as well. Keeping in view the under-developed stage of physical infrastructure for the efficient payments system, the maximum period of the SLF has been extended form 3 days to 5 days. During the initial nine months of last fiscal year, a total of Rs 3 billion 230 million had been utilized by the commercial banks which further increased to Rs 9 billion 880 million in the course of whole fiscal year. In the same initial months of this fiscal year, a total of Rs 16 billion 120 million has already been utilized under this facility. Because of liquidity problem encountered in a few commercial banks during the review period, the utilization of this facility has thus increased."[23]

[23] "Money and Banking", Finance ministry's Economic Survey 2006/07 Pg. 34, Sec 4.6

b) Federal Funds

Federal funds are deposit balances held with Federal Reserve banks. A commercial bank may have excess balances because of an unexpected inflow of deposits or a decline in loans. Since these funds are nonearning assets, banks are willing to make them available to other banks for a short period of time, and those that need funds to comply with reserve requirements or to purchase assets are willing to purchase such balances. Federal funds have long been used by banks to adjust reserve positions.

Federal funds differ from other forms of bank credit in that they are balances at reserve banks; drafts drawn on these balances are available immediately. Except for weekends and holidays, federal funds transactions are usually for one day, which means the bank relying on this source of funds, must enter the market daily to replace maturing contracts.

Federal funds transactions of the one-day variety are basically unsecured loans and are referred to as straight loans. Sometimes the transaction takes the form of a repurchase agreement where one bank sells U.S. government securities to another bank. These agreements usually mature in one day but may be written to mature in one week or even several weeks. The mechanics of trading in federal funds are quite simple. In the typical straight transaction, two banks agree on terms; the bank selling federal funds calls the Federal Reserve Bank and requests that the agreed amount be transferred from its reserve account to the reserve account of the purchasing bank. On the following day, at the opening of business, the transaction is reversed. Interest is usually remitted by separate check.

c) Repurchase agreements

In addition to the interbank trading in federal funds, similar transactions occur between the banks and government security dealers and other investors. These transactions are referred to as repurchase agreements or, more commonly, as RPs or repos. An RP is the sale of a financial asset with an agreement to buy back on a specified date at a prearranged price. This financial transaction has become an important outlet for temporarily idle funds since it can be made for periods of one day to several months; most such transactions are of a short maturity.

The use of RP or repos has been used by Nepal Rastra Bank as an open market operation instrument to absorb excess liquidity in the market and reversely to inject back liquidity as well. "…Regarding the first nine months of the fiscal year, commercial banks remained flooded with liquidity. To manage this situation, recourse to outright sale and reverse repo auctions was made. As a result, a total of 8 billion 900 million under outright sale auction and Rs 14 billion 60 million under reverse repo auction (totaling Rs 22 billion 960 million) was mopped. In comparison, during last fiscal year's similar period, Rs 5 billion 970 million under the outright sale and Rs 6 billion 500 million under reverse repo auctions (together amounting to Rs 12 billion 470 million worth of liquidity) was mopped. In the whole of FY 2005/06, liquidity amounting to Rs 1 billion 280 million (comprising Rs 830 million under outright sale and Rs 450 million under reverse repo auctions) was managed. During the review period of FY 2006/07, there were no outright purchase and repo auction transactions. …"[24]

d) Large Certificates of Deposit

[24] "Money and Banking", Finance ministry's Economic Survey, 2006/07 Pg. 33, Sec 4.5

Certificates of deposit larger than $100,000 are denoted as large certificate of deposits. Rates paid on certificates of deposit are either determined by direct negotiation between the bank and potential depositor or established at a fixed level that a depositor may either accept or reject. Banks have found out that depositors are highly sensitive to changes in rates; if a bank needs additional funds to meet loan requests or deposits outflows, it may offer higher rates on CDs to attract funds.

B) Review of Relevant Theses and Dissertations.

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.

The results of the study carried out by Yagna Prasad Acharya titled, "Cash management practices of manufacturing companies of Nepal"[25], explained the findings in his studies as follows: From the result of structure and position of cash, cash-management practice, utilization of cash, and cash turnover ratio (higher), non-government sector is far more efficient than the government sector. Subsequently, the average collection period (ACP) is lower for the government manufacturing enterprises in comparison to non-government ones, whereas the cash conversion cycle is, conversely, in favor of the non-government manufacturing enterprises. The study has also discerned that the excess reserves of organizations form both end of the spectrum haven't invested their excess reserves in short term marketable securities. The ultimate finding explains that manufacturing companies in aggregate are operating under loss.

Yogendra Man Manandhar, in his thesis entitled, "An analytical study of the use of sources by financial companies in the context of Nepal"[26] concludes that; finance companies are the outcomes of the government's liberalization policy. All together 70 finance companies have been registered and only 48 Finance Companies are in operation and some are

[25] Acharya, Yagna Prasad, "Cash management practices of manufacturing companies of Nepal"- an unpublished Master's degree thesis, T.U. 2003

[26] Manandhar, Yogendra Man, "An analytical study of the use of sources by financial companies in the context of Nepal" -an unpublished Master's degree thesis, T.U. 2002

in process of getting their licenses. The proliferation of these finance companies has been attributed to the inability of the existing commercial banks to supply ample credit and carry out capital market activities. The analysis carried out suggests the conservative investment strategies of the finance companies. Major part of their lending is in consumer durable through hire-purchase loan and then to housing-financing. But a gradual shift towards the industrial and business term loans can be seen. The interest rate on various time deposits proved to be attractive to the customers in comparison to commercial banks with additional preferential services on deposits offered based on their needs. But, finance companies can higher rates on loans it has been mentioned.

In the thesis entitled, "Cash management in public manufacturing enterprises of Nepal; a case study of Royal Drugs Limited"[27], Sabin Prakash Sainju explains conclusively that RDL's cash management is very poor. Study of cash flow statement of RDL, points out their financing activities as passive incurring neither cash flows nor outflows. Financial activities have greater impact on the profitability of the firm and subsequently on liquidity. Besides for daily course of business transactions, as a requirement under precautionary, speculative and compensatory motive, a firm should hold certain minimum level of cash balance to meet them. Poor cash management in RDL counts for inefficient or poor use of financial and statistical tools. Cash flow statements are missing and cash budgets are not prepared on cash flow analysis. Variables held under the different headings are a haphazard guesswork. Negative profitability of the firm augments the worsening financial position of the firm. He goes on to add, that disappointing down

[27] Sainju, Sabin Prakash "Cash management in public manufacturing enterprises of Nepal; a case study of Royal Drugs Limited" –an unpublished Master's degree thesis, T.U. 2003

falling trend of the financial position is indicative of the fact that RDL should immediately seek for drastic change in its managerial structure.

"A study on cash management of Salt Trading corporation ltd,"[28] written by Bijaya Pradhan finds the cash management of the studied corporation to be ineffective. He further states that the organization sells goods both in cash and credit depending upon the creditor's situation of time and the nature of goods. Salt trading corporation ltd. derives most of its cash from sales of goods and loans from banks. Other sources include miscellaneous incomes like interest commission, dividend and sales of fixed assets. Corporation uses much cash for purchase of commodities, paid bonus, interest, income tax, purchase of fixed assets, selling expenses, etc. thus explaining the transaction motive of the corporation to hold cash. He finds that the cash collection efficiency in this corporation is very low along with the collection of trade credit. No optimum cash balance is maintained. The cash and bank balance with respect to current assets has been in a fluctuating trend, similarly to total assets.

Subarna Lal Bajracharya in his doctoral thesis, "Cash management practices in Nepalese enterprises"[29], with reference to Nepalese public enterprises from the year 1977 to 1987 conducted research in the area of cash management on; forecasting and planning, cash management strategies using different models and techniques. The major findings drawn are the following: He concluded that cash management in public enterprises in Nepal operated in a traditional manner and lacked

[28] Pradhan,Bijaya "A study on cash management of Salt Trading Corporation Ltd." –an unpublished Master's degree thesis, T.U. 2003

[29] Bajracharya, Subarna Lal, "Cash Management in Nepalese Enterprises" 1990: an unpublished Ph. D Thesis, Delhi School of Economics.

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 not have the practices of forecasting cash requirement on a formal basis.

Modern practices with respect to debt collection monitoring the payment behavior of customer and relevant banking arrangement in connection with collection of receivables have been virtually ignored in many enterprises. Majority of enterprises did not face any serious liquidity problem. However, this was not due to effective cash planning and budgeting. The problem of liquidity actually did not arise due to the coincidence of delay of payment to creditors. Most enterprises took 150 to 180 days in collections over due accounts. In case delayed payment very few enterprise charged interest, the charged rate was around 10% to 18% annually. By and large most enterprises had periods accumulating surplus cash and corresponding cash shortage from time to time. However, none of the enterprise considered the implications of holding idle cash balance and few took into account the potential benefit of investing surplus in marketable securities. From the financial ratios and trends analysis revealed a more favorable picture of the cash management of manufacturing enterprises in comparison to non-manufacturing ones. Regression analysis revealed that there was little effect of the opportunity cost f holding cash on the cash balance held by the enterprises. Neither interest rate nor the rate o inflation had any effect on the cash balance further there was very little evidence of the effect of economy of scale on cash balance holding in most case.

A study conducted by Keshav Raj Joshi entitled, "A study on financial performance of commercial banks"[30], concluded that the liquidity position of commercial banks is satisfactory. Local commercial banks have found the higher debt equity ratio than other joint venture banks. Loans and advances have been the main form of the investment. Asset utilization for earning purposes is two-third of the total assets. The main source of income for these banks is the interest from loans and advances. The profitability position of Nepal Arab Bank is stronger than that of other joint venture banks during the study period.

Rajendra Lamsal in his study entitled "A Study on Comparative Financial Performance of HBL & NGBL"[31] reveals that the liquidity positions of both the banks are fluctuating and are not satisfactory. So the banks are suggested to keep the reasonable amount of liquid assets so that the banks could maintain their short-term solvency position. HBL is recommended to raise its amount of shareholder's fund, maintaining proper capital adequacy position for generating more profit margins whereas NGBL is suggested to maintain its present position. However, profitability position of NGBL is comparatively better than the same of HBL.

Another thesis performed by Shanker Kumar Singh entitled "A Comparative evaluation of financial performance of Nepal Arab Bank Ltd. & Nepal Grindlays Bank Ltd."[32], reveals that the liquidity position in terms of current ratio of both the banks is below the normal standards.

---

[30] Joshi, Keshav Raj, "A study of financial performance of commercial banks" –an unpublished Master's degree thesis, T.U. 1989

[31] Lamsal, Rajendra, "A study on Comparative Financial Performance of HBL & NGBL"-An unpublished Master's Degree, T.U. 1997

[32] Singh, Shankar Kumar "A Comparative evaluation of financial performance of Nepal Arab Bank & Nepal Grindlays Bank Ltd." –an unpublished Master's Degree thesis, T.U. 1997.

In this portfolio, NABIL is performing better and has got better liquidity position. Profitability ratio of both the banks reveals positive reform during the study period, but the progress is higher in NGBL whereas NABIL seems more efficient in utilizing its capital employed in generating interest income.

A study conducted by Shyam Kumar Udas reveals in his thesis, "A Comparative appraisal on financial performance of Nepal Bangladesh Bank and Bank of Kathmandu"[33], that NBB is more efficient than BOK in all aspects. The researcher's main objective was to show the cause of changes in cash position of the two banks at two balance dates, and the researcher found the current ratio of NBB was high. NBB is utilizing its deposits more effectively than BOK. All the profitability rates were found to be higher in case of NBB than BOK. Since BOK has suffered losses in three fiscal years, thus showing its operational deficiencies in mobilizing the resources in production sector. On the other hand, NBB has always been increasing its profit from the outset. On average, BOK was generating more cash from financing activities than NBB. However, the contribution of financing activities in the final cash and bank balance of the banks was not as significant as that of operating and investing activities.

Rajani Shakya's dissertation named, "Liquidity assessment of Nepal Bangladesh Bank"[34] concludes that the current ratio of NB bank doesn't follow the conventional 2:1 ratio. Even then with view of the bank's asset and liabilities structure, the average ratio was satisfactory. NB bank

[33] Udas, Shyam Kumar. "A Comparative appraisal on financial performance of Nepal Bangladesh Bank & Bank of Kathmandu" –an unpublished Master's Degree thesis, T.U. 2001
[34]Shakya, Rajani, "Liquidity assessment of Nepal Bangladesh Bank" –an unpublished Master's Degree thesis, T.U. 2004

hasn't been capable in putting more cash balances against its various deposits, making it less competitive. Even though while holding a fluctuating trend utilization capacity of resources in income generating activities was laudable in profit increment. The average return of the bank is below the industry level, however return on investment showed progress. Further, return on net worth for the bank is not satisfactory. Trend analysis carried out on total deposits, interest receivables, total investment, liquidity ratio and the Net profit found them to be increasing.

C) Research Gaps

Cash management is such a delicate topic for financial, manufacturing or for that matter service organizations and any other type of firm or enterprise. Cash influences and permeates every aspect of operation of a business. Cash can be and has been compared akin to life blood of any business. Astute management of cash can lead to obvious profits but much more pertinently to growth; as stated earlier, with cash permeation effecting upon most aspect, and usually daily operation of business, the explicit and implicit repercussions are visible almost immediately.

In process of searching and evaluating previous dissertations and theses regarding this topic, this student came upon some pretty interesting ones, some pertinent others mere references. Cash management researches conducted on performances of public manufacturing enterprises was few, but theses with direct reference to financial institutions conducting their cash management operations were not found. But, theses covering liquidity management and comparative financial performance analysis between two or more banks, at times, were quite assisting.

This thesis has tried to discern the inner mechanisms of cash management within the commercial banks of the country. How do the key financial institutions; the commercial banks allocate their cash reserves for fulfilling the demand of their customers as well as profitable investments? Effort here is to shed light on the delicate and judicious planning and execution of cash policies, which banks have to carry out on a daily basis. Cash management is ultimately, necessarily tied up with liquidity and serves as a subsidiary and a corollary. The research has tried to study cash management individually, and as well as a corollary to the liquidity function of commercial banks. In this regard, previously performed liquidity dissertations have been referred to as precedence and this research has endeavored to intensively analyze cash management in commercial banks as an extension to liquidity analysis covered until now.

Chapter - III

RESEARCH METHODOLOGY

This study embarks upon performing an empirical testing in the relationship between the cash management position of the commercial banks in Nepal and their profitability, test out the effectiveness of the banks cash policies, and ascertain the cash structure which it maintains along with its possibilities of utilization. Thus, a detailed research methodology has been followed to elucidate upon the objectives of the study.

A. Research Design

Research design is the conceptual framework created by a researcher to expedite his research study. The researcher in this process creates an explicit range of research tools for facilitation in solving his research questions.

The study is primarily based on secondary data acquired from various sources. To study the trends, monthly data of assets and liabilities of the sample commercial banks is used. Here, the variable assets in question consist of cash in hand, balances with NRB, foreign currency in hand, balances held abroad, and government securities. Such trend is studied using the method of least square. For the purpose of studying the relation between profitability and cash assets of the commercial banks, the data pertaining to all the sample banks is used. The liquid asset here is computed by summing up the cash balance, bank balance, money at call & short notice and HMG securities. Liquidity ratio is then computed as a percentage of liquid assets to the total deposits. Profitability is

measured using three conventions: Return on Equity, Return on Assets and Earning per Share. The relation is then studied using correlation analysis.

B. Population and Sample

The population of the study consists of all the commercial banks, finance companies and cooperatives performing financial activities in Nepal. However, due to the constraint of unavailability and difficulty in obtaining the required data the focus is only on the commercial banks of Nepal. The samples selected for the study are as follows:

a. NABIL Bank Limited
b. Nepal Investment Bank Limited
c. Standard Chartered Bank Nepal Limited
d. Kumari Bank Limited
e. Bank of Kathmandu Limited

C. Sources of Data and Data Collection Techniques

Different sources have been used to collect the data required for the study. Data relating to the monthly liquid asset holdings and money supply are derived from the Balance Sheets of Individual banks and Quarterly Economic Bulletin published by Nepal Rastra Bank. These bulletins were obtained from the Research Department of Nepal Rastra Bank and its official website. The data pertaining to the liquid assets and profitability of the sample banks were derived from their respective annual reports collected from Security Board of Nepal (SEBON) and individually from each of the sample banks. Websites of Nepal Rastra Bank, Finance Ministry of Nepal, and of all the sample banks were also referred to for relevant data collection.

D. Data Analysis Tools

Various statistical tools have been employed to fulfill the objectives of the study. For the purpose of data analysis of this study, Profit & Loss accounts and Balance sheets of the sample banks have been studied in detail and taken reference from. Financial tools enumerated below have been used to elucidate the findings from the data.

i.) Ratio Analysis

"To evaluate the financial condition and performance of the company, the financial analyst needs certain yardsticks. The yardstick frequently used is a ratio, or index, relating two pieces of financial data to each other. Analysis and interpretation of various ratios should give experience, skilled analysts a better understanding of the financial condition and performance of the firm than they would obtain from analysis of the financial data alone."[35] For this study, profitability, liquidity and activity turnover/utilization ratios have been considered as benchmarks for analysis and comparison.

1. Profitability Ratio

This ratio is a measure of efficiency of an organization. The investors take a close look at this particular ratio to ascertain the long term growth potential for putting in their money. There are number of profitability ratios used for financial analysis, below are the ones which have been used for this study:

1. i) **Net profit to Total Assets ratio:**

[35] Van Horne, James.C, ibid., pp. 691,692

This ratio is very much crucial for measuring the profitability of funds invested in the bank's assets. It measures the return on assets. It can be calculated by dividing the net profit after tax by total assets.

$$\text{Net Profit to Total Asset Ratio} = \frac{\text{Net Profit after Tax}}{\text{Total Assets}}$$

1. ii) **Net Profit to Total Deposits Ratio**

It is used for measuring the internal rate of return from deposits. It is computed by dividing the net profit to total deposits. Here, net profit means profit after tax and deposits means total deposits including saving, current, fixed, call margin and other deposits. Higher ratio indicates the return from investment on loans and advances are better utilized and lower rate indicates the funds are not properly mobilized.

$$\text{Net Profit to Total Deposits Ratio} = \frac{\text{Net Profit}}{\text{Total Deposit}}$$

1. iii) **Return on Net Worth**

Return on Net-worth ratio is also known as Total Equity Ratio. It shows the degree of efficiency of the utilization of owners' funds by the firm or bank. Net-worth can however be found out by subtracting the total liabilities from total assets. It includes (i) equity and preference share capital; (ii) past accumulated profits but excludes fictitious assets. Total assets mean all the assets excluding the intangible assets and accumulated losses. This ratio indicates profit after taxes to net-worth. This ratio determines whether the investment in the bank/company is attractive or not. Higher ratio indicates the higher overall efficiency of the firm or vice-versa.

$$\text{Return on Net - worth} = \frac{\text{Net profit after Tax \& Interest}}{\text{Net - worth}}$$

1. iv) **Return on Investment (ROI)**

Return on investment measures the company's return from investment or the capacity of company to generate profit from its investments. It can be computed by dividing net profit after tax to total investment.

$$\text{Return on Investment} = \frac{\text{Net Profit after Tax}}{\text{Total Investment}}$$

2. Liquidity Ratio

"Liquidity is the ability to meet anticipated and contingent cash needs. Cash needs arise from deposit withdrawals, liability maturates and loans disbursals (new loans and the draw down of outstanding lending commitments). Cash needs are met by increase in deposits and borrowings, loan repayments, investment maturates, and the sale of assets"[36]

The cash solvency positions of a firm or an organization can be read clearly from the study of this ratio. It expounds coherently the capacity to meet the current cash obligations which are imperative for a firm in terms of solvency and profitability; because, here the firm has to maintain the balance between the two excesses of illiquidity and unprofitability. Following ratios of liquidity have been used in this study:

2. i) **Current Ratio**

This ratio shows the relation between current assets and current liabilities. It is calculated by dividing current assets by current liabilities. The objective of this ratio is to measure the ability of the firm to meet its short-term obligation or it can also be taken as the measure of creditors versus current assets. It indicates each rupee of current asset available

[36] Scott David, "Assets & Liabilities Management: Banking Institutions in the Development Markets", Vol-1, World Bank, Washington D.C., 1992, Page- 140.

for each rupee of current liability. The current assets of a firm represent those assets, which can be, in ordinary course of business, converted into cash within a short period of time, normally not exceeding one year. It includes cash and bank balances, marketable securities and inventory of raw materials, debtors, bills receivable and prepaid expenses. The current liabilities are short-term maturing obligations to be met within a year. It consists of trade creditors, bills payable, bank credit, provision for taxation, dividends payable and outstanding expenses.

The following formula can be used to ascertain this ratio.

$$\text{Current Ratio} = \frac{\text{Current Asset}}{\text{Current Liability}}$$

2. ii) **Cash Ratio**

This ratio displays the total amount of cash in comparison to the total deposit in the bank. It can be considered as a manifestation of acid-test ratio. The total amount of most liquid cash that is available to satisfy the customer demand is shown here.

$$\text{Cash Ratio} = \frac{\text{Total Cash Balance (Cash and Bank)}}{\text{Total Deposits Less Fixed Deposits}}$$

3. Other relevant Ratios

3. i) **Cash balance to Investment ratio**

For the purpose of illuminating the relationship between the Cash balance and Investment for effecting relevance to our objective, we have carried out this calculation.

3. ii) **Current assets to Investment ratio**

For the identical purpose for the above ratio has been calculated, this ratio has also been calculated to effect facilitation between the relationships if any to support the relationship between current assets, holdings and investment, this ratio has been calculated.

ii.) Coefficient of Correlation Analysis:

The appropriate statistical tool to measure the relationship between two variables in quantitative terms is the correlation analysis. Correlation shows the degree of association between the variables. To study the degree of association between profitability and liquidity, Karl Pearson's coefficient of correlation has been computed. The Pearsonian coefficient of correlation is computed by using the following formula:

$$r = \frac{\sum d_1 d_2 - (\sum d_1)(\sum d_2)}{\sqrt{n\sum_{d_1} 2 - (\sum d_1)^2}\ \sqrt{n\sum_{d_2} 2 - (\sum d_2)^2}}$$

where,

r = Coefficient of correlation

$d_1 = X_1 - A_1, d_2 = X_2 - A_2$ A_1 *and* A_2 are assumed means.

X_1 and X_2 are the variables whose relation is to be studied (liquidity and profitability in our case.)

The correlation coefficient can be either positive or negative and lies between +1 and -1. If the coefficient is positive the changes in both the variables are in the same direction while it is just the opposite if the coefficient is negative. While interpreting correlation coefficient due care must be taken as it may sometimes give misleading results. Thus, it is always necessary to test for the significance of the coefficient. In our case the significance test has been conducted with the help of Probable Error. Probable Error is computed as follows:

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

where,

N = no of pairs of observation

And r = coefficient of correlation

Decision rule for significance test:

a) If r < PE, the value of r is not significant no matter how high the value of r is, i.e. there is no evidence of correlation between the variables.

b) If r > 6 PE, the value of r is significant.

c) If r doesn't satisfy either of the above two conditions the relation is inconclusive.

When we square the correlation coefficient, we get coefficient of determination (R^2) which shows the percentage of variation in the dependent variable explained by the independent variable. In other words, R^2 is the explanatory power of the independent variable.

iii.) Least Square Trend Analysis:

This tool is used to study the trend of a variable. This analysis assumes linear relation between the time element and the variable under consideration. In other words, the trend line implies that the variable increases or decreases by a constant absolute amount each time period irrespective of the various seasonal and cyclical fluctuations. Thus the trend line shows the average increment or decrement of the variable per time period. Such a trend line is given by the equation:

$Y = a + bX$,

where,

Y = Dependent variable or the variable under consideration

X = Time element or the independent variable (X = 1 for the base period t, X = 2 for period t+1 and so on)

a = intercept term or the value of Y when X is zero

b = slope of the equation or the change in Y corresponding to a change in X by one unit

Thus if we compute the values of the constants 'a' and 'b' of the above equation, we get the trend line for the variable. The formulas for computing a and b are as follows

a = $\overline{Y} - b\overline{X}$,

b = $\dfrac{N\sum XY - (\sum X)(\sum Y)}{N\sum X^2 - (\sum X)^2}$

where,

$\overline{X}$ = Mean of X

and $\overline{Y}$ = Mean of Y

iv.) Standard Error of Estimate for Regression:

Dispersion about an average such as mean is measured by the standard deviation; similarly dispersion about an average line called the average line is measured by the standard error of estimate. Standard error measures the variability or scatter of the observed values around the multiple regression line. Standard error of estimate measures the reliability of the estimates obtained through regression equations. The standard error of estimate of dependent variable X1 on X2 is provided by the following:

$$\sigma_{1.2} = \sqrt{\frac{\sum \left(Y - \hat{Y}\right)^2}{n-2}}$$

Where,

$$\hat{Y} = \hat{a} + \hat{b}x$$

$$\hat{a} = \Sigma Y/n$$

$$\hat{b} = \Sigma XY/\Sigma X^2$$

v.) ANOVA :

The ANOVA method or F-ratio is used to determine the average ratios of the different result variables, of the five sample commercial banks, used in this study, for the test of significance. ANOVA single factor model has been used for the calculations.

ANOVA calculations of the liquidity and profitability ratios between the five sample banks for a period of five years have been carried out, with a purpose to discern the significant or the insignificant differences that exist. With this objective the hypothesis formulation and calculations have been followed in similar manner.

E) Limitations of the Methodology

The problem of unavailability of consistent data is one of the major limitations of the study, and therefore, where lacking, provisional data have been used.

The limitations of the statistical tools and techniques have been ignored.

Due to time constraint the study has not delved deeper in some areas of the study which needs further research.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

The results derived from the analysis of data have been presented so as to expedite the comprehension of the results in relation to the objectives of the study. It has been categorically presented in accordance with the array of the tools used for discerning the relationship and relevancy between the data and the objective.

Specific monitoring and evaluation of the cash management policies of the commercial banks could not be carried out due to the clandestine nature of the banks' individual policies and unwillingness in part of the banks to disclose them. Thus, actual specific policies of each individual bank couldn't be obtained. But to serve the purpose of the study, this research relates the relevance of the findings from use of statistical tools: ratio analyses (as a reference to other analyses mentioned consecutively…) least square trend analyses, correlation analyses and ANOVA, during the observed duration of the study as a barometer for the exposition of the actual conditions and the effectiveness of the banks' cash policies.

Statistical data, calculations, and interpretations of results pertaining to the five sample banks are presented below for inspection.

i) Least Square Trend and Correlation Analysis

i) NABIL Bank Ltd.

Least Square Linear Trend Analyses:

- **Least Square Linear Trend of Net Profit**

The least Square Linear Trend regression equation for Net Profit found out by our calculations was:

$$Y = 540.1766 + 69.5399$$

With a Standard Error of Estimate (S.E.) = 82.870

(Please refer to appendix III for the calculations of Regression equation and SE, appendix IV for ratios and appendix V for profit and loss data.) Standard Error of Estimate is slightly high. Higher Standard Error signifies fluctuations of data, here in our case starting from fiscal year 2059/60. The yearly Net profits have shown an increasing trend as is visible by the table values and lines in the diagram. Thus, the average increase in the amount of Net profit came out to Rs. 69.5399 million, as discerned by the regression equation.

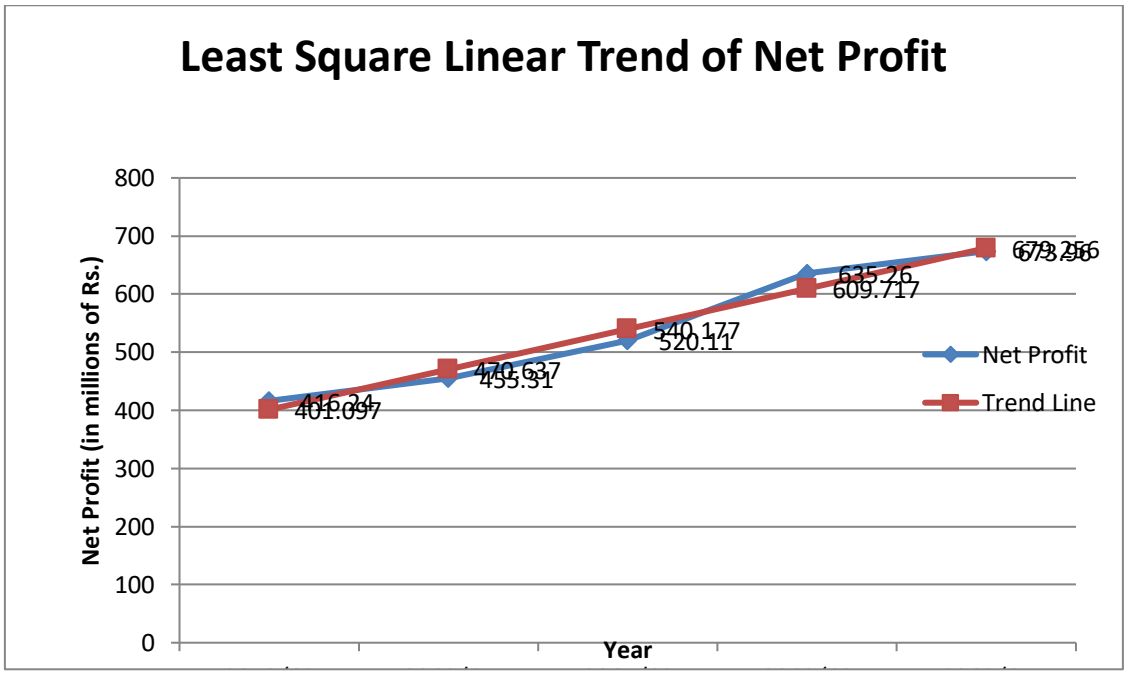

Figure 2: Least Square Linear Trend of Net Profit.

❖ Least Square Linear Trend of Current Ratio

The least Square Linear Trend regression equation for Current ratio divulged by our calculations was:

$$Y = 0.1250 + (0.0036)x$$

With a Standard Error of Estimate (S.E.) = 0.02334

(Please refer to appendix III for the calculations of regression equations and SE and appendix IV for ratios.) Low Standard Error of Estimate, here, renders the trend line to be fit for our analysis concerned. The current ratios from year 2060/61 have shown a fluctuating trend as is visible by the table values and lines in the diagram. Thus, the average decrease in current ratio came out to 0.0036, as discerned by the regression equation.

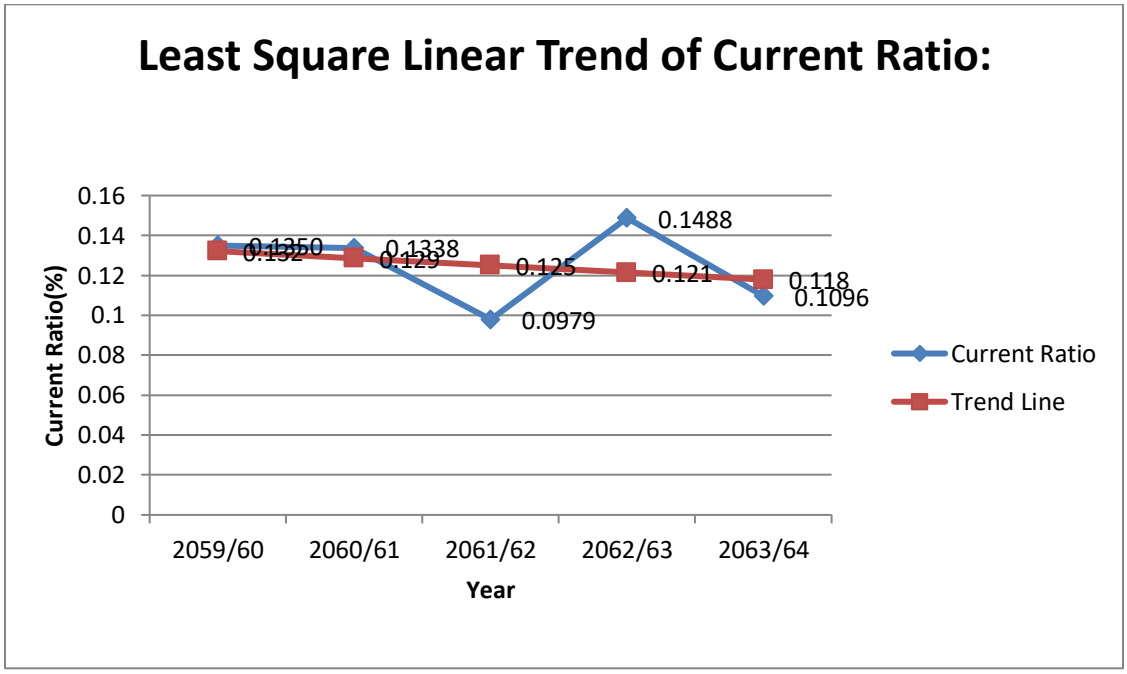

Figure 2.1: Least Square Linear Trend of Current Ratio.

❖ Least Square Linear Trend of Cash Ratio

The least Square Linear Trend regression equation for Cash ratio divulged by our calculations was:

$$Y = 0.0149 + (0.0003)\ x$$

With a Standard Error of Estimate (S.E.) = 0.00426

(Please refer to appendix III for the calculations of regression equations and SE and appendix IV for ratios.) Low Standard Error of Estimates renders the trend line as fit for our analysis. The yearly Cash ratios have shown a decreasing

trend as is visible by the table values and lines in the diagram. Thus, the average decrease in current ratio came out to 0.0003, as discerned by the regression equation.

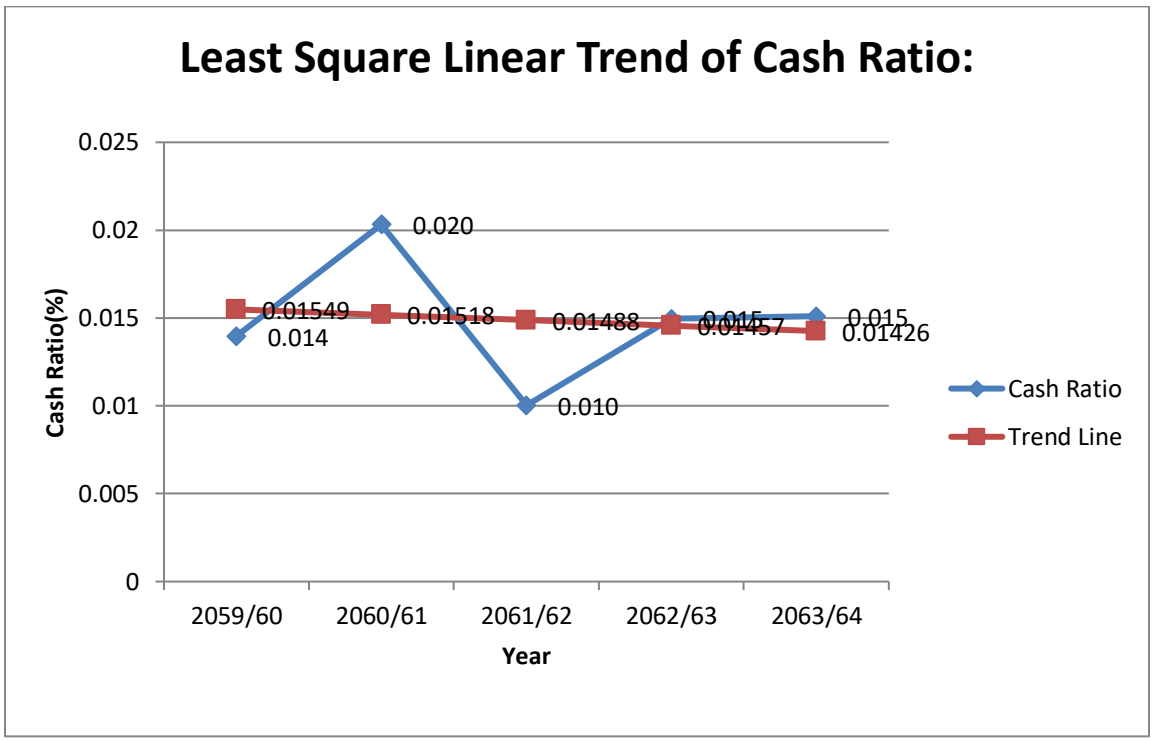

Figure 2.2: Least Square Linear Trend of Cash Ratio.

❖ **Least Square Linear Trend of Investment**

The least Square Linear Trend regression equation for Investments divulged by our calculations was:

$$Y = 6251.64 + 617.08\ x$$

With a Standard Error of Estimate (S.E.) = 1713.3637

(Please refer to appendix III for the calculations of regression equations and SE and appendix IV for ratios.) High Standard Error of Estimate indicates a high fluctuation in data, thus the trend line is not appropriately fit. The yearly

investment amount and ratios have shown a increasing trend as is visible by the table values and trend lines in the diagram next page. Thus, the average decrease in investment came out to Rs. 617.08 million, as discerned by the regression equation.

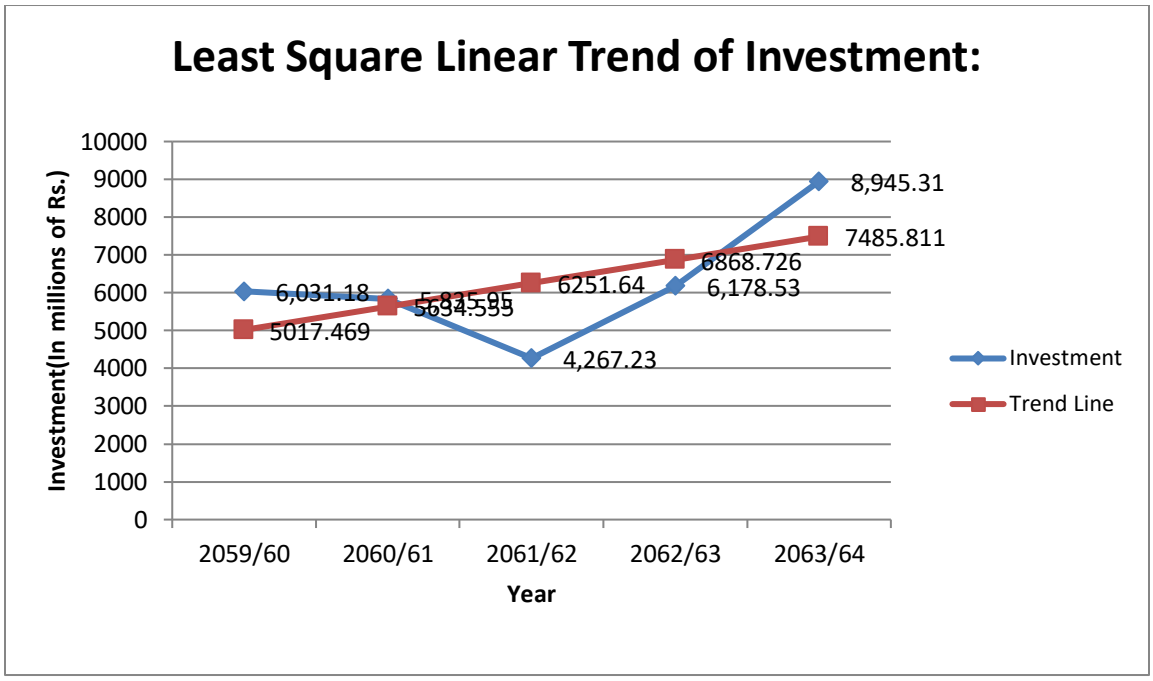

Figure 2.3: Least Square Linear Trend of Investment.

❖ **Least Square Linear Trend of Total Deposits**

The least Square Linear Trend regression equation for Total Deposits, during the years of study divulged by our calculations was:

$$Y = 16968.597 + 2501.761x$$

With a Standard Error of Estimate (S.E.) = 3599.083

(Please refer to appendix III for the calculations of regression equations and SE and appendix IV for ratios.) Standard Error of Estimate is very high. High Standard Error of Estimate signifies a data fluctuation. This, in turn, negates a fit linear trend. The yearly deposit amounts have shown an increasing trend as

is visible by the table values and trend lines in the diagram next page. Thus, the average increase in deposits came out to Rs. 2501.761 million, as discerned by the regression equation.

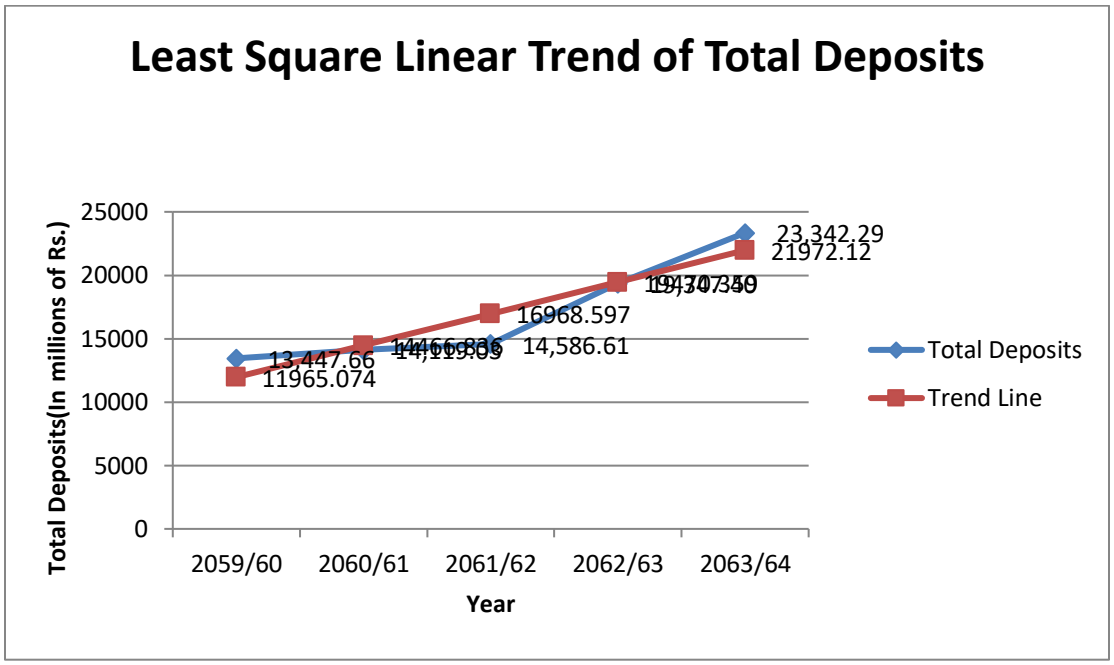

Figure 2.4: Least Square Linear Trend of Total Deposits.

i) Correlation Analyses:

The table in the next page represents the explanation of relationship between profitability and the cash and liquid assets of NABIL Bank Ltd. From observation of the data arrayed below, a clear picture of an insignificant relationship, between cash holdings and profitability of the bank can be discerned. Similarly the comparison of current ratio with profitability also shows an insignificant relationship.

Comparison between the correlation and probability of error values of all cash ratio analogy variables show an insignificant relationship. There is no significant relation between cash ratio and profitability ratios. ROE and Cash/Investment have positive correlation while other ratios have a negative correlation with Cash Ratio.

Comparison between the current ratio and the profitability of the bank, also shows a similar picture of insignificance. While all profitability ratio, except for CA/ Investment have shown a positive correlation with current ratio.

We can thus, venture to conclude about the overall insignificant correlation between the cash holdings of the bank and profitability. The correlation between current assets of the bank and its profitability also depicts an insignificant relationship.

	Correlation	**P.E.**	**Remarks**
Cash Ratio With			
ROA	(0.39661)	1.52519	Insignificant
ROE	0.21184	1.72865	Insignificant
ROI	(0.37118)	1.56052	Insignificant
EPS	(0.13026)	1.77916	Insignificant
NP/TD	(0.24601)	1.70034	Insignificant
Cash/Investment	0.73581	0.82998	Insignificant
Current Ratio With			
ROA	0.15538	1.76618	Insignificant
ROE	0.30648	1.63987	Insignificant
ROI	0.04496	1.80621	Insignificant

EPS	0.44288	1.45488	Insignificant
NP/TD	0.29266	1.65486	Insignificant
CA/Investment	(0.40963)	1.50618	Insignificant

Table 2: Correlation analysis – NABIL Bank Ltd.

(Please refer to appendix II for the calculations of Correlations; appendix IV for the ratio calculations and appendix I.) In summary the trend of the current ratio and cash ratio is shown to be decreasing in the least square regression trend analysis above. Cash ratio, going by its actual values has followed the trend whereas current ratio has shown a somewhat higher trend of decline. Profit with buoyancy has shown a increasing trend. Investment has shown a favorable increasing trend. Starting with an initial profit at the observed beginning period of Rs. 416.23 million, final observation year profit of Rs.673.95 million has been reached. While deposits have shown a increasing trend has reached upto 23342.29 millions. The higher Standard Error of Estimate obtained for some of our analyses may possibly have occurred due to the fewer, only 5, years of data considered.

Now, when we analyze the correlation between the cash ratio with returns on profitability ratios; these variables have denoted insignificant relationship with regards to cash ratio or holdings of a bank and its association with profit. Current ratio's comparison with profitability ratios and its relationship tend to differ a bit. With exception of the significant data of ROE corroborating the financial principle, other variables ROA, EPS and NP/TD have significant but paradoxical results. Current asset to investment has a positively significant result denoting the fact that investments in comparison have been higher.

So, from our data we can deduce that, deposits and investments of NABIL Bank have risen. Profit also shows an increasing trend. Its current ratio and cash ratios do suggest of a declining trend from the beginning period of the study and as such preferably advocate to the liquidity principle of holding less of these assets so that investment at more profitable ventures can be allocated.

Correlation analysis conducted has shown insignificant relationships between current assets and profitability, a paradoxical one to our objective. Cash assets and profitability have on the other hand no significant relationship.

As far as the bank's cash management policy is concerned we can safely say that the cash reserve held by the bank has been declining steadily and profits are increasing, but with regards to our analysis depicting an insignificant relationship between the two. Deposits and Investment as seen through the trend line has depicted an increasing trend, implying significant relationship between cash and liquid assets holding and profitability. The investment ratios in comparison with the cash and current accumulations are preferably higher during whole of the observation duration. Investments in government treasury bills, government development bonds, and corporate shares, debentures and bonds have positive trend. Foreign investments, share of local organizations and other investments were carried out infrequently for single years only.

a) Nepal Investment Bank Ltd.

i) Least Square Linear Trend Analyses

- **Least Square Linear Trend of Net Profit**

The least Square Linear Trend regression equation for Net Profit found out by our calculations was:

$$Y = 270.714 + 96.703$$

With a Standard Error of Estimate (S.E.) = 129.054

(Please refer to appendix III for the calculations of Regression equation and SE; appendix IV for ratios and appendix V for profit and loss data.) Standard Error of Estimate is slightly high. High Standard Error of Estimate signifies a data fluctuation. This, in turn, negates a fit linear trend. The yearly Net profits have shown an increasing trend as is visible by the table values and lines in the diagram. Thus, the average increase in the amount of Net profit came out to Rs. 96.703 million, as discerned by the regression equation.

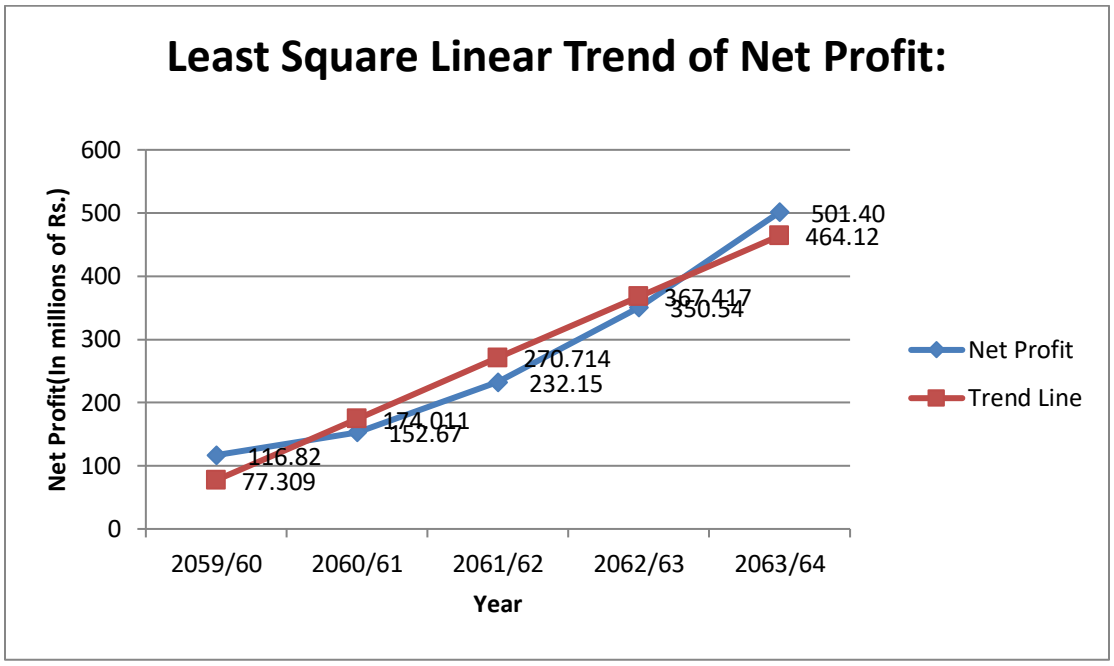

Figure 3: Least Square Linear Trend of Net Profit.

- **Least Square Linear Trend of Current Ratio**

The least Square Linear Trend regression equation for Current ratio divulged by our calculations was:

$$Y = 0.1394 + (0.0120)x$$

With a Standard Error of Estimate (S.E.) = 0.018285

(Please refer to appendix III for the calculations of regression equations and SE and appendix IV for ratios.) Low Standard Error of Estimate, here, renders the trend line to be fit for our analysis concerned. The yearly Current ratios have shown a decreasing trend as is visible by the table values and lines in the diagram. But, conversely, the trend line dictates a marginal increase. Thus, the average decrease of current ratio as discerned by the regression equation came out to 0.0120.

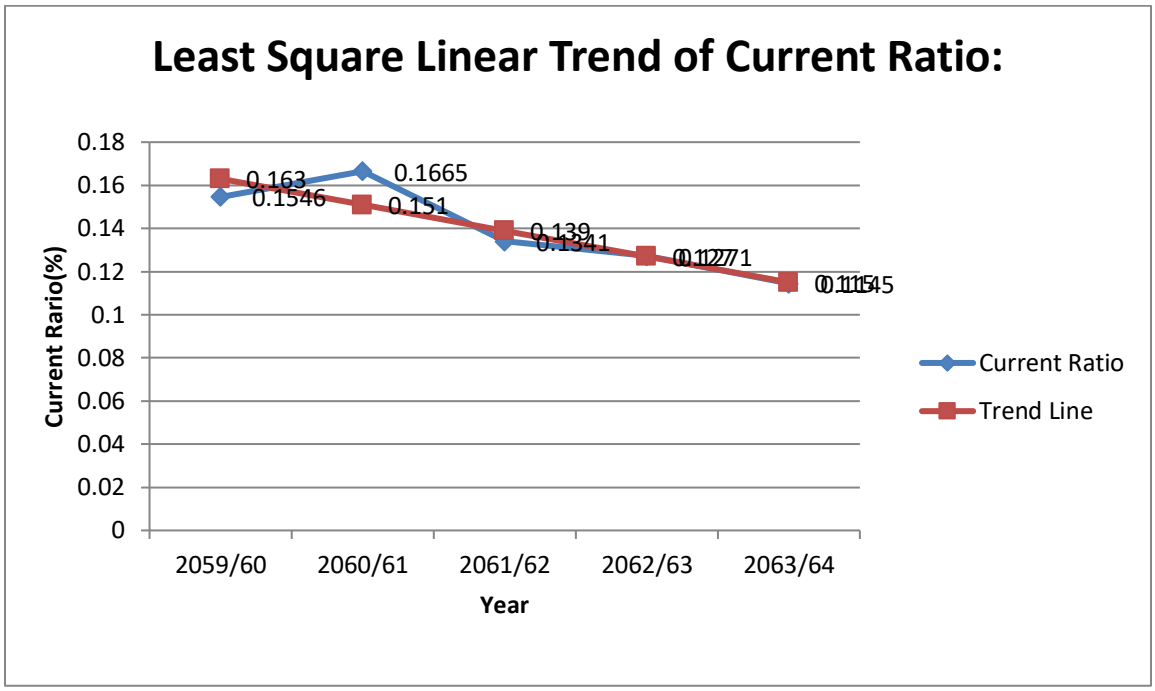

Figure 3.1: Least Square Linear Trend of Current Ratio.

❖ Least Square Linear Trend of Cash Ratio

The least Square Linear Trend regression equation for Cash ratio divulged by our calculations was:

$$Y = 0.0322 + (0.0006)x$$

With a Standard Error of Estimate (S.E.) = 0.0063

(Please refer to appendix III for the calculations of regression equations and SE and appendix IV for ratios.) Low Standard Error of Estimate, here, renders the trend line to be fit for our analysis concerned. The yearly Cash ratios have shown a marginal decreasing trend as is visible by both the table values and trend lines in the diagram. Thus, the average decrease current ratio came out to 0.0006, as discerned by the regression equation.

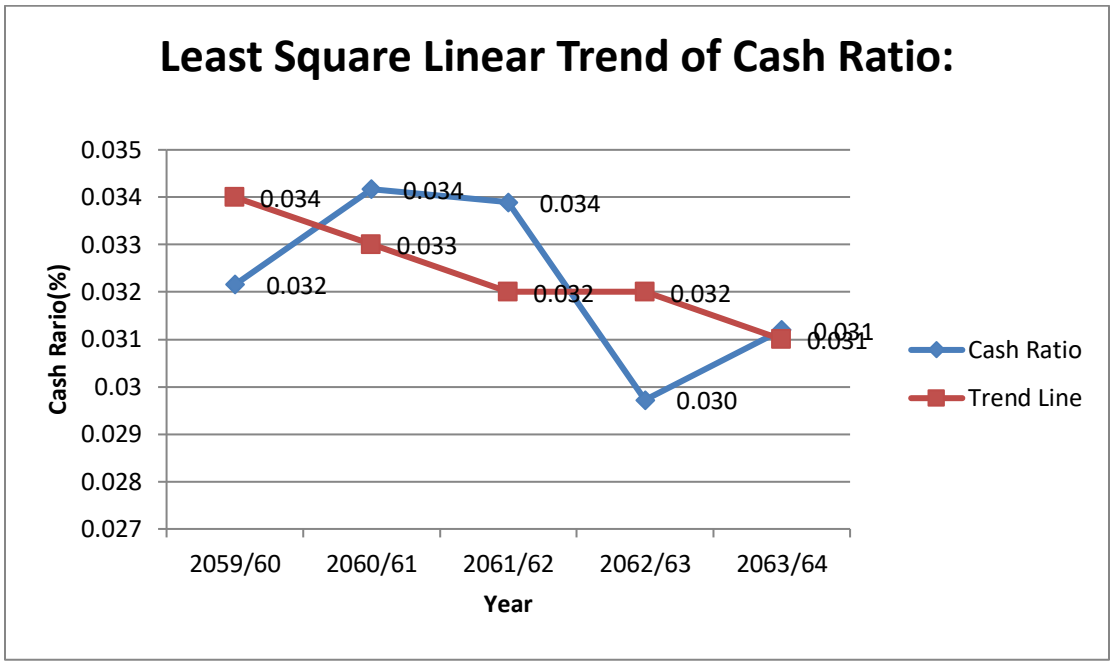

Figure 3.2: Least Square Linear Trend of Cash Ratio.

❖ Least Square Linear Trend of Investment

The least Square Linear Trend regression equation for Investments divulged by our calculations was:

$$Y = 4322.0923 + 1134.1264\ x$$

With a Standard Error of Estimate (S.E.) = 1491.8119

(Please refer to appendix III for the calculations of regression equations and SE and appendix IV for ratios.) The yearly Investment amount and ratios have shown an increasing trend as is visible by the table values and trend lines in the diagram below. Thus, the average increase in investment came out to Rs. 1134.1264 million, as discerned by the regression equation.

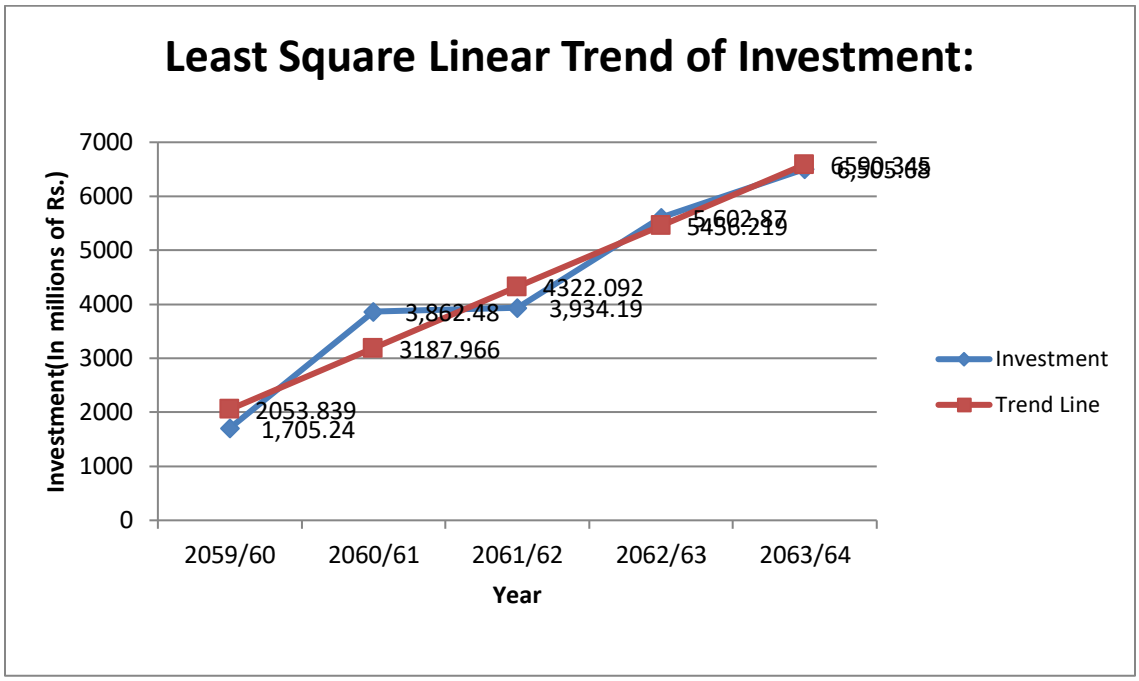

Figure 3.3: Least Square Linear Trend of Investments.

❖ Least Square Linear Trend of Total Deposits

The least Square Linear Trend regression equation for Total Deposits, during the years of study divulged by our calculations was:

$$Y = 13987.682 + 4617.513\ x$$

With a Standard Error of Estimate (S.E.) = 7614.2642

(Please refer to appendix III for the calculations of regression equations and SE and appendix IV for ratios.) High Standard Error of Estimate indicates a fluctuation in data, thus the trend line is not appropriately fit. The steady increase in total deposits can be seen to have begun from fiscal year 2059/60. The yearly deposit amounts have shown a increasing trend as is visible by the table values and trend lines in the diagram on the next page. Thus, the average

increase in deposits came out to Rs. 4617.513 million, as discerned by the regression equation.

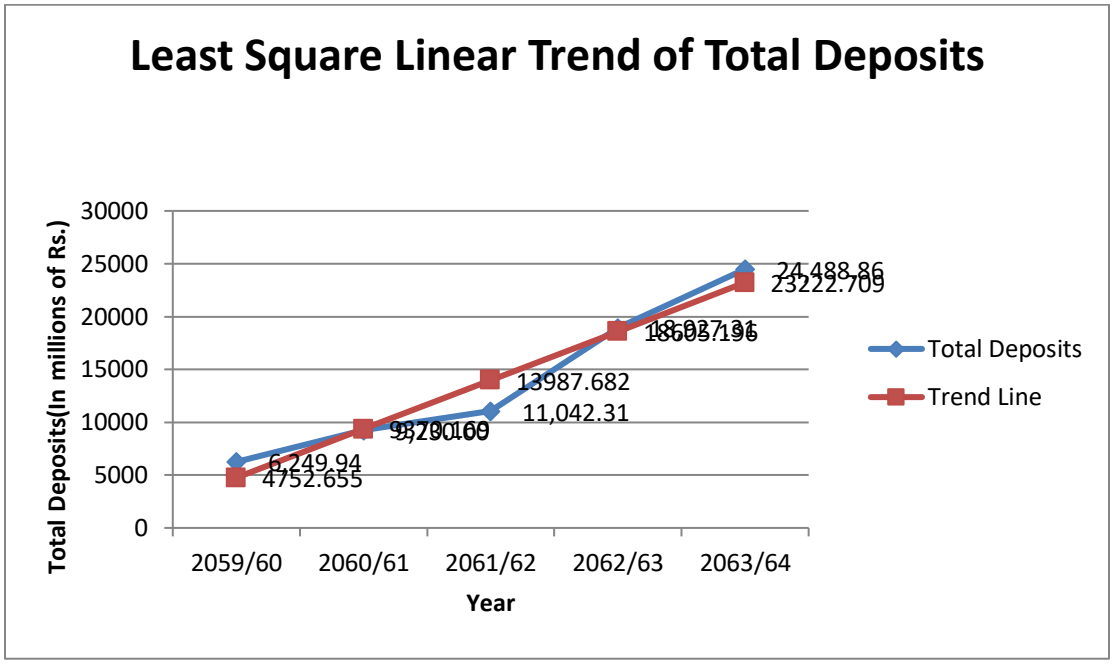

Figure 3.4: Least Square Linear Trend of Total Deposits.

ii) Correlation Analyses:

The table in the next page represents the explanation of relationship between profitability and the cash and liquid assets of Nepal Investment Bank Ltd. From observation of the data arrayed below, a clear picture of an insignificant relationship, between cash holdings and profitability of the bank can be discerned. The current ratio comparison with profitability follows suit.

Comparison between the correlation of cash ratio and probability shows that ROI and Cash/Investment have significant correlation whereas ROA, ROE, EPS, NP/TD all have insignificant correlation.

Comparison between the current ratio and the profitability of the bank shows significant correlation in case of ROA, ROE, ROI and CA/Investment,

relationally analyzed with the increase of cash and bank balance, investments, deposits, money at call and short notice, and investment on HMG Securities. Here significant but negative correlation is depicted by ROI with correlation value of -0.96924 with probability error of 10.96%.

We can conclude about the insignificant relationship between the cash holdings of the bank and profitability except for ROI and Cash/Investment. Whereas, to the correlation between current ratio of the bank and its profitability is concerned other ratio except, ROA, ROI, ROE and CA/ Investment, adhere to the principle of more cash holding diminishes the opportunity to earn, although higher probability of error makes them insignificant to infer from them.

	Correlation	**P.E.**	**Remarks**
Cash Ratio With			
ROA	(0.75080)	0.78966	Insignificant
ROE	0.53404	1.29369	Insignificant
ROI	0.76609	0.74768	Significant
EPS	0.43890	1.46124	Insignificant
NP/TD	0.26504	3.91986	Insignificant
Cash/Investment	0.81972	0.59375	Significant
Current Ratio With			
ROA	0.97629	0.80480	Significant
ROE	0.75731	0.77188	Significant
ROI	(0.96924)	0.10962	Significant
EPS	0.00534	1.80982	Insignificant
NP/TD	(0.12825)	4.01723	Insignificant
CA/Investment	(0.55655)	1.24927	Significant

Table 3: Correlation Analysis – NIBL

(Please refer to appendix II for the calculations of Correlations; appendix IV for the ratio calculations, and appendix I.) In summary the trends of the current and cash ratio have been decreasing as shown in the least square regression trend analysis above. Current assets, going by their actual values have followed the trend till the end, whereas cash assets have shown an increase till 2061/62 following the trend of incline falling thereafter again increasing some in the end. Profit shows an increasing trend with regards to increase in current liquid assets. Investment has shown quite an increasing trend, going against the trend of liquid assets held by the bank. Starting with an initial profit at the observed beginning period of Rs. 57.11 million, final observation year profit of Rs.350.54 million has been reached. While deposits have also increased from Rs.6249.94 million in 2059/60 to Rs.24,488.86 millions in 2063/64. The higher Standard Error of Estimate obtained for some of our analyses may possibly have occurred due to the fewer, only 5, years of data considered.

When we analyze the correlation between the cash ratio with returns on profitability ratios; ROA, ROE, NP/TD and EPS have denoted insignificant relationship with regards to cash ratio or liquid holdings of a bank while ROI and Cash/Investment have shown significant relationships. In the case of Current ratio's comparison with profitability ratios, EPS and NP/TD show relationships of insignificance, whereas the other profitability ratios depict significant relationships.

So, from our data we can deduce that, profit of Nepal Investment Bank Ltd. has risen impressively. The current and cash ratio trend, have shown decreasing trends adherent to the liquidity principle of holding less of these assets so that investment at more profitable ventures can be allocated. Correlation analysis conducted has shown insignificant relationship between current and cash assets held and profitability and a paradoxical one to our objective. Cash assets and current assets and profitability have no significant relationship. Profit has

tended to rise disproportionately to the holdings of the amount of cash and current assets.

As far as the bank's cash management policy is concerned we can safely say that the cash reserve held by the bank has been following an increasing trend as seen from trend analysis but some control has been ascertained in the latter years of the study. Though profit has been increasing we cannot ascertain any sort of significant relationship with cash balances. Investment as seen through the trend line has depicted an impressively increasing trend. Government securities, corporate shares, and other investments were the prime areas of investment.

f) Standard Chartered Bank Nepal Ltd.

i) Least Square Linear Trend Analyses

❖ **Least Square Linear Trend of Net Profit**

The least Square Linear Trend regression equation for Net Profit found out by our calculations was:

$$Y = 586.8720 + 49.0428$$

With a Standard Error of Estimate (S.E.) = 67.6546

(Please refer to appendix III for the calculations of Regression equation and SE; appendix IV for ratios and appendix V for profit and loss data.) Standard Error of Estimate is slightly high. Higher Standard Error signifies fluctuations of data, here in our case starting right from fiscal year 2059/60 onwards the yearly net profits have shown an increasing trend, as is visible by the table values and trend lines in the diagram. Thus, the average increase in the amount of Net profit came out to Rs. 49.0428 million, as discerned by the regression equation.

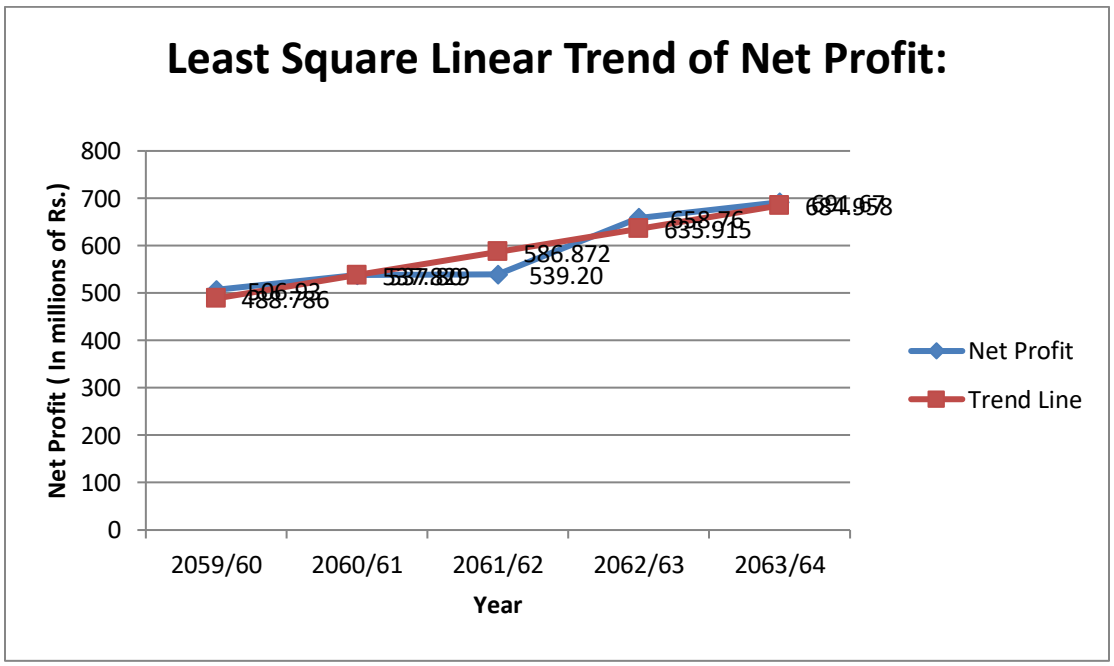

Figure 4: Least Square Linear Trend of Net Profit

❖ **Least Square Linear Trend of Current Ratio**

The least Square Linear Trend regression equation for Current ratio divulged by our calculations was:

$$Y = 0.1847 + (0.0084)\ x$$

With a Standard Error of Estimate (S.E.) = 0.021566

(Please refer to appendix III for the calculations of regression equations and SE and appendix IV for ratios.) Low Standard Error of Estimate, here, renders the trend line to be fit for our analysis concerned. The yearly Current ratios have shown a decreasing trend as is visible by the table values and lines in the diagram. Thus, the average decrease of current ratio as discerned by the regression equation came out to (0.0084).

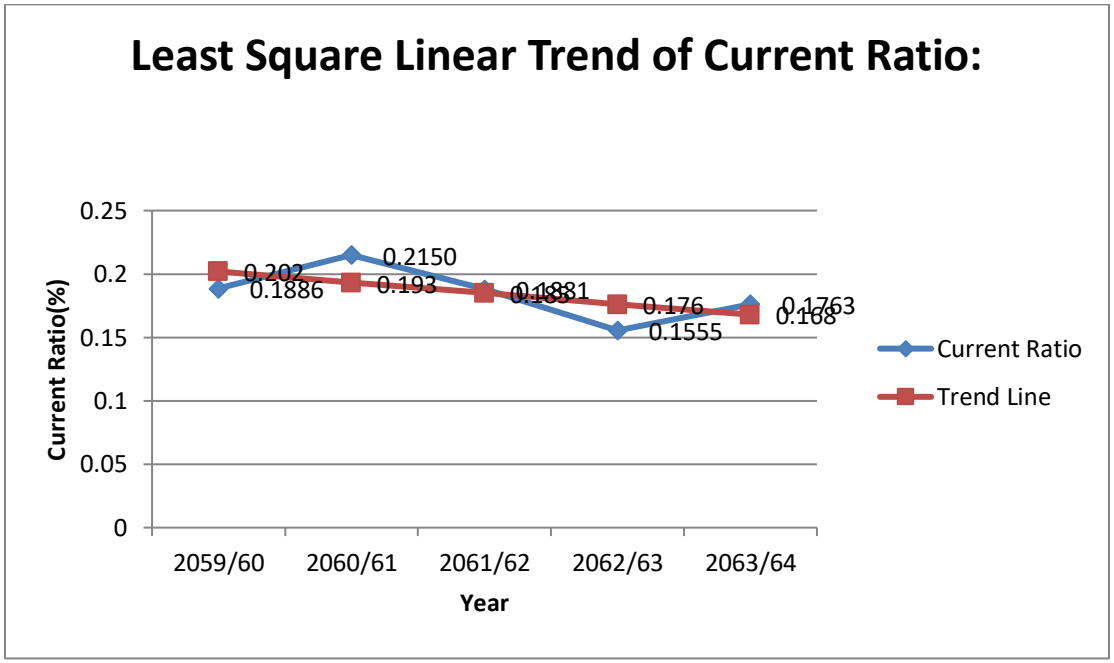

Figure 4.1: Least Square Linear Trend of Current Ratio.

❖ **Least Square Linear Trend of Cash Ratio**

The least Square Linear Trend regression equation for Cash ratio divulged by our calculations was:

$$Y = 0.0126 + 0.0015\ x$$

With a Standard Error of Estimate (S.E.) = 0.003268

(Please refer to appendix III for the calculations of regression equations and SE and appendix IV for ratios.) Low Standard Error of Estimate, here, renders the trend line to be fit for our analysis concerned. The yearly Cash ratios have shown a increasing trend as is visible by both the table values and trend lines in the diagram. Thus, the average increase in current ratio came out to 0.0015, as discerned by the regression equation.

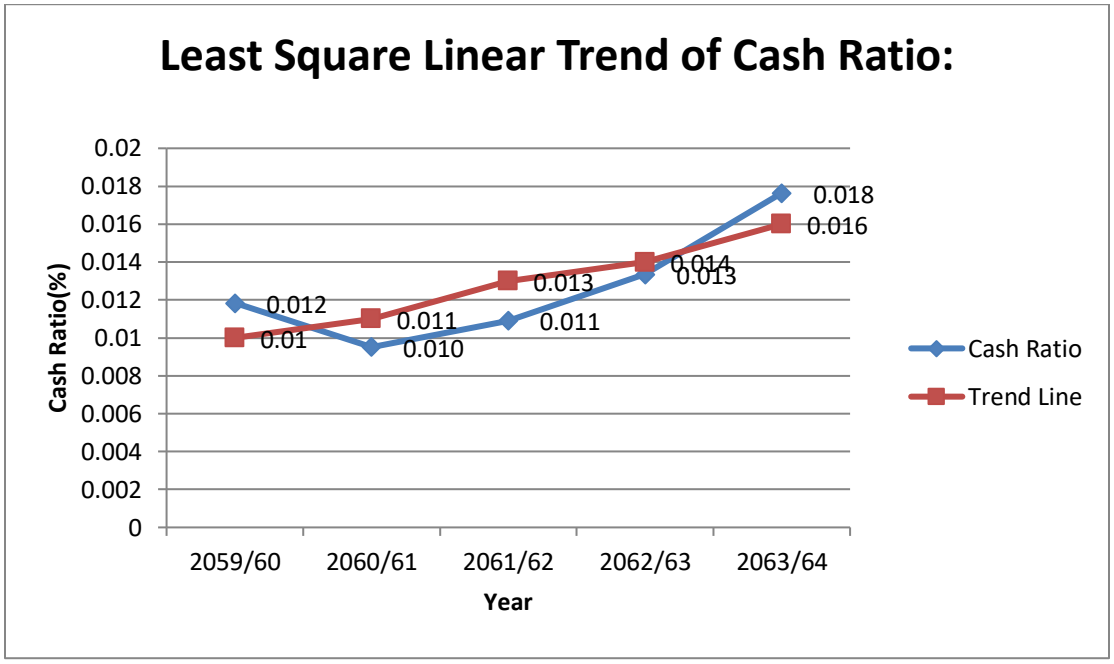

Figure 4.2: Least Square Linear Trend of Cash Ratio.

❖ **Least Square Linear Trend of Investment**

The least Square Linear Trend regression equation for Investments divulged by our calculations was:

$$Y = 11564.2659 + 787.8317x$$

With a Standard Error of Estimate (S.E.) = 1571.413

(Please refer to appendix III for the calculations of regression equations and SE and appendix IV for ratios.) Standard Error of Estimate is slightly high. Higher Standard Error signifies fluctuations of data, here in our case starting from fiscal year 2059/60. The yearly Investment amount and ratios have shown an increasing trend as is visible by the table values and trend lines in the diagram below. Thus, the average increase in investment came out to Rs. 787.8317 million, as discerned by the regression equation.

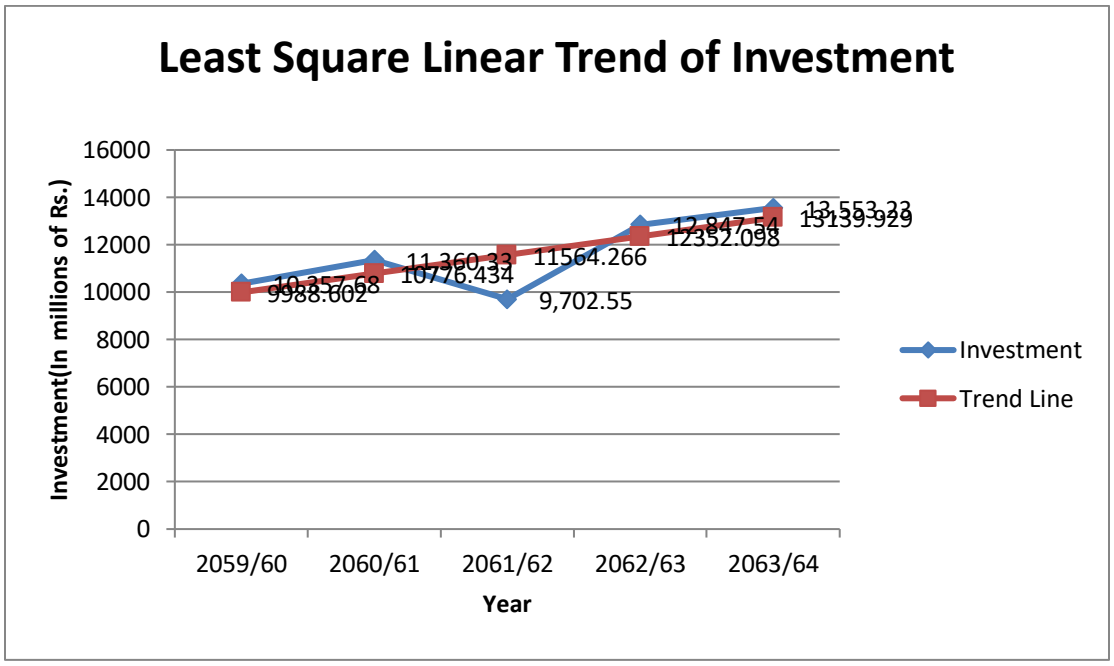

Figure 4.3: Least Square Linear Trend of Investment.

- **Least Square Linear Trend of Total Deposits**

The least Square Linear Trend regression equation for Total Deposits, during the years of study divulged by our calculations was:

$$Y = 20433.3500 + 1900.8050x$$

With a Standard Error of Estimate (S.E.) = 3752.290

(Please refer to appendix III for the calculations of regression equations and SE and appendix IV for ratios.) High Standard Error of Estimate, here, indicates a high fluctuation in data, thus the trend line is not appropriately fit. The yearly deposit amounts have shown an increasing trend as is visible by the table values and trend lines in the diagram on the next page. Thus, the average increase in deposits came out to Rs. 1900.8050 million, as discerned by the regression equation.

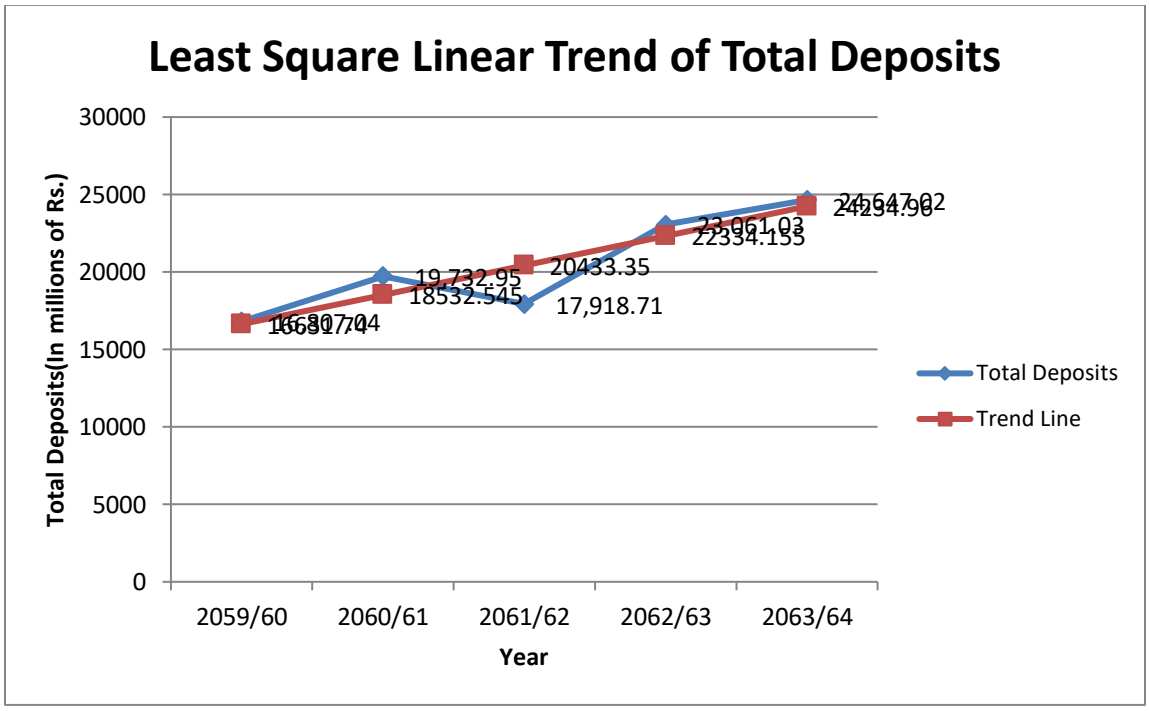

Figure 4.4: Least Square Linear Trend of Total Deposits

ii) Correlation Analyses:

The table below represents the explanation of relationship between profitability and the cash and liquid assets of Standard Chartered Bank Nepal Ltd. through reference from their respective ratios. From observation of the data below, a clear picture of significant or insignificant relationship, between cash holdings

and profitability of the bank, cannot be discerned. Almost drawing parallel, the current ratio's comparison with profitability shows no lucid significant relationship.

Comparison between the correlation and probability of error values of all cash ratio analogy variables show an insignificant relationship except for Cash/Investment and ROI. Cash/Investment depicts positive and significant correlation of with a value of 0.98054, explaining a 98% correlation with a 6.97% probability error. The variables concerning in comparison with the cash ratio, ROE and NP/TD ratios have negative correlations, while others have a positive correlation.

Comparison between the current ratio and the profitability of the bank shows significance relation for NP/TD, CA/Investment, ROA and EPS, while ROA and EPS have negative correlations with current ratio. Significant positive correlation is depicted with NP/TD with a value of 0.98728, explaining a 98% correlation with a 4.57% probability error.

We can thus, venture to conclude about the overall insignificant relationship between the cash holdings of the bank and profitability, except for Cash/Investment. Whereas, to the correlation between current assets of the bank and its profitability is concerned, adherent to principles of financial theory, increase in assets via deposits there are more opportunities to invest on profitable assets or other such areas, which accumulations of the bank.

	Correlation	**P.E.**	**Remarks**
Cash Ratio With			
ROA	0.37521	1.55508	Insignificant
ROE	(0.66595)	1.00720	Insignificant
ROI	0.76886	0.73997	Significant
EPS	0.74146	0.81487	Insignificant
NP/TD	(0.48922)	1.37671	Insignificant
Cash/Investment	0.98054	0.06977	Significant

Current Ratio With			
ROA	(0.93750)	0.21918	Significant
ROE	0.46988	1.41027	Insignificant
ROI	0.44380	1.45340	Insignificant
EPS	(0.87896)	0.41162	Significant
NP/TD	0.98728	0.04574	Significant
CA/Investment	0.93290	0.23472	Significant

Table 4: Correlation Analysis – SCBNL

(Please refer to appendix II for the calculations of Correlations; appendix IV for the ratio calculations and appendix I.) In summary the trend of the current ratio has been decreasing as shown in the least square regression trend analysis above. Cash Ratio and Profit has shown a steadily increasing trend with regards to decrease in current liquid assets. Investment has increased in a stable manner, following suit with the CA/Investment and cash/investment ratio of the bank, which has averaged around 70% more than the cash and current asset it holds. Starting with an initial profit at the observed beginning period of Rs. 506.932 million, an impressive final observation year profit of Rs.691.668 million has been reached. Deposits have also followed suit with an steadiness in increase. The higher Standard Error of Estimate obtained for some of our analyses may possibly have occurred due to the fewer, only 5, years of data considered.

Now, when we analyze the correlation between the cash ratio with returns on profitability ratios; ROE, EPS and NP/TD have denoted insignificant relationship with regards to cash ratio or liquid holdings of a bank and its association with profit. While ROA, ROI and Cash/TD show a significant correlations towards the profit condition. But as it is, they explain that with increase in cash assets, return on assets and ROI rise, which is an anomaly. Current ratio's comparison with profitability ratios shows a little different picture. As shown by table there is insignificant relations of ROE and ROI with

Current Ratio. ROA, EPS and NP/TD and CA/Investment share a significant relation with Current ratio, although correlations corroborating our preferences. Current asset to investment has a positively significant result denoting the fact that investments in comparison have been higher.

So, from our data we can deduce that, profit of Standard Chartered Bank Nepal ltd. has risen impressively. The current and cash ratio trend, have shown a favorable decreasing trend and as such preferably adherent to the liquidity principle of holding less of these assets so that investment at more profitable ventures can be allocated.

While profit has been increasing, we cannot imply that cash management policy of the bank is the key cause for the growth, although some ratios do tend to support that as fact. Investment as seen through the trend line has depicted an impressively increasing trend. Investments in government treasury bills, government development bonds, national saving bonds, corporate shares, debentures and bonds, and other investments have the focus for most of the observed duration. Investments in foreign banks were carried out in F.Y. 2062/63 and 2063/64.

g) Kumari Bank Ltd.

i) Least Square Linear Trend Analyses:

❖ **Least Square Linear Trend of Net Profit**

The least Square Linear Trend regression equation for Net Profit found out by our calculations was:

$$Y = 83.8583 + 37.0559$$

With a Standard Error of Estimate (S.E.) = 47.3272

(Please refer to appendix III for the calculations of Regression equation and SE, appendix IV for ratios and appendix V for profit and loss data.) Standard Error of Estimate is slightly high. Hence, the trend line is not fit. Higher Standard Error signifies fluctuations of data, here in our case starting from fiscal year 2059/60, the yearly net profits have shown an increasing trend as is visible by the table values and lines in the diagram. Thus, the average increase in the amount of Net profit came out to Rs. 37.0559 million, as discerned by the regression equation.

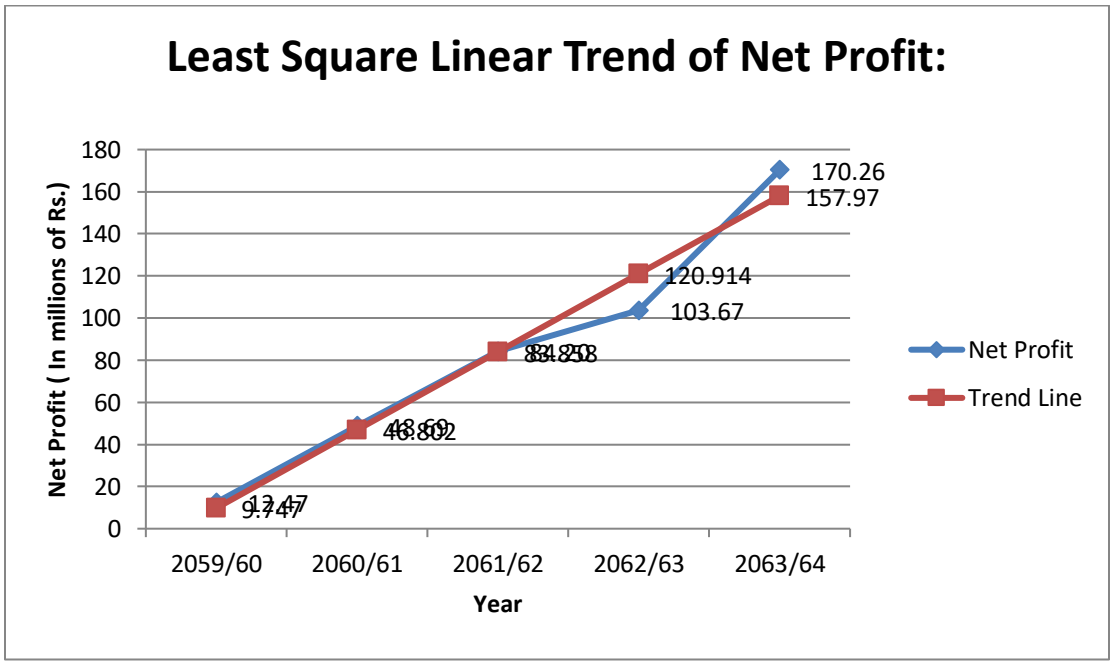

Figure 5: Least square Linear Trend of Net Profit

❖ **Least Square Linear Trend of Current Ratio**

The least Square Linear Trend regression equation for Current ratio divulged by our calculations was:

$$Y = 0.1825 + (0.0198)x$$

With a Standard Error of Estimate (S.E.) = 0.082673

(Please refer to appendix III for the calculations of Regression equation and SE and appendix IV for ratios) Low Standard Error of Estimate, here, renders the trend line to be fit for our analysis concerned. The yearly current ratios have shown a decreasing trend as is visible by the table values while the trend lines in the diagram show a stable picture of the current ratio for the duration of the observation period. Thus, the average value of current ratio as discerned by the regression equation came out to 0.0198

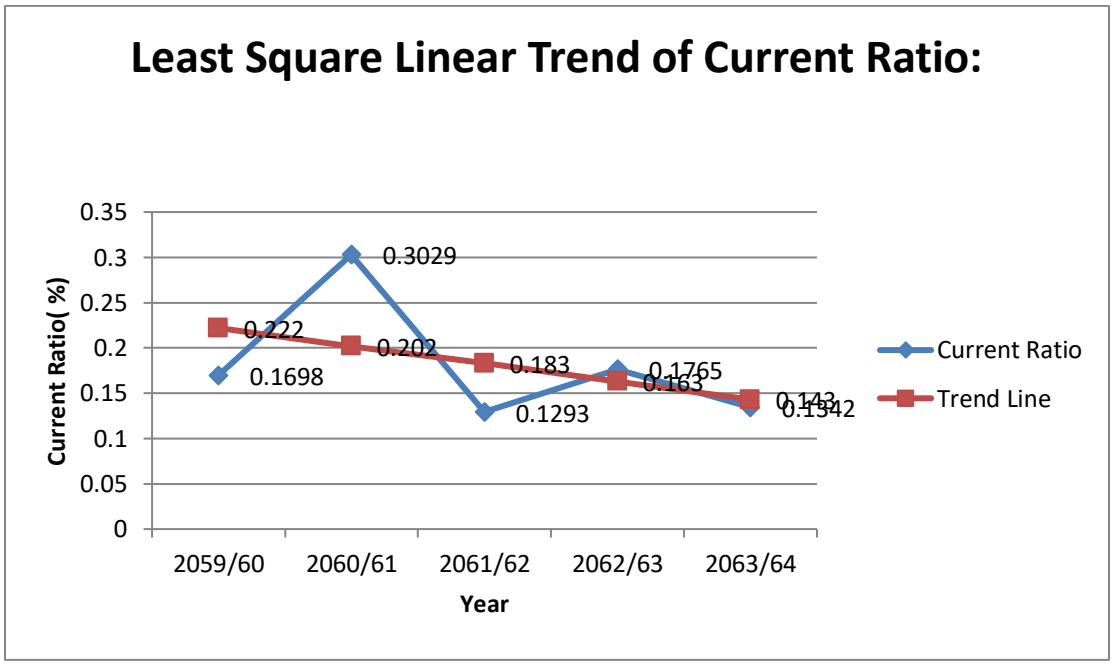

Figure 5.1: Least square Linear Trend of Current Ratio.

- **Least Square Linear Trend of Cash Ratio**

The least Square Linear Trend regression equation for Cash ratio divulged by our calculations was:

$$Y = 0.0250 + 0.0012x$$

With a Standard Error of Estimate (S.E.) = 0.003661

(Please refer to appendix III for the calculations of Regression equation and SE and appendix IV for ratios) Low Standard Error of Estimate, here, renders the trend line to be fit for our analysis concerned. The yearly Cash ratios have shown a marginal increasing trend as is visible by the trend lines in the diagram. While, the tabular values depict a increasing trend from the second year for three years of observation, then after a substantial increase in the period leading up to the fourth year with a marginal decrease in the subsequent year can be observed. Thus, the average increase in current ratio came out to 0.0023, as discerned by the regression equation.

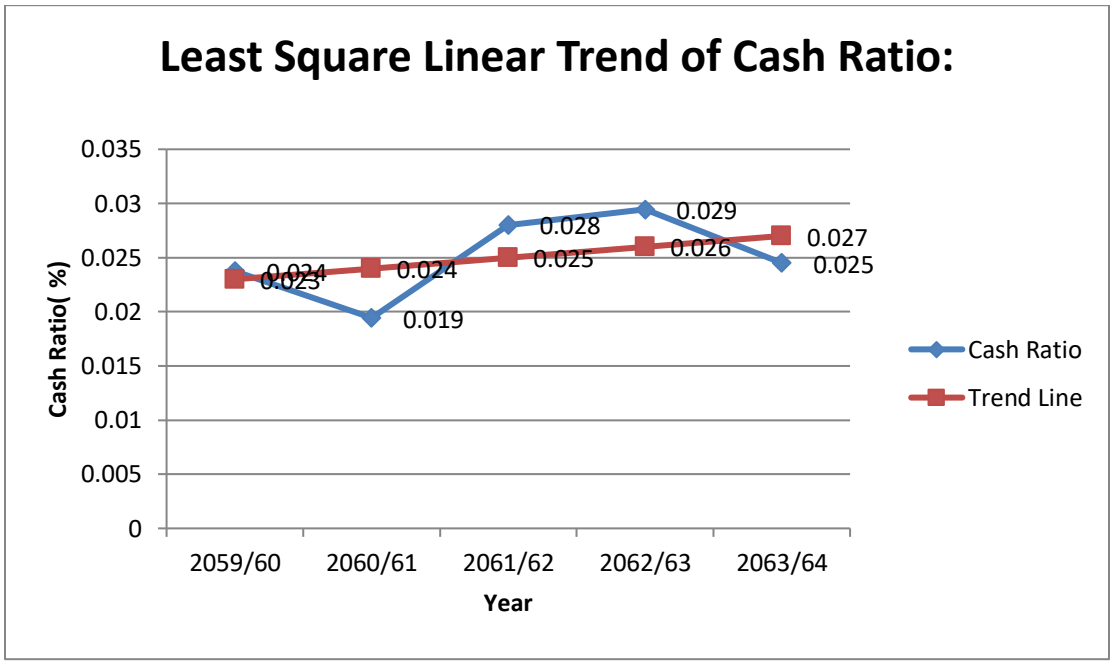

Figure 5.2: Least square Linear Trend of Cash Ratio

❖ **Least Square Linear Trend of Investment**

The least Square Linear Trend regression equation for Investments divulged by our calculations was:

$$Y = 1026.3932 + 367.7885x$$

With a Standard Error of Estimate (S.E.) = 468.4357

(Please refer to appendix III for the calculations of Regression equation and SE and appendix IV for ratios) Standard Error of Estimate is slightly high. High Standard Error of Estimate signifies a data fluctuation. This, in turn, negates a fit linear trend. The yearly Investment amount and ratios have shown an increasing trend as is visible by the table values and trend lines in the diagram below. Thus, the average increase in investment came out to Rs. 367.788 million, as discerned by the regression equation.

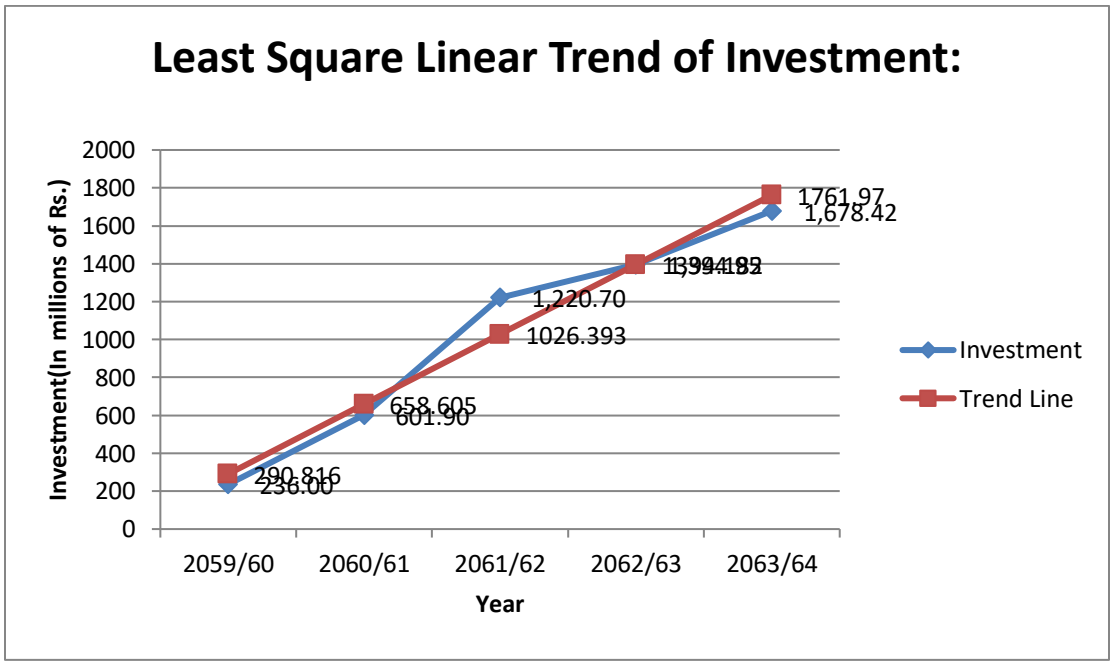

Figure 5.3: Least square Linear Trend of Investment.

- **Least Square Linear Trend of Total Deposits**

The least Square Linear Trend regression equation for Total Deposits, during the years of study divulged by our calculations was:

$$Y = 5507.2347 + 2192.4290x$$

With a Standard Error of Estimate (S.E.) = 3687.7663

(Please refer to appendix III for the calculations of Regression equation and SE and appendix IV for ratios) Standard Error of Estimate is slightly high. High Standard Error of Estimate signifies a data fluctuation. This, in turn, negates a fit linear trend. The yearly deposit amounts have shown an increasing trend as is visible by the table values and trend lines in the diagram on the next page. Thus, the average increase in deposits came out to Rs. 2192.4290 million, as discerned by the regression equation.

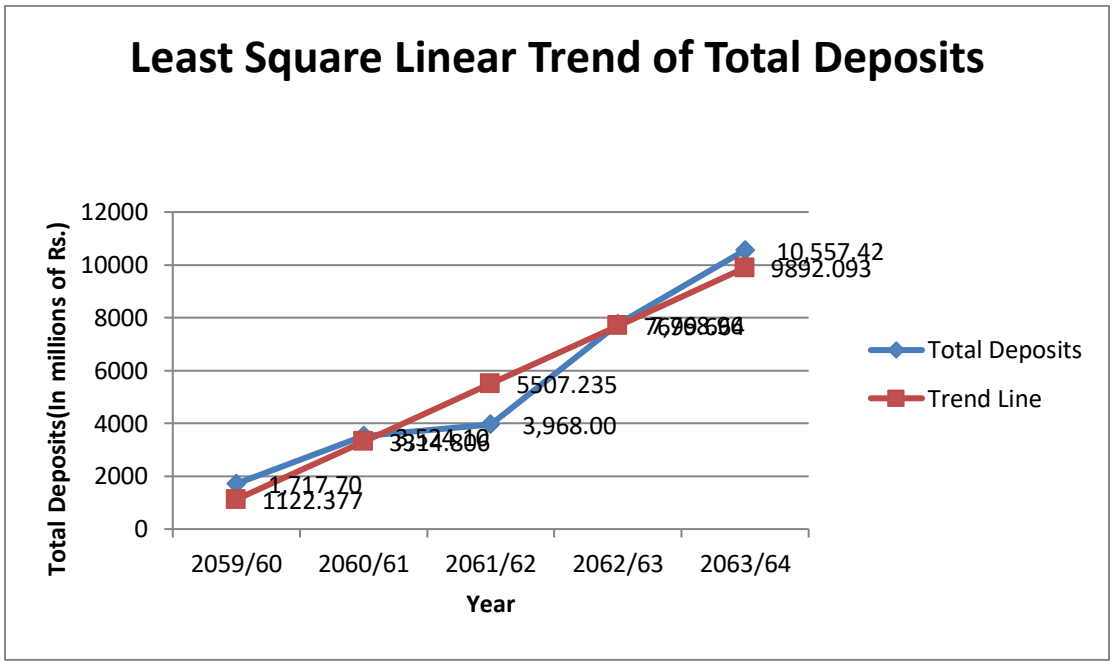

Figure 5.4: Least square Linear Trend of Total Deposits

i.) Correlation Analyses:

The table in the next page represents the explanation of relationship between profitability and the cash and liquid assets of Kumari Bank Ltd.

From observation of the data arrayed below, a clear picture of insignificant relationship, between cash holdings and profitability of the bank, can be discerned. Almost drawing parallel, the current ratio's comparison with profitability also shows insignificant relationship.

Comparison between the correlation and probability of error values of all cash ratio analogy variables show an insignificant relationship. Cash/Investment has a negative correlation with Cash Ratio however contradictory to conventional norm all the other variables have a positive correlation, however, insignificant.

Comparison between the current ratio and the profitability of the bank also shows an almost similar picture of insignificance. EPS, NP/TD and CA/Investment have shown a positive correlation. However, CA/Investment has depicted a relation of significance.

We can thus, venture to conclude about the overall insignificant relationship between the cash holdings of the bank and profitability. Similarly to the correlation between current assets of the bank and its profitability is concerned, adherent to principles of financial theory stating that with less liquidity there are more opportunities to invest on profitable assets or other such areas; any significant correlation has not been discerned from our calculations.

	Correlation	**P.E.**	**Remarks**
Cash Ratio With			
ROA	0.36296	1.57143	Insignificant
ROE	0.26388	1.68385	Insignificant
ROI	0.08590	1.79652	Insignificant
EPS	0.46507	1.41841	Insignificant
NP/TD	0.07022	0.91727	Insignificant

Cash/Investment	(0.22666)	1.71689	Insignificant
Current Ratio With			
ROA	(0.28072)	1.66725	Insignificant
ROE	0.14328	1.77272	Insignificant
ROI	(0.19087)	1.74393	Insignificant
EPS	0.01189	1.80962	Insignificant
NP/TD	0.70496	0.91043	Insignificant
CA/Investment	0.91397	0.29802	Significant

Table 5: Correlation Analyses – Kumari Bank Ltd.

(Please refer to appendix II for the calculations of Correlations; appendix IV for the ratio calculations and appendix I.) In summary the trend of the cash ratio is slightly increasing trend and current ratio has a decreasing trend as shown in the least square regression trend diagram above. Profit with paradoxical buoyancy has shown a steeply reverse increasing trend with regards to increase in cash ratio. Investment has shown a steep increasing trend, going against the trend of liquid assets held by the bank. Starting with an initial profit at the observed beginning period of Rs. 236.0 million, final observation year profit of Rs.1678.42 million has been reached. While deposits have increased from initial accumulation of Rs.1717.70 million in 2059/60 to Rs. 10557.42 million in 2063/64.

Now, when we analyze the correlation between the cash ratio with returns on profitability ratios; these variables have denoted insignificant relationship with regards to cash ratio or liquid holdings of a bank and its association with profit. Current ratio's comparison with profitability ratios also shows similar relationship of insignificance. Although cash ratio correlations show the relationship between cash holdings and profitability to our objective liking, standard of error renders it insignificant. Regarding the Current ratio correlations, Current asset to investment has a positively significant result denoting the fact that investments in comparison have been higher.

So, from our data we can deduce that, profit of Kumari Bank Ltd. has risen impressively. Its current ratio trend, has shown a decreasing trend, marginal each year. Cash ratio on the other hand suggests of a slightly increasing trend from the beginning period continuing to the end of the study period. Correlation analysis conducted has shown insignificant relationship between current and cash assets held and profitability. Profit has risen disproportionately to the holdings of the amount of cash and current assets. The profit has increased impressively with the decrease in the current ratio. The higher Standard Error of Estimate obtained for some of our analyses may possibly have occurred due to the fewer, only 5, years of data considered.

As far as the bank's cash management policy is concerned we can safely say that the current reserve held by the bank has been following an increasing trend as seen from trend analysis. Though profit has been increasing we cannot ascertain any sort of significant relationship that cash balances have any link to that. Investment as seen through the trend line has depicted an impressively increasing trend. Investments in government treasury bills, government development bonds, national saving bonds, investments in shares of government non-financial institutions were carried out during the years by the bank. Cash policies followed by the bank can be termed as successful, in view of the profit gained in comparison and the steep upward inclination of investment, though it cannot be accorded as an imperative for the result; as they directly refute the financial principle theory of less cash holding required for profitable investments and profit itself.

b) Bank of Kathmandu Ltd.

i) Least Square Trend Analyses:

- **Least Square Linear Trend of Net Profit**

The least Square Linear Trend regression equation for Net Profit found out by our calculations was:

$$Y = 162.791 + 43.548$$

With a Standard Error of Estimate (S.E.) = 55.9204

(Please refer to appendix III for the calculations of Regression equation and SE, appendix IV for ratios, and appendix V for profit and loss data.) Standard Error of Estimate is slightly on the higher side here thus rendering the trend line to be unfit. Higher Standard Error explains the yearly increasing trend of net profits shown by the table values and lines in the diagram. Thus, the average increase in the amount of Net profit came out to Rs. 43.548 million, as discerned by the regression equation.

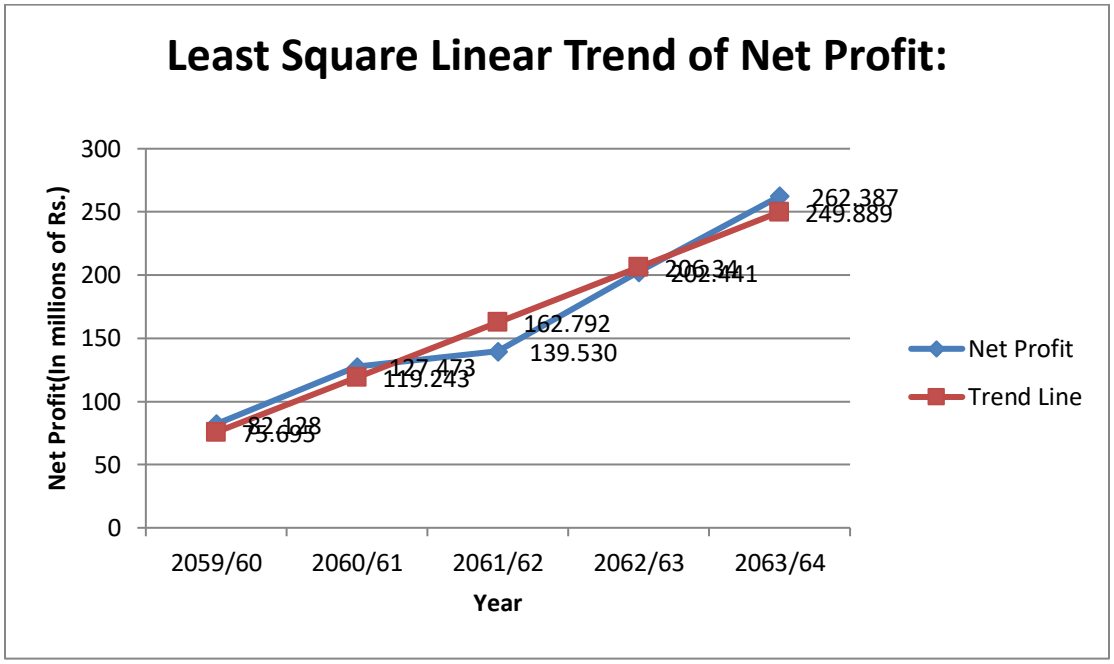

Figure 6: Least Square Linear Trend of Net Profit.

❖ Least Square Linear Trend of Current Ratio

The least Square Linear Trend regression equation for Current ratio divulged by our calculations was:

$$Y = 0.1447 + (0.0019)\ x$$

With a Standard Error of Estimate (S.E.) = 0.0265

(Please refer to appendix III for the calculations of regression equations and SE and appendix IV for ratios.) The Standard Error of Estimate discerned here is

small, thus the trend line is fit. The yearly Current ratio's trend line has shown a marginal decreasing trend as is visible by the table values and lines in the diagram. Thus, the average decrease in current ratio came out to 0.0019, as discerned by the regression equation.

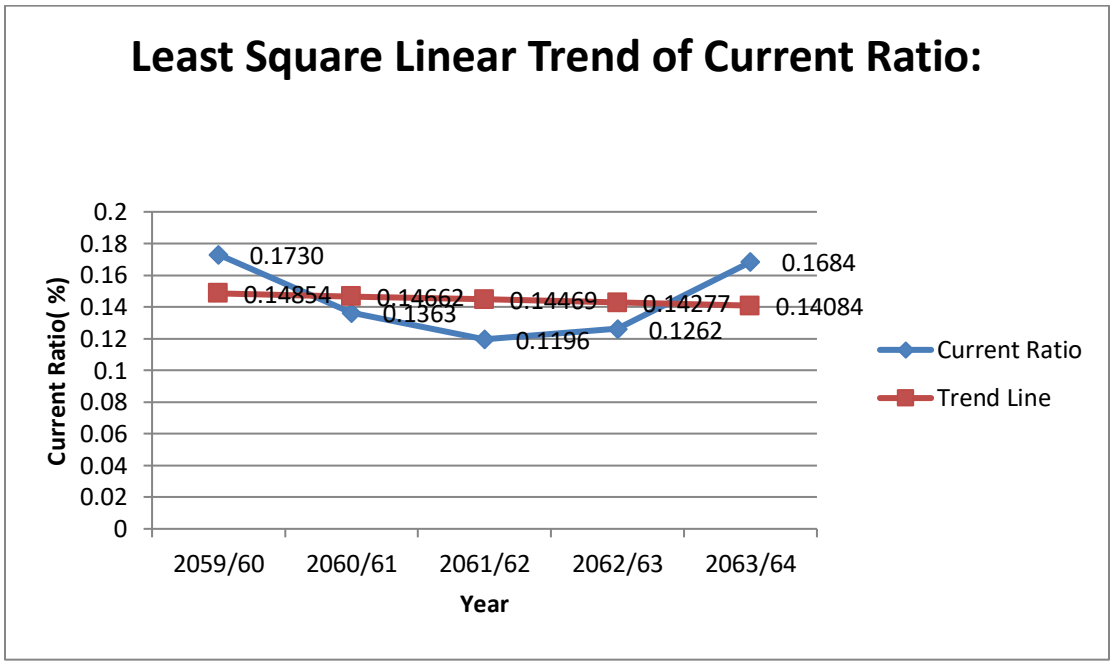

Figure 6.1: Least Square Linear Trend of Current Ratio.

❖ **Least Square Linear Trend of Cash Ratio**

The least Square Linear Trend regression equation for Cash ratio divulged by our calculations was:

$$Y = 0.0242 + (0.0023)x$$

With a Standard Error of Estimate (S.E.) = 0.0095

(Please refer to appendix III for the calculations of regression equations and SE and appendix IV for ratios.) The Standard Error of Estimate discerned here is small, thus the trend line is fit. The yearly cash ratios have shown a decreasing

trend as is visible by the table values and lines in the diagram. Thus, the average decrease cash ratio came out to 0.0023, as discerned by the regression equation.

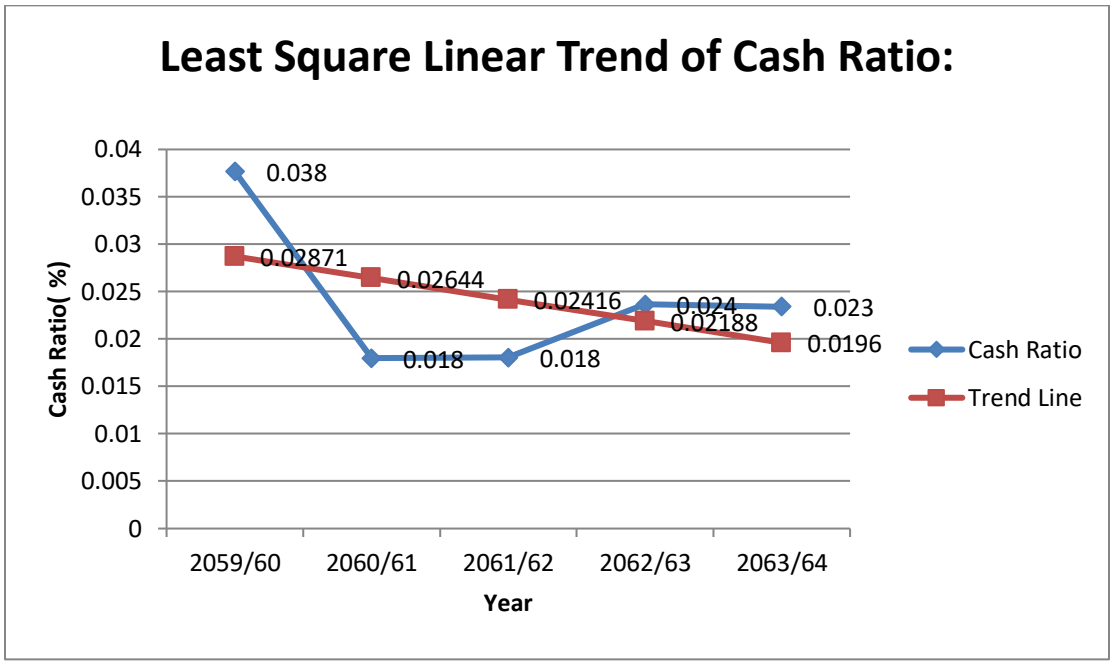

Figure 6.2: Least Square Linear Trend of Cash Ratio.

❖ **Least Square Linear Trend of Investment**

The least Square Linear Trend regression equation for Investments divulged by our calculations was:

$$Y = 2651.791 + 324.987x$$

With a Standard Error of Estimate (S.E.) = 397.598

(Please refer to appendix III for the calculations of regression equations and SE and appendix IV for ratios.) The high Standard Error of Estimate, here, of 397.598 renders the trend line unfit; thus, there is increase in data for the periods under study commencing at the fiscal year 2059/60. The yearly

investment amount and ratios have shown increase with some fluctuation. Increase in investment trend is visible by the table values and trend lines in the diagram below. Thus, the average increase in investment came out to Rs. 324.987 million, as discerned by the regression equation.

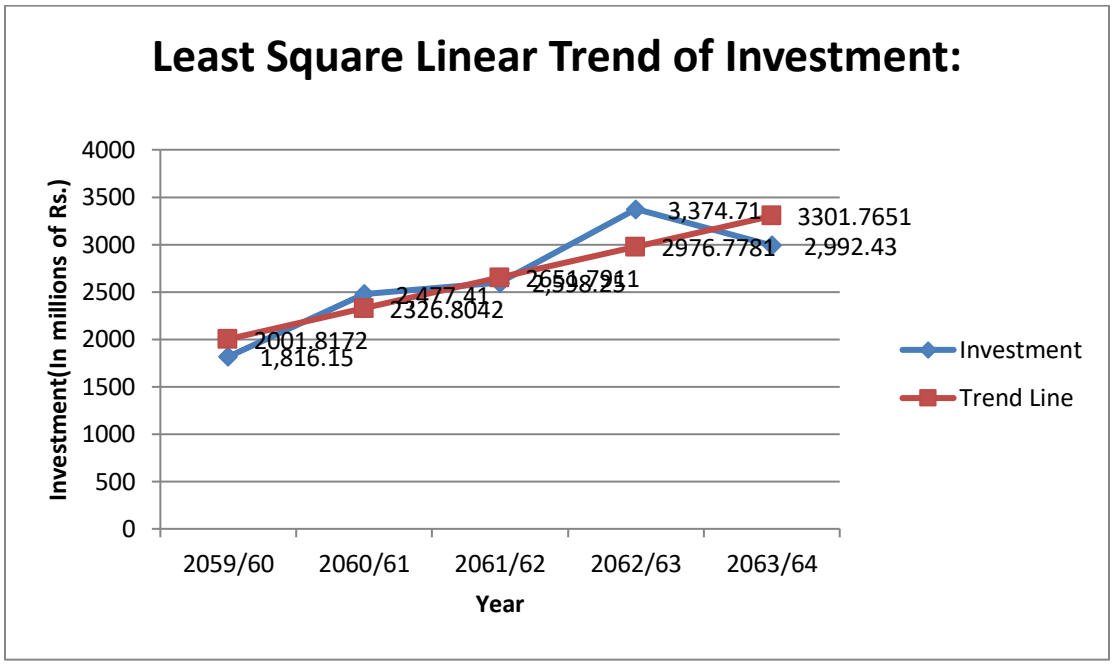

Figure 6.3: Least Square Linear Trend of Investments.

❖ **Least Square Linear Trend of Total Deposits**

The least Square Linear Trend regression equation for Total Deposits, during the years of study divulged by our calculations was:

$$Y = 8747.6933 + 1916.2004x$$

With a Standard Error of Estimate (S.E.) = 2304.7004

(Please refer to appendix III for the calculations of regression equations and SE and appendix IV for ratios.) Standard Error of Total Deposits is slightly high, thus resulting in unfit trend line. We can see increase in yearly total deposits trend through the observation period. Starting from 2059/60, the data has shown this trend as is visible by the table values and trend lines in the

diagram. Thus, the average increase in deposits came out to Rs. 1916.2004 million, as discerned by the regression equation.

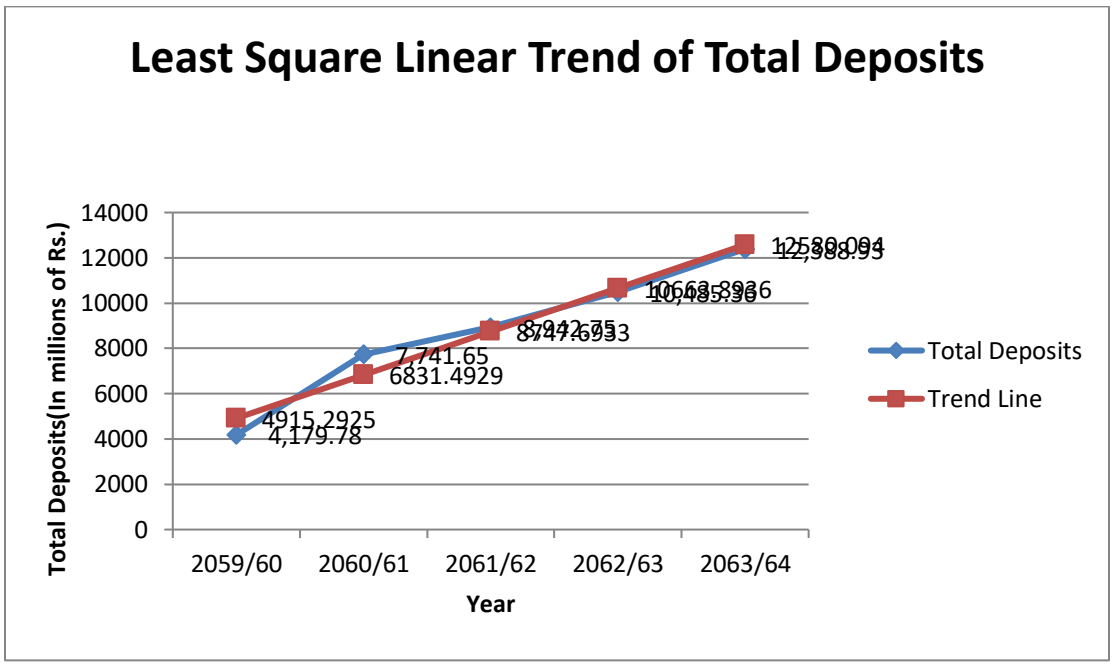

Figure 6.4: Least Square Linear Trend of Total Deposits.

ii) Correlation Analyses:

The table below represents the explanation of relationship between profitability and the cash and liquid assets of Bank of Kathmandu Ltd. From observation of the data arrayed below, a clear picture of a insignificant relationship, between cash holdings and profitability of the bank can be discerned.

In comparison between the cash ratio and probability ratios, all variables have shown insignificant relationship. According to correlations calculations ROE, NP/Total Deposits and Cash/ Investments have showed positive correlation with Cash Ratio while others correlations with rest of the ratios are negative.

Comparison between the current ratio and the profitability of the bank also follows suit. Although they do not refer causality, we can observe correlation

between the two. ROE, ROA, ROI, EPS and NP/TD show insignificant relationship. ROE and Total Deposits ratio have depicted a positive correlation while other variables depict a negative correlation with Current Ratio.

We can thus, venture to conclude about the overall insignificant relationship between the cash holdings of the bank and profitability.

	Correlation	P.E.	Remarks
Cash Ratio With			
ROA	(0.47685)	1.39834	Insignificant
ROE	0.67201	0.99253	Insignificant
ROI	(0.42514)	1.48274	Insignificant
EPS	(0.46863)	1.41239	Insignificant
NP/TD	0.57983	1.20138	Insignificant
Cash/Investment	0.84440	0.51940	Insignificant
Current Ratio With			
ROA	(0.12756)	1.78043	Insignificant
ROE	0.31665	1.62841	Insignificant
ROI	(0.01325)	1.80956	Insignificant
EPS	(0.23986)	1.70574	Insignificant
NP/TD	0.74842	0.79611	Insignificant
CR/Investment	(0.29542)	1.65192	Insignificant

Table 6: Correlation analysis – Bank of Kathmandu Ltd.

(Please refer to appendix II for the calculations of Correlations; appendix IV for the ratio calculations and appendix I for balancesheet information.) In summary the trend of both the current and cash ratio is shown to be decreasing in the least square regression trend analysis above. Current has shown a consistent trend of decline both with actual reference and the trend reference. The decrease in Cash ratio is slightly more and as such preferably adherent to the liquidity principle of holding less of these assets so that investment at more profitable ventures can be allocated Profit and investment have shown a remarkable increasing trend. Starting with an initial profit at the beginning observed period of Rs. 82.128 million, final observation year profit of Rs. 262.387 million mark has been reached. Investments have shown steady increase. While deposits have also shown an impressive growth, from Rs. 4179.78 million in 2059/60 to Rs. 12388.93 million in 2063/64. The higher Standard Error of Estimate obtained for some of our analyses may possibly have occurred due to the fewer, only 5, years of data considered.

Analysis of correlation between the cash ratio with profitability ratios have shown an insignificant relationship. There is no significant relation between the return and profitability and Cash Ratios. Similar is the issue with regards to current ratio's comparison with profitability ratios.

So, from our data we can deduce that, profit of Bank of Kathmandu is on the rise and its current ratio and cash ratios also do suggest of a declining trend and substantially mitigated amount from the beginning period of the study and as such preferably adherent to the liquidity principle of holding less of these assets so that investment at more profitable ventures can be allocated. Correlation analysis conducted has shown insignificant relationship.

As far as the bank's cash management policy is concerned we can safely say that the bank has a good cash management policy. Cash reserve held by the bank has been declining steadily and profits are increasing. Investment as seen through the trend line has depicted an increasing trend, throughout the study

period. Investments in government treasury bills, government development bonds, and corporate shares were the primary ones. Other investments were also carried out during the years by the bank. Investments in foreign banks were carried out by the bank in the fiscal years 2059/60, 2062/63 and 2063/64.

ii) ANOVA Analyses:

The ANOVA method or F-ratio is used to determine whether the average ratios of the different result variables, of the five sample commercial banks, used in this study, for the test of significance. ANOVA single factor model has been used for the calculations.

The variables for the calculations for the observation period are the averages of, a) Current ratios, b) Cash ratios, c) Return on Equity, d) Return on assets, e) Return on Investment, f) Earning per share, g) Cash assets to investment, and h) Current assets to investment.

a) Average of the Current Ratios for the observation period

The hypothesis formed for the study is presented below:

H_0 = There is no significant difference among the averages of the five commercial banks.

i.e. $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5$

H_1 = There is significant difference among the averages of the five commercial banks.

i.e. $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4 \neq \mu_5$

Above hypothesis is tested by using ANOVA Single Factor.

(Please refer to table 7- ANOVA Current Ratio below.)

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*

NABIL Bank Ltd.	5	0.62502397	0.125004795	0.00042853
Nepal Investment Bank Ltd.	5	0.69688	0.139376	0.000441547
Standard Chartered Bank Ltd.	5	0.92348581	0.184697162	0.000466658
Kumari Bank Ltd.	5	0.91270739	0.182541478	0.004962341
Bank of Kathmandu Ltd.	5	0.72342682	0.144685365	0.000601879

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.014452	4	0.003612909	2.617687378	0.0658	2.866081
Within Groups	0.027604	20	0.001380191			
Total	0.042055	24				

Table 7: ANOVA- Current Ratio

(Please refer to appendix IV for the ratios.) Since, the calculated F = 2.617687378 is less than the tabulated F critical = 2.866081 we accept H_0. Thus, we can conclude that there is no significant difference between the five commercial banks, with regards to their Current asset policies. Analyzing the averages of the sample banks, regarding their Current Ratios, we see that the ratios of each of the banks are not much different from each other. With the average value, for the study duration of five-years, ranging from the highest of Standard Chartered Bank Nepal at 0.18469 to the lowest of NABIL Bank ltd. at 0.12500

b) Average of the Cash Ratios for the observation period

The hypothesis formed for the study is presented below:

H_0 = There is no significant difference among the averages of the five commercial banks.

i.e. $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5$

H_1 = There is significant difference among the averages of the five commercial banks.

i.e. $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4 \neq \mu_5$

Above hypothesis is tested by using ANOVA Single Factor.

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
NABIL Bank Ltd.	5	0.074274	0.01485476	0.0000134
Nepal Investment Bank Ltd.	5	0.16094	0.03218805	0.0000035
Standard Chartered Bank Ltd.	5	0.063594	0.01271884	0.0000106
Kumari Bank Ltd.	5	0.125668	0.02513352	0.0000153
Bank of Kathmandu Ltd.	5	0.120607	0.0241214	0.00006501

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.001276	4	0.0003189	14.7501512	9.157898	2.866081
Within Groups	0.000432	20	0.0000216			
Total	0.001708	24				

Table 8: ANOVA-Cash Ratio

(Please refer to appendix IV for the ratios.) Since, the calculated F = 14.7501512 is greater than the tabulated F critical = 2.866081 we reject H_0. Thus, we can conclude that there is significant difference between the five commercial banks, with regards to their cash asset policies. Analyzing the averages of the sample banks, regarding their Cash Ratios, we see that the ratios of each of the banks are quite different from each other. With the average value, for the study duration of five-years, ranging from the lowest of Standard Chartered Bank Ltd at 0.012718 to the highest of Nepal Investment Bank ltd. at 0.032188

c) Average of the Return on Equity for the observation period

The hypothesis formed for the study is presented below:

H_0 = There is no significant difference among the averages of the five commercial banks.

i.e. $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5$

H_1 = There is significant difference among the averages of the five commercial banks.

i.e. $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4 \neq \mu_5$

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
NABIL Bank Ltd.	5	15.66013	3.132026	0.012916
Nepal Investment Bank Ltd.	5	21.87309	4.374618	1.361244
Standard Chartered Bank Ltd.	5	13.71912	2.743825	0.014268
Kumari Bank Ltd.	5	53.89858	10.77972	101.8796
Bank of Kathmandu Ltd.	5	25.28206	5.056412	1.60016

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	210.71455	4	52.67864	2.51166	0.074165	2.8660814
Within Groups	419.47268	20	20.97363			
Total	630.18723	24				

Table 9: ANOVA-Return on Equity

Please refer to appendix IV for the ratios.) Since, the calculated F = 2.51166 is less than the tabulated F critical = 2.8660814 we accept H_0. Thus, we can conclude that there is no significant difference between the five commercial banks, with regards to their Return on Equity (ROE). Although analyzing the averages of the sample banks, regarding their Returns on Equity (ROE), we can see some difference between the samples this may be, most probably, due to the low numbers of observation periods. For the study duration of five-years, the sample averages ranges from the highest of Kumari Bank at 10.779 to the lowest 2.7438 of Standard Chartered Bank Ltd.

d) Average of the Return on Assets for the observation period

The hypothesis formed for the study is presented below:

H_0 = There is no significant difference among the averages of the five commercial banks.

i.e. $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5$

H_1 = There is significant difference among the averages of the five commercial banks.

i.e. $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4 \neq \mu_5$

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
NABIL Bank Ltd.	5	0.13603322	0.027206645	5.015908
Nepal Investment Bank Ltd.	5	0.07317549	0.014635098	6.805695
Standard Chartered Bank Ltd.	5	0.12107167	0.024214333	1.044024
Kumari Bank Ltd.	5	1.04845458	0.209690915	0.202168
Bank of Kathmandu Ltd.	5	0.07309776	0.014619552	7.359383

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.1443109	4	0.036077734	0.89218027	0.486783	2.8660814
Within Groups	0.8087543	20	0.040437717			
Total	0.9530653	24				

Table 10: ANOVA-Return on Assets

Please refer to appendix IV for the ratios.) Since, the calculated F = 0.89218027 is greater than the tabulated F critical = 2.8660814 we reject H_0. Thus, we can conclude that there is significant difference between the five commercial banks with regard to their Return on Assets (ROA.) Analyzing the averages of the sample banks we see that there is difference between the ratios of each of the banks. With the average value, for the study duration of five-years, ranging from the lowest of Bank of Kathmandu Ltd. at 0.014619552, the highest of Kumari Bank Ltd. at 0.209690915

e) Average of the Return on Investment for the observation period

The hypothesis formed for the study is presented below:

H_0 = There is no significant difference among the averages of the five commercial banks.

i.e. $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5$

H_1 = There is significant difference among the averages of the five commercial banks.

i.e. $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4 \neq \mu_5$

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
NABIL Bank Ltd.	5	0.149388	0.029878	5.038504
Nepal Investment Bank Ltd.	5	0.08396	0.016792	9.73906
Standard Chartered Bank Ltd.	5	0.137815	0.027563	1.222906
Kumari Bank Ltd.	5	0.036978	0.007396	0.0000207
Bank of Kathmandu Ltd.	5	0.080578	0.016116	8.158888

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.00169	4	0.000422	47.009711	6.7690949	2.8660814
Within Groups	0.0001797	20	8.987455			
Total	0.0018697	24				

Table 11: ANOVA-Return on Investments

(Please refer to appendix IV for the ratios.) Since, the calculated F = 47.00971 is greater than the tabulated F critical = 2.8660814 we reject H_0. Thus, we can conclude that there is significant difference between the five commercial banks, with regards to their Return on Investment (ROI.) Analyzing the averages of the sample banks, regarding their Return on Investment Ratios, we see that the ratios of each of the banks are quite different from each other. With the average value, for the study duration of five-years, ranging from the lowest of Kumari Bank at 0.007396 to the highest of NABIL Bank Ltd. at 0.029878

e) Average of the Earning per Share for the observation period

The hypothesis formed for the study is presented below:

H_0 = There is no significant difference among the averages of the five commercial banks.

i.e. $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5$

H_1 = There is significant difference among the averages of the five commercial banks.

i.e. $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4 \neq \mu_5$

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
NABIL Bank Ltd.	5	549.3459	109.8692	516.13828
Nepal Investment Bank Ltd.	5	252.6838	50.53676	116.55914
Standard Chartered Bank Ltd.	5	779.9794	155.9959	217.12228
Kumari Bank Ltd.	5	52.75373	10.55075	85.339724
Bank of Kathmandu Ltd.	5	162.4806	32.49611	123.77653

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	71432.8	4	17858.2	84.321436	3.153936	2.8660814
Within Groups	4235.7438	20	211.7872			
Total	75668.544	24				

Table 12: ANOVA-Earning per share.

(Please refer to appendix IV for the ratios.) Since, the calculated F = 84.321436 is greater than the tabulated F critical = 2.8660814 we reject H_0. Thus, we can conclude that there is significant difference between the five commercial banks, with regards to their Earning per Share (EPS). Analyzing the averages of the sample banks, regarding their Earning per Share Ratios, we see that the ratios of each of the banks are quite different from each other. With the average value, for the study duration of five-years, ranging from the lowest of Kumari Bank Ltd. at 10.55 to the highest of Standard Chartered Bank Nepal Ltd. at Rs.155.99

f) Average of the Cash balance to Investment ratio for the observation period

The hypothesis formed for the study is presented below:

H_0 = There is no significant difference among the averages of the five commercial banks.

i.e. $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5$

H_1 = There is significant difference among the averages of the five commercial banks.

i.e. $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4 \neq \mu_5$

(Please refer to table 13 on the next page.)

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
NABIL Bank Ltd.	5	0.183081	0.036616	0.00006
Nepal Investment Bank Ltd.	5	0.512045	0.102409	0.00023481
Standard Chartered Bank Ltd.	5	0.105613	0.021123	0.0000183
Kumari Bank Ltd.	5	0.613653	0.122731	0.00091812
Bank of Kathmandu Ltd.	5	0.332538	0.066508	0.00017935

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.0367323	4	0.009183	32.5483356	1.694911	2.8660814

Within Groups	0.0056427	20	0.000282
Total	0.0423751	24	

Table 13: ANOVA-Cash Balance to Investment Ratio

(Please refer to appendix IV for the ratios.) Since, the calculated F = 32.5483356 is greater than the tabulated F critical = 2.8660814 we reject H_0. Thus, we can conclude that there is significant difference between the five commercial banks, with regards to their Cash balance to investment ratio. Analyzing the averages of the sample banks, regarding their Cash Balance to Investment Ratios, we see that the ratios of each of the banks are quite different from each other. With the average value, for the study duration of five-years, ranging from the lowest of Standard Chartered Bank Nepal at 0.021123 the highest of Kumari Bank Ltd. at 0.122731

f) Average of the Current Assets to Investment ratio for the observation period

The hypothesis formed for the study is presented below:

H_0 = There is no significant difference among the averages of the five commercial banks.

i.e. $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5$

H_1 = There is significant difference among the averages of the five commercial banks.

i.e. $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4 \neq \mu_5$

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
NABIL Bank Ltd.	5	1.561051	0.3122102	0.003608
Nepal Investment Bank Ltd.	5	2.201541	0.4403082	0.0055243
Standard Chartered Bank Ltd.	5	1.559112	0.3118225	0.0023997
Kumari Bank Ltd.	5	4.78196	0.956392	0.2989861
Bank of Kathmandu Ltd.	5	1.8586	0.3717199	0.0063592

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	1.4833755	4	0.3708439	5.8515377	0.002757	2.8660814
Within Groups	1.2675092	20	0.0633755			
Total	2.7508847	24				

Table 14: ANOVA-Current assets to investment

(Please refer to appendix IV for the ratios.) Since, the calculated F = 5.8515377 is greater than the tabulated F critical = 2.8660814 we reject H_0. Thus, we can conclude that there is significant difference between the five commercial banks, with regards to their Current assets to investment ratio. Analyzing the averages of the sample banks, regarding their Current Assets to Investment Ratios, we see that the ratios of each of the banks are quite different from each other. With the average value, for the study duration of five-years, ranging from the lowest of Standard Chartered Bank Nepal Ltd at 0.31182 to the highest of Kumari Bank ltd. at 0.95639

g) Average of the Net profits to Total Deposits Ratio for the observation period.

The hypothesis formed for the study is presented in the next page:

H_0 = There is no significant difference among the averages of the five commercial banks.

i.e. $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5$

H_1 = There is significant difference among the averages of the five commercial banks.

i.e. $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4 \neq \mu_5$

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
NABIL Bank Ltd.	5	0.1764516	0.0352903	0.0000138
Nepal Investment Bank Ltd.	5	0.0952499	0.01905	3.1574605

Standard Chartered Bank Ltd.	5	0.1438309	0.0287662	7.1933608
Kumari Bank Ltd.	5	0.0809096	0.0161819	0.0000375
Bank of Kathmandu Ltd.	5	0.0922034	0.0184407	5.4159968

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.001328	4	0.0003321	24.706231	1.700175	2.8660814
Within Groups	0.000269	20	0.0000134			
Total	0.001597	24				

Table 15: ANOVA- Net profit to Total Deposits

(Please refer to appendix IV for the ratios.) Since, the calculated F = 24.706231 is greater than the tabulated F critical = 2.8660814 we reject H_0. Thus, we can conclude that there is significant difference between the five commercial banks, with regards to their Net profit to Total Deposits ratio. Analyzing the averages of the sample banks, regarding their Net Profits to Total deposits Ratios; we see that the ratios of each of the banks are not that different from each other, highest being 0.03529 of NABIL Bank Ltd. And lowest being 0.01618 of Kumari Bank Ltd., although the F-value proves otherwise. A few number of observation period might have some bearing on the results seen here.

CHAPTER V

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

A. Summary and Conclusion

The money supply and the total accumulated money stock of any country are represented by the cash and liquid assets of its financial institutions. Cash and liquid assets of commercial banks represent the financial liquidity of the whole economy. Banking system is the heart of any financial system. They supply a huge portion of our medium of exchange and the intermediary through which monetary policy is affected. These activities demonstrate that the commercial banking system of the nation is vital for the functioning of our economy or of any country for that matter.

Profitability of the commercial banks is another most imperative part of our financial system. A country cannot afford sustained loss by any commercial bank for a prolonged period of time; due to the impact being more than to the organization individually, but is corollary to the whole financial system, the people at large and the economy.

The financial theory suggests that there is negative relation between liquid assets and profitability of commercial banks. This study tries to expose the reality in terms of the functioning of our commercial banks, with adherence to that theory. The statistical tool, Least Square Linear Trend analysis and Correlation analysis have been employed for the purpose of our study.

The summary of the findings, concerning the five sample banks, and conclusions derived from them are stated below.

i) Findings from Ratio analyses, Trend analyses, and Correlation analyses

a. NABIL Bank Ltd

In the case of NABIL bank Ltd, the current ratio and cash ratio both have marginally decreasing trend. On the other hand, along with their marginally decreasing trend, profit trend can be seen rising steadily.

From the correlation analysis; it shows that the results obtained through trend analyses have an insignificant correlation with both current ratio and cash ratio. In case of cash ratio ROA, ROI, EPS and NP/TD have a negative correlation signifying adherence to the financial principle. In case of current assets only CA/Investment has negative correlation; all other profitability ratios have depicted positive correlation with current ratio. Thus, it can be induced that cash and current ratio do not have much bearing on the rise of the profit

Deposits have shown an increasing trend but have shown insignificant correlation between increase of cash assets and increase in profit as a percentage of deposits.

Investment has also shown an increasing trend. Both the cash and current assets to investment ratio have been below 1, which bodes up to the requirements for a profitable investment policy. Investments in government treasury bills, government development bonds, and corporate shares, debentures and bonds have been the prime ones. Foreign investments, share of local organizations and other investments were carried out infrequently for single years only.

b. Nepal Investment Bank Ltd.

Nepal Investment Bank Ltd. has a decreasing current and cash ratio trend. Simultaneously along with them, profit trend also can be seen rising, quite impressively.

As far as, it is concerned, with view from the correlation analysis; it shows that the results obtained through trend analyses have an insignificant correlation with cash ratio except for ROI and Cash/Investment which depicts positive and significant correlation. With regard to current ratio ROA and ROE depict positive significant relationship whereas ROI and CA/Investment have shown negative significant relationship.

Deposits also indicate an increasing trend but haven't shown any significant correlation between increase of 'cash assets' and increase in profit as a percentage of deposits.

The investment has shown an impressive increasing trend. The correlation analysis depicts significant correlation between the cash and current ratios and investment ratios, while cash asset has a positively significant relation. The cash and current assets to investment ratio have been below 1, which bodes up to the requirements for a profitable investment policy. Government securities, corporate shares, and other investments were the prime areas of investment. Investments in foreign banks were carried out in the year 2062/63 and 2063/64.

c. Standard Chartered Bank Nepal Ltd.

Standard Chartered Bank Nepal Ltd. has a falling current ratio and rising cash ratio trend. Profit trend can be seen rising, quite impressively.

As far as, it is concerned, with view from the correlation analysis; it shows that the results obtained through trend analyses have an insignificant correlation with cash ratio except for ROI and Cash/Investment ratios which have positive significant relationship with the cash ratio. With regards to current ratio we can see that ROA, EPS, NP/TD and CA/Investment have significant relationship whereas ROI and ROE have insignificant relationship.

Deposits have shown an increasing trend and have depicted a positive and significant correlation in case of current ratio and increase in profit as a percentage of deposits as well.

The investment has shown an impressive increasing trend. The correlation analysis states of a significant correlation between the cash ratio and investment ratios, while current assets also have a positively significant ratio with investment. The cash and current assets to investment ratio have been below 1, as seen from the ratio analysis, which bodes up to the requirements for a profitable investment policy. Investments in government treasury bills, government development bonds, national saving bonds, corporate shares, debentures and bonds, and other investments have the focus for most of the observed duration. Investments in foreign banks were carried out in F.Y. 2062/63 and 2063/64.

d. Kumari Bank Ltd.

Kumari Bank Ltd has a falling current ratio trend and a marginally rising cash ratio trend. Simultaneously, profit trend can be seen rising, quite impressively. From the exclusive observation of only the trend analysis we can induct though cash ratio is increasing, only marginal; while current ratio is decreasing, preferable in a normal banking context.

As far as, it is concerned, with view from the correlation analysis; it shows that the results obtained through trend analyses have an insignificant correlation with cash and current ratios, CA/Investment being the only ratio have a positive significant correlation with current ratio. Thus, it can be deduced that current assets and cash assets have no relational bearing on the rise of the profit. The rise in profit is due to some other non-operational banking activity.

Deposits have shown an increasing trend but have failed to show any significant correlation between increase of cash assets and increase in profit as a percentage of deposits as well.

The investment has shown an impressive increasing trend. The correlation analysis depicts positive significant correlation between the current ratio and CA/Investment ratio, while all other relationship with Investments are shown to be insignificant. The cash and current assets to investment ratio have been below 1, as seen from the ratio analysis, which bodes up to the requirements for a profitable investment policy. Investments in government treasury bills, government development bonds, national saving bonds, corporate shares, debentures and bonds, foreign investments, share of local organizations and other investments were carried out during the years by the bank.

e. Bank of Kathmandu Ltd.

Cash policies of Bank of Kathmandu Limited have tended not to follow along with the financial theory exposition. Going by our least square trend analysis, the cash ratio has followed a decreasing trend, the current assets also has a marginal yearly decreasing trend but not substantive enough to be the determining factor for the impressive rise in the yearly net profit trend.

With a view from the correlation analysis; it shows that the results obtained through trend analyses have an insignificant correlation with cash and current ratio. That is, the decreases in cash and current ratio are not simultaneous with the rise of the profit trend.

Deposits have shown an impressively increasing trend, while investments also has a increasing trend no significant bearing of such a trend being effected by status of liquid assets is determined. The actual value line and the trend line show a contrasting picture, with the large standard error of estimate explaining that the fluctuations may be due to few numbers of years of observation.

The increasing investment trend has been very good for the bank. The statement of the positive correlations between the 'cash and current ratios' and the 'cash and current assets to investment ratios' are negated by the trends observed. Investments in government treasury bills, government development bonds, and corporate shares were the primary ones. Other investments were also carried out during the years by the bank. Investments in foreign banks were carried out by the bank in the fiscal years 2059/60, 2062/63 and 2063/64.

ii) Findings from ANOVA.

- There was no significant difference found between the five commercial banks with regards to their current ratios. Subsequent of that hypothesis, we can induce that current asset policies of the banks are not dissimilar to each other.

- There was significant difference found between the five commercial banks with regards to their cash ratios. Subsequent of that hypothesis, we can induce that cash asset policies of the banks are dissimilar to each other.

- There was no significant difference found between the Return on Equity of the nine sample commercial banks. We can thus, induce that the amount of net profit obtained in comparison to shareholders' equity were similar for each of the five sample banks. But when we compare the averages of the sample banks, anomalous results can be seen, which might have been due the small number of observation years.

- There was significant difference found between the five commercial banks with regards to their Return on Assets. Subsequent of that hypothesis, we can induce that net profit amount obtained in comparison with assets of the banks between them are not similar to each other.

- There was significant difference found between the five commercial banks regarding their return on investment ratios. Subsequent of that hypothesis, based on the varied returns received we can induce that investment policies of the banks are dissimilar to each other.

- There was significant difference found between the five commercial banks with regards to their earning per share ratios. Subsequent of that hypothesis, based on the varied returns received we can induce that some banks were more successful in providing higher return and value to their shareholders than others.

- There was significant difference found between the five commercial banks with regards to their cash balance to investment ratios. Subsequent of that hypothesis, we can induce that the comparison of the cash holdings existence as a portion of the amount of investment carried out by the sample banks were quite varied.

- There was significant difference found between the five commercial banks with regards to their current assets balance to investment ratios. Subsequent of that hypothesis, we can induce that the comparison of the current assets holdings existence as a portion of the amount of investment carried out by the sample banks were quite varied.

In conclusion, all of the sample banks under consideration have one principle thing in common. That being the rising profit trends throughout the five year observation period. And the banks had varying cash and liquid assets held during the study period, with dispersed trends of cash and current ratios divulged of each individual bank. The correlation between the 'cash and current assets and liabilities' of the banks and 'profit' mostly came out to be insignificant. This leads us to the induction, that cash and current asset trends and profit were two different entities of the banks' accounting portfolio; which had little or no relation to each other in the progression or degression of their values.

Other non-operating banking activities to further profit, might possibly have led to such vague relationship. The banks, in summary, had consistently tended towards decreasing their current and cash portfolios.

With regards to deposits, the trends in all five banks were on the rise. Investments, parallel to the deposits, of all the banks have been increasing as well. Most of the investments were made in Nepal Government securities such as treasury bills, saving bonds, development bonds, etc; corporate shares and bonds, other investments (CDs, Mutual funds, and foreign banks), and in foreign banks. Investments, just going by their ratio comparison with holding of cash and liquid assets, are substantively higher. The profit trend of the majority of banks have followed in tandem with the investment trends, inducible just by trend observation of some relationship between the two.

Therefore, in summary, the conclusion has been based upon exposition of the findings, for justification of the objectives of this study concerning the banks' cash policies. Here, as such for the purpose of this study it has been analyzed through the study of current ratios, cash ratios and their correlation analyses with profitability ratios; and the trend analyses of net profit, investments, current ratios, cash ratios, and total deposits.

A coherent inference regarding the effectiveness of the banks' cash management policy couldn't be divulged solely from our analysis due to the majority of the insignificant correlations present between the cash and current ratios and the profit. Though, some inductive inferences could be conceived from trend analysis observations, which indicated favorable cash policies of the banks and majority of the banks showing a profit. Liquid assets held by the banks showed little correlation with the

profits of the bank. Though some ratios: ROI with significance frequency of 2 and 1 times each with cash and current ratio respectively, ROA with significance frequency of 2 times with current ratio, ROI with significance frequency of 2 times and 1 time each with cash and current ratios respectively, EPS with significance frequency of 1 time with current ratio. NP/TD ratio with significance frequency of 1 time with cash ratio. Cash/Investment with significance frequency of 2 times. And CA/Investments with significant frequency of 3 times do show some correlation. Most of the significant ratios tended to have a positive correlation with profit. Following the analogy with the liquidity principles of need to keep cash and liquid assets at an optimal level, to allow capital for more profitable investments, most banks tended to have a positive correlation of cash and liquid assets with profit, arising an anomaly of sorts, although, there were other factors at place which could have had an influence in the results; such as fewer number of years of observation or non-operating factors, etc.

B. Recommendations

- *Keeping liquidity in check through monetary policy instruments:*
  Few of the banks have their liquid assets trend on the rise. The whole monetary policy set each year by the Nepal Rastra Bank is formulated focused on these variables. Excess liquidity has been a major focus in the latest monetary policy of the finance ministry. Despite the binding efforts of the policy, such discrepancy should be measured and dealt with accordingly before any misgivings toward the economy. Open market operations as a monetary policy instrument has and thus been used frequently by the central bank to maneuver the penstocks of liquidity in the economy. As such repo auction, reverse repo auctions, purchase and sales have worked primarily as very effective tools of market liquidity and subsequent interest rate control thus

should be continued. Standing liquidity facility has a history, short at that in Nepal, of being used excessively even at punitive interest rates charged by the central bank. This, thus, should be discouraged to be exercised by the banks regularly unless at the most needful juncture. If need be the current 50% credit against the face value of the bonds can be further curtailed and further decrease the duration of the facility.

- *Maintaining vigil towards possible disuse of profitable investable funds:* Prominent economists state, that the significant portion of investable funds of the commercial banks are being channelized towards government deficit, i.e. purchase of Nepal Government Securities, etc. This can be observed from the investment patterns of the sample banks of the study. Policy makers need to pay special attention to this concern. The reason for inconclusive relation between the cash and liquid assets and profitability may be hidden in this fact. Thus the government should use this fiscal tool sparingly with prudence so as not to adversely affect the more profitable investment ratios of the banks. The pith here is that the mechanism to control liquidity shouldn't be veered to one that of inadvertent misuse, but only to be used judiciously to curb excessive liquidity when prevalent in the market.

- *Future scope of research:*
  Present study lacks in the depth and exposition of the actual individual policies of the sample banks, due to specific monitoring and evaluation of the cash management policies of the commercial banks could not be carried out and the concealed nature of the banks' individual policies and unwillingness in part of the banks to disclose

them. Thus, actual specific policies of each individual bank couldn't be obtained. But to serve the purpose of the study, this research relates the relevance of the findings from use of statistical tools. Future studies are suggested to determine, if possible analyze such individual policies. This study due to the constraint of time and data has not been able to analyze each and every aspect relating to the cash policies of the commercial banks. This leaves the door open for further research on the subject.

Bibliography

Books and articles

- Banking Supervision Annual Report 2001-2002, NRB
- Bhalla, V.K. "Investment Management", Delhi University, S. Chand & Company, Delhi.
- Caprio Gerard & Hondran Patrick, "Excess Liquidity and Monetary Overhangs", The World Bank.
- Fabozzi, Frank J. "Cash Management: Products and Strategies", John Wiley and Sons, 2000
- http://www.nrb.org.np/
- http://books.google.com/books
- http:// www.wikipedia.org/Bank
- "Money and Banking", Finance Ministry's Economic Survey, 2006/07
- Pandey I. M., Financial Management, Prentice- Hall of India, Pvt. Ltd. 1999
- Reed Edward W., Cotter Richard V., Gill Edward K. and Smith Richard K., "Commercial Banking.", Prentice Hall, Inc., New Jersey 1984
- Scott David, "Assets & Liabilities Management: Banking Institutions in the Development Markets", Vol-1, World Bank, Washington D.C., 1992,
- Sharma, P.K. and Chaudhary, A.K., "Statistical Methods," Khanal Books Prakashan, 2001.
- Van Horne, James C. "Financial Management & Policy; Eighth Edition", Prentice- Hall of India, Pvt. Ltd. 1990.
- Weston, J. Fred, Copeland, Thomas E., "Managerial Finance" Ninth edition, The Dryden Press, 1990.

Unpublished Theses

- Acharya, Yagna Prasad, **Cash management practices of manufacturing companies of Nepal** -an unpublished Master's degree thesis, T.U. 2003
- Bajracharya, Subarna Lal **Cash Management in Nepalese Enterprises** 1990: -an unpublished Ph. D Thesis, Delhi School of Economics.
- Joshi, Keshav Raj, **A study of financial performance of commercial banks** –an unpublished Master's degree thesis, T.U. 1989
- Lamsal, Rajendra, **A study on Comparative Financial Performance of HBL & NGBL** -an unpublished Master's Degree, T.U. 1997
- Manandhar, Yogendra Man, **An analytical study of the use of sources by financial companies in the context of Nepal** -an unpublished Master's degree thesis, T.U. 2002
- Sainju, Sabin Prakash **Cash management in public manufacturing enterprises of Nepal; a case study of Royal Drugs Limited** –an unpublished Master's degree thesis, T.U. 2003
- Shakya, Rajani, **Liquidity assessment of Nepal Bangladesh Bank** –an unpublished Master's Degree thesis, T.U. 2004
- Singh, Shankar Kumar **A Comparative evaluation of financial performance of Nepal Arab Bank & Nepal Grindlays Bank Ltd.** –an unpublished Master's Degree thesis, T.U. 1997.
- Udas, Shyam Kumar. **A Comparative appraisal on financial performance of Nepal Bangladesh Bank & Bank of Kathmandu** –an unpublished Master's Degree thesis, T.U. 2001