INVESTMENT POLICY OF THE COMMERCIAL BANKS IN NEPAL

(With references to NABIL, NIBL, EBL, BOK, MBL, KBL)

A Thesis

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RECOMMENDATION

This is to certify that the thesis
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(With References to NABIL, NIBL, EBL, BOK, MBL, KBL)

Has been prepared as approved by this department in the prescribed format of the Faculty Of Management. This thesis is forwarded for examination.

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DECLARATION

I hereby declare that this thesis report entitled, Investment policy of the commercial banks in Nepal submitted to Nepal Commerce Campus, is my original work done in the form of partial fulfillment for the requirement of Master in Business Studies (M.B.S) under the supervision of Dr. Sushil Bhakta Mathema .

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BREVIATIONS

B.S.	:	Bikram Sambat
C.V.	:	Coefficient of Variation
CRR	:	Cash Reserve Ratio
e.g.	:	Example
EBL	:	Everest Bank Ltd
etc.	:	et cetera
FY	:	Fiscal Year
GDP	:	Gross Domestic Product
BOK	:	Bank Of Kathmandu Ltd
i.e.	:	That is.
IPS	:	Investment Policy Statement
KBL	:	Kumari Bank Ltd
Ltd.	:	Limited
MBL	:	Machhapuchhre Bank Ltd.
MBS	:	Masters in Business Studies
NABIL	:	Nepal Arab Bank Limited
NPA	:	Non Performing Assets
NRB	:	Nepal Rastra Bank
P.E.	:	Probable Error
Pvt.	:	Private
r	:	Correlation coefficient
r^2	:	Coefficient of determination
Rs	:	Rupees
ROA	:	Return on Assets
ROE	:	Return on Equity
NIBL	:	Nepal Investment Bank Ltd.
SLF	:	Standing Liquidity Facility

STDEV : Standard Deviation

CHAPTER – I

INTRODUCTION

1.1 General Background of the Study

Our county being one of the developing countries and in its transitional phase, economic development plays a vital role in its development. In the path of its economic development the main contribution is from its economic growth rate and development of its financial sector. We can say that the economic development on the financial aspect depends upon the capital formation and its proper utilization. The financial system deals with the collection, formation and proper utilization of the thrifts of the economic development. Hence, the network of well organized financial system counts for the economic development of the country- as it collects the scattered financial resources from the masses and invests them in the development of the country. We can say that the main obstacle/restriction in Nepal's effort towards its developed economy is not the lack of resources-but the improper utilization of the available resources. It is an unavoidable fact that the process of economic development depends on various factors; however the economists are now convinced that capital formation and its proper utilization plays a paramount role for the rapid and healthy economic development of a country. It is a known fact that economic activities of any country can hardly be carried without the assistance and the support of the financial institutions, because they play the catalytic role in the role in the process of economic development. Among these financial institutions; banks have their long term impact not only in the financial development but also in the overall development of the country.

In today's context commercial banks are the major financial institution which occupies quite an important place in the framework of every economy because it pools the scattered fund in the economy and gets them properly mobilized into some productive sector of the economy. Besides it contributes to the overall development of the economy by rendering numerous services to their customers which helps in facilitating their economic as well as social life. The active role played by the commercial banks in

today's scenario, has shown us the possible favorable changes in the whole infrastructural development of the country. Today, we can see that the commercial banks have become the heart of the system in every possible way; may it be its pace of development towards the direction of making a new Nepal, or its contribution towards the development of the country or the attractive employment opportunities it has shown to the unemployment sector. Hence we can say that –banks are not the outcome of economic development but cause for it, as it provides different facilities to the people engaged in trade, commerce and industry by reaching to the nooks and corners of the country; and being the means for the upliftment of the society and country as a whole.

1.1.1 Investment

"Money attracts Money" , this sounds familiar to every individual involved in some or other investment activities; this means if you know the tactics to invest your money in the right way in the right place and at the right time - you will earn more amount of extra income(money in return) in the future from the investment you made. In a common Layman's view, every investment gives a certain return- it could be both favorable and unfavorable, depending upon the efficiency of investment made.

In general sense, investment is the sacrifice of money to generate more money. Whereas, in economic sense, investment is the purchase of goods not for consumption but for the future creation of wealth. Investment encompasses the vision of profit, risk involved, speculation and wealth generation.

By foregoing today's consumption and investing the savings; the investors expect to enhance their future consumption possibilities. The term 'investment' has its primary significance in financial sector, i.e. it refers to the process of determining the worthy area to invest a firm's fund to procure expected return as a favorable one by its maximum utility at the minimal risk. We can say that investment is concerned with the management of an investor's wealth- who is interested in working on it to get more of the money (which includes the sum of current money and the present value of all future money).

Investment promotes economic growth and contributes to a nation's wealth; as in- when people deposit money in a bank, for instance- the bank may invest it by lending the funds to various business companies. These firms in return may invest the money in new factories and other equipments to increase their production. Besides borrowing from the bank most of the companies issue stocks/bonds and sell them to the investors to raise the capital needed for their business expansion. Government also issues bonds to obtain funds to invest in projects such as the construction of dams, roads, schools etc- for the development of the country. All such investments done by the individuals, business firms and government involves a present sacrifice of money to get an expected future benefits. Hence we can say that investment raises a nations' standard of living.

However the investment needs to be a procedural task.' i.e. it must follow a definite investment process, which definitely begins from the formulation of a proper investment policy.

1.1.2 Investment Policy

Investment policy in simple words is the proper management of any fund/wealth to maximize the value of it or to obtain the favorable return with minimal risk considering the protection of the investment from inflation, taxes, and other factors. It ensures efficiency on the allocation of fund to achieve the materialistic and economic well-being of the society. Inappropriate or say unsuitable investment policy and inadequate knowledge on it usually creates dilemma to the investors on selection of an optimal investment area. Investment policy basically involves the determining of the investors' objectives and the amount of invest -able fund available. Investment is always related with risks and returns. Making money alone cannot be an appropriate objective in itself; the objective should focus on making decent return by recognizing the possible losses. Therefore investment should state in terms of both risk and return. We can say that there is a positive relation between risk and return for sensible investment strategies, and the investment policy concludes with the identification of the potential categories of financial assets for consideration in the ultimate portfolio.

Investment policy is one aspect of the overall spectrum of policies that guides any firm in its investment operation. A sound and liable investment policy can be effective for the economy to attain the economic objectives directed towards the acceleration or the pave of the development of the financial aspect of the economy and country's economy as a whole. A good investment policy attracts both borrowers and lenders which enhances the volumes and quality of the deposit, loan and investment.

Sound investment policy minimizes the interest rate spread and NPA's, which are the main cause of bank failure; a good investment policy ensures maximum amount of investment to all sectors with proper utilization of the available resources.

'The purpose of the Investment Policy is to guide the Foundation in effectively supervising, monitoring and managing its investments.

The policy statement is designed to allow for sufficient flexibility in the management and oversight process, while setting forth reasonable parameters to ensure prudence and care in the execution of the investment program' (Christus St. Patrick Foundation Investment Policy).

From the above explanation we can say that investment policy is an important ingredient for the overall economic development. In this regard, the commercial banks also formulate their investment policies which drive to achieve the priority of the commercial sector along with their needs in the context of the whole country's economic development.

1.1.3 Commercial Banks

Today banking is an industry in change; rather than being something in particular, it is continually becoming something new - offering new services, merging and consolidating into much larger and more complex business adopting new technologies that seem to change faster than most of us can comprehend. Despite all of the epic changes sweeping through this vital industry, some things in banking never seem to change. It is and

probably always will be a service industry. However service accuracy, friendliness, and quality of service vary from bank to bank in most market areas. Unlike many other jobs, banking requires both technical and personal skills- rather than just one and the other. Banking- we can say is a relationship business. People come to trust in a bank and rely on its accuracy and stability when they need financial guidance, and they routinely expect courtesy when they deal with bankers. Despite the transition and turmoil in the banking sector, it requires special personal traits. Bankers can never stop learning because their industry is becoming something new everyday, and their customers expect them to be ahead of the curve. Banks are among the most important financial institutions in the economy; they are the principal source of credit (loan-able funds) for millions of individuals, business units and for many units of government as well. Moreover for everyone engaged in the financial activities- banks are often the major source of credit to stock their products; and besides when they need financial information and financial planning, it is the banker whom they turn most frequently for advice and counsel. Banks are those financial institutions that offer the widest range of financial services – especially credit, savings and payment services – and perform the widest range of financial functions of any business firm in the economy. This multiplicity of bank services and functions has led to banks being labeled 'financial departmental stores'.

In case of Nepal, banking started with the establishment of "Nepal Bank Limited" under the Nepal Bank Act 1994 B.S. However after adopting the policy of economic liberalization by the government, the commercial banks paved its ways to the service sector; these commercials banks were established under the Commercial Banks Act 2031 B.S. and were registered with the recommendation of Nepal Rastra Bank- the central Bank of the country. In 2041 B.S. Nepal Arab Bank Limited was established as the first commercial bank (joint venture) Bank in Nepal – Later which was named and still known as NABIL Bank Ltd. After the regain of democracy in 2046 B.S. NRB adopted more liberal policy in establishing the commercial banks in Nepal. As a result the number of commercial banks have fostered since then. Apart from providing different services and facilities to the society it has also been providing modern banking by introducing higher

technologies and efficient methods in the banking sector which has shown a new perspective of banking in Nepal these days.

Commercial banks are the heart of the financial system – all the economic activities are greatly influenced by commercial banking business. They hold deposit of millions of people, business units and Government. And make fund available through investing and lending activities to the borrowing individuals, business units and government.

It is unavoidable fact that the role of the commercial banks in its economy is significant; as it mobilizes the domestic resources and invests in the productive sectors. Investment is the most important function of the commercial banks; it is the long-term commitment of the bank in the uncertain and risky environment. Hence it is a very challenging job for any commercial bank so it should be very cautious while investing their funds in various sectors, as the success and failure of the bank heavily depends upon the proper management of its invest-able funds.

1.1.4 Importance of Investment Policy to the Commercial Banks

Investment policy of the financial institutions, especially banks have long term impact not only on their growth and sustainability but also on the economic development of the country. Above all in today's scenario investing is a very risky job, hence to produce a safe and profitable investment; bank must follow a sound investment policy.

As we know that one of the main objectives of the commercial banks is to provide the fund needed to the community, i.e. lending service to the community. To make their lending service more effective, the commercial banks formulates sound investment/lending policies which eventually contributes to the economic development of the bank and further contributes to the overall development of the country. As we know that any action proceeded by plans-made are best implemented. Likewise, sound policies help the commercial banks maximize its quality and quantity of its investment and thereby, achieve their focused desired objective. Investment management of a bank is guided by the investment policy adopted by the bank which helps then in the investment

operation of the bank to be efficient and profitable by minimizing the inherent risk. Investment policy comprises the set of guidelines and procedures that direct the long-term management of the investment. Without a clear vision of why the investment are being made and how the goals are to be achieved; it is likely to pursue inefficient approaches which leads to unsatisfactory results. An investment needs a plan that directs the efforts made, and that plan is the investment policy. However, the fundamental principles of the commercial banks like the volume and quality of deposit, loan, and investment are to be considered while making the investment policy. Besides the formulation of sound lending policies for all banks should have adequate and careful consideration over the community needs, size of loan portfolio, character of loan, credit worthiness of borrower and asset pledged to security borrowing, interest rate policy, etc.

It is believed that the soundness of a bank is reflected in the distribution of its funds on different types of assets. A good banker is one which follows a profound investment policy which brings maximum profit to shareholders and provides maximum security to the depositors. There are no any consistent rules as in to determine the portfolio of a bank. However there may be local conditions in which the bank operations will necessarily have a acceptance to its investment policy. And apart from the local conditions, a bank fundamentally is governed by three important principles while formulating its investment policy. The guiding principles of the investment policy of a commercial bank are liquidity, profitability and security; these three attributes are inter-related and any bank cannot afford to sacrifice one in favor of the other.

Every commercial bank has its investment policy to guide them on their investing operation. The basic factors that will determine the objectives of a bank's investment policy are its income, liquidity needs and the management's willingness to trade liquidity for greater income opportunities along with the degree of risk associated. Formulation of an investment policy must give awareness about the entire risk exposure that the bank management is willing to assume. One of the acceptable methods of reducing risks in the investment portfolio of a commercial bank is by diversification – a basic and important rule of any investment policy. Risk cannot be completely avoided by diversification, but

they can be reduced. Besides the investment policy of a bank should be revised occasionally and modified as economic conditions changes.

The influence on the cost and availability of credit in the economy heavily relies on the loan and investment policy of the commercial banking system. Less exclusively yet significantly, the effectiveness of debt management and open market operations in influencing the terms of credit to private borrowers has been linked to the responsiveness of commercial banks to changes in market prices and yields to government securities. In any commercial banks we find that the deposit relationship of a loan customer is a primary consideration in determining the cost and availability of bank credit to that customer. Here the discussion is based in terms of the broader analytical categories of yield, risk, and liquidity applicable to any investor. But in case of a commercial bank, it neglects the role of deposit as the principle source of an individual bank's power to lend an invest, and this leads to the significance of the deposit relationship for the individual bank and its influence on broader issues as the cost and availability of the bank credit which totally depends upon the bank's investment policy. Hence the studying devoted to "The Investment Policy of Commercial Banks" is so important.

1.2 Statement of Problem

In our country we see unequal distribution of income which is the main cause of less mobilization of money which thus creates less saving, inadequate capital formation and insufficient investment. Here we have large population comfortably living (satisfied with what they have) and do not have the amount to spare; so these people should be encouraged to save money and make some investment for their future.

The numbers of joint venture banks as well as financial institutions have been set up at a rapid rate after the adoption of economic liberalization policy of the Government of Nepal. However in today's context, where the commercial banks are mushrooming, the competition among them has been a tough job, where it collects lots of deposits with comparatively low investment opportunities. And due to less investment they happen to discourage their depositors by reducing the interest on deposit and increasing the

minimum threshold balance-however nowadays the latter is diminishing instead used as the promotional tool to attract new depositors with minimal threshold balance. On the other hand, these banks seem to be granting much loan, advances and other facilities against insufficient collateral of their clients. Lack of sound knowledge about the financial risk, business risk and other risk leads to more unsecured loan and investment - which compels the bank towards liquidation and bankruptcy. Therefore appropriate investment policy is the essence of all the joint venture banks, commercial banks and other financial institutions to deal with the cutthroat competition.

It is not just because of lack of potential clients or adequate deposit, but the problem here is about the profitable sector or opportunities to invest. Banking sector are not able to grow to their potentials, they are facing problems from the external environment like unstable political, legal, economic and social scenarios in Nepal nowadays; and this leads to resulting insecurity towards any investment. For this reason also there should be a proper investment plans to be made concerning about its-how, where and when the investment is to be made.

Various policies launched by NRB may add advantage to the nation, but also providing unnecessary interference in the daily transaction of the commercial banks. Major problems in state owned commercial banks today are: overstaffing, corruption, cutthroat competition including the never ending offers it makes to attract the customers; which affects the investment policy as well.

Moreover, this study will analyze the relationship of investment policy and the deposit mobilization and the profit position of the banks. Specifically this study will make a modest attempt to analyze the investment policy of selected commercial banks which relates to the investment function of the commercial banks of Nepal as a whole and also deals with the supporting issues like:

1. How efficient/reasonable are the commercial banks in Nepal-in accordance to their investment policy?

2. What is the standard form of the investment policy the commercial banks should have? And whether the banks today are following the rule or not, if not why?
3. What is the effect of the investment decision on the Total profit and GDP thereby?
4. What are the views and ideas of the financial executives and customers regarding the knowledge on the various aspects of the investment policy adopted by the commercial banks today?
5. What is the relationship between the various important variables like deposit, loan and advances, total investments and the net profit of the selected banks?

1.3 Objective of the Study

The major objective of the study is to evaluate the investment policy and the fund mobilization of the commercial banks in Nepal; and as the sample for the study we take selected commercial banks of Nepal- in the analysis using the different financial and statistical tools.

The specific objectives are as follows:

1. To evaluate the investment policy trend of the commercial banks in Nepal.
2. To analyze the trends of most influential items to the investment policy of a bank like total deposit, total investment and net profit: under which we conduct various activities like:
    - To examine and evaluate the liquidity, asset management efficiency, profitability and risk position of the selected banks.
    - To make a comparative study on fund mobilization and investment policy of the banks.
3. To provide suggestions, guidelines and appropriate recommendation for the betterment of the related area- on the basis of the study (observation & analysis).

1.4 Limitations of the Study

In the context of Nepal, data availability is the major problem for any purpose – that may be because of the poor document handling management or due to the wretched response from the concerned people when asked for any information.

This study is simply a partial requirement of MBS program, and the limitations faced while doing this study are as follows:

- Only the available secondary data will be analyzed for the interpretation of any results and the decisions will primarily be depending on the reliability of the secondary data available.
- The sample taken for the study may not represent the whole population of the commercial banks in Nepal.
- The study is just for suggestions and no for any directions or incommode.
- The data are modified as per the study.
- Lastly, the time factor is the major limitation of this study, as this has to be completed within a short period of time.

1.5 Organization of the Study

This study is organized into five Chapters to be comprehended in the simple and easy way; as it will be carried out into different stages and procedures and the thesis will be organized in a proper sequence in the following structure:

Chapter-I Introduction

Background information on the subject matter while undertaking the research will be presented under this section to provide the general idea of the concept and its related areas. So this section will include background of the study which will focus on the concept and importance of the investment policy in the banking area especially in the commercial banks, banking in Nepal-commercial banks, overview of the selected banks. It will be followed by statement of problem, objective of the study and limitations of the study.

Chapter-II Review of Literature

This section will be dealing with the reviews of relevant previous writings and the studies along with the review of the previous related research projects and unpublished thesis, review of various related books, reports and articles; to find out whether the trend has changed or not on that related field. This will include the definition of commercial banks, its evolution, investment policy, deposit & its types, loan and advancement, etc. Hence under this section we will refer to various approaches taken by other researchers and related literature on the related topic.

Chapter-III Research Methodology

The methods to gather data and the tools employed and used in its interpretation will be discussed in this section under the headings- Research design, Population and sample, Nature and sources of data, selection of the enterprise and the study period, the method of analysis(the financial and statistical tools used for the analysis of the data).

Chapter-IV Presentation and Analysis of Data

The fourth chapter will be consisting systematic presentation and analysis of the financial statements which is the mathematical portion where all the computation and the interpretation will be done employing the financial and statistical tools mentioned in chapter three. It will contain the major findings including all the findings on the theoretical data and the findings on the various ratios which will reflect the financial condition of the concerned banks.

Chapter-V Summary, Conclusion and Recommendations

The last chapter of the thesis will be the most crucial section as it will be the outcome of the study which is the conclusion part that deals with the summarizing and concluding the major findings and drawing viable recommendations and suggestions on the basis of the study done for the respective institutions.

CHAPTER - II

REVIEW OF LITERATURE

This chapter includes the review of previous studies and the conceptual framework on the topic and its related areas. Review of literature is an essential part of all studies; it is a way to discover the research in the area of our problem revealed/covered so far and what is yet to be discovered. It provides the thorough understanding related to the present study by the insight of previous research works and besides it avoids investigating problems that have already been answered. Above all, to present the real framework of the study mere analysis is not enough, review of some related materials should be dealt with to give the research a clear vision. However past study and knowledge provide basic foundation to the present study.

Hence, the literature reviews on this study from a comprehensive perspective, moving on to more specific studies done on this topic are presented below:

2.1 Conceptual/Theoretical Review

2.1.1 Review of Basic Books

2.1.1.1 Brief concept of Commercial banks, Investment Policy and its Importance to the Commercial Banks

2.1.1.2 Creating Investment Policy

2.1.1.3 Purpose/Components of an investment policy and its process.

2.1.1.4 Principle of Banking Investment Policy

2.1.2 Review of Legislative Provisions

2.1.3 NRB Directives

2.2 Review of Related Studies

2.2.1 Review of Articles/Journals

2.2.2 Review of Research Papers/Previous Studies

2.3 Research Gap

2.1 Conceptual/Theoretical Review

2.1.1 Review of Basic Books

2.1.1.1 Brief concept of Commercial Banks, Investment Policy and its Importance to the Commercial Banks

Today banking is an industry in change – it is continuously becoming something new – offering new services, adopting new technologies. In spite of its changes, it probably is and always will remain a service industry. Bank involved in a service industry is dedicated to overall financial activities of the economy; they offer a wide range of financial services such as: currency exchange, discounting commercial notes and making business loans, offering savings deposits, safekeeping of valuables and certification of value, supporting government activities with credit, offering demand deposits, offering trust services, granting consumer loans, financial advising, cash management, offering equipment leasing, making venture capital loans, selling insurance services, selling retirement plans. However among these, the primary function of banks today is to produce and sell financial services demanded by the public. One of the most vital of those services is granting loans, particularly loans used to support business investment. Yet not all bank funds can be allocated to loans because: many loans are illiquid; it is among the riskiest bank asset – carrying the highest borrower default rate of any form of bank credit; all loan income is taxable. For all these reasons, banks have to learn to devote a significant portion of their asset portfolio to another major category of earning asset: investment in securities like government bonds and notes, corporate bonds and notes, other form of debt securities and other stock permitted by law. These holdings perform a number of vital functions in bank asset portfolios- providing income, liquidity, diversification to reduce risk, and the sheltering of at least some portion of bank earnings from taxation. Hence to have a well managed bank asset portfolio a bank must have its investment policy.

For any bank, one of the important steps to take in the investment planning process is the creation of the Investment policy statement. An investment policy statement defines your goals and sets the guidelines for the investment activity, and some even consider it their

business plan for making critical decisions. Most importantly it provides discipline. The investment policy statement can be broken down into these following sections:

- Definition of goals and objectives
- Statement of parties' responsibilities
- Risk and return parameters
- Asset allocation detail
- Screening criteria
- Investment due application and monitoring procedures
- Account review and rebalancing guidelines
- Fee and expenses considerations

The investment policy should specifically list how to distribute the investments – also known as the asset allocation which should be very specific. It should also include a provision detailing when to rebalance the portfolio, i.e. reworking the portfolio to the original asset allocation. A lot of time and effort should be given in creating an investment policy – because when constructed and followed properly, it provides the discipline to the investment process (source: Donald Trone of the Foundation for Fiduciary Studies).

A bank may decide to embark on aggressive, liberal or a conservative investment policy. The type to be adopted will depend on the bank's objective, income and the level of the bank's present and expected risk exposure. For instance, a bank that is already much exposed to liquidity risks in loans and other assets will definitely pursue a conservative investment policy. Preferably, investment policy should be in writing. This will help to ensure uniformity and consistency in its application. However, it should be flexible enough to give room for the use of initiatives, and for easy room for the use of initiatives, and for easy adaptation to changes in the environment.

Finally, to ensure that the investment policy does not end up as a mere paperwork, appropriate machinery must be set on motion for its implementation. Authorities should

be defined, and responsibilities assigned to specific officers or departments. There should be a provision for the appraisal and review of such policy.

2.1.1.2 Creating Investment Policy

An investment policy statement is an important document that will develop a 'blueprint' for managing an organization's assets. A well-developed statement will establish long-term objectives, promote adherence to these objectives, provide a disciplined process, and serve as a guide through difficult markets. Creating an asset allocation policy is an interactive process in which an organization must consider the strategic goals and objectives for their pools of assets. The process can be categorized into four important steps- evaluation, construction, implementation, and review. Each step by itself requires detailed analysis, but equally important is that all four must be completed for a thorough review.

- **Evaluation**

The evaluation component of the process requires an organization to review its policies and objectives regarding the use of the assets. There are several questions that should be considered specifically targeting the requirements of the portfolio. A review of spending requirements of liabilities is key in developing the return requirements.

The offset to return is to identify an acceptable level of risk that can be taken by the portfolio. This includes the traditional volatility review as measured by the standard deviation. However, standard deviation is not the only risk to be considered. Discussions should include the ability to handle both near- and long-term losses, consideration of a maximum acceptable loss for a given year or longer, and the implications if the required return is not met. The time horizon over which the assets will be invested will help in the risk analysis. Investment risk decreases over time, which implies that longer time horizon portfolios can take on additional risk. During the evaluation process, conflicts between the factors may arise, and further evaluation must be done. As an extreme example, if the required return for a particular asset pool was identified as 10% per year, and the organization is uncomfortable with anything other than a high quality fixed income

portfolio, it will be impossible to meet those objectives. In that case, the return requirements and risk analysis must be revisited with changes to one or both to settle on a realistic plan. Every organization is different, and must be reviewed so that we can help develop an investment strategy that will meet their goals and objectives.

- **Construction**

Information gathered during the evaluation phase develops the foundation for portfolio construction. Based on that understanding, an asset allocation can be created to meet those objectives. Studies have shown that over 90% of the variability in return is based on the asset allocation selected (Brinson, Singer, and Beebower, 1991) and determining the right mix is a helpful guide in both strong and weak markets.

The foundation for any review is to develop expectations of returns for different investments. Historical analysis is useful by providing an idea of how various asset classes have performed over time and through different market cycles, and forward-looking analysis is critical to reasonably assessing the potential of reaching investment goals. The starting point of our projections is based on forecasting inflation. From that base, we build the estimated returns based on historical risk premia for the different asset classes. We also consider how changes in things such as growth rates of earnings, the inter-relationship of global markets, inflation, the global yield curve, and investor risk sentiment will affect these projected returns.

Additional asset classes such as Emerging Markets, High Yield Bonds, Real Estate, Alternative Investments, etc. can play an important role and should also be considered depending on the comfort level and appropriateness for the investor. While each of the asset classes by themselves carries varying levels and types of risk, each must be analyzed relative to each other and the value that can be added via a broad portfolio. The power of diversification comes from the relationship of uncorrelated assets. Each asset class is reviewed based on its historical correlations with the other investments.

With projections of asset class returns, standard deviations, and correlations, the next step is to create multiple portfolio options that provide the highest level of return for a given level of risk. Using a mean-variance portfolio optimizer, various portfolios can be created. Mean-variance optimization is a statistical process that uses the mean returns (either historical or projected), standard deviations (variance), and correlations to analyze the inter-relationship between various asset classes, and calculate portfolio mixes that are the highest return for each given level of risk. This collection of "optimal" mixes along the risk spectrum is referred to as the "efficient frontier". This is a useful tool to measure the risk level of portfolios, understand the impact of changes, and ensure that investors are compensated for the amount of risk that is taken. With these benefits, the process does also have limitations. The primary limitation is that it looks at standard deviation as the sole measure of risk. As discussed in the evaluation section, there are other items within the risk category that need to be considered. Nonetheless, it provides useful information as portfolios are constructed.

Projected returns, diversification, and optimizers must be combined with client-specific information gathered in the evaluation phase to develop a customized investment plan. Based on return requirements and risk tolerances, the universe of potential portfolio mixes can be narrowed to specific options that will meet the portfolio objectives. Investors should review the best and worst returns for different years and time periods to determine their comfort level with the outcomes.

Various portfolio options should also be "stress tested" to understand the range of possible outcomes for a given mix. Factors such as cash flows and spending rates can also be factored in to provide more realistic modeling. The output of such analysis will provide statistical probabilities of certain outcomes. This is especially important relative to an investor's risk tolerance because it can provide guidance for "best" case and "worst" case scenarios, and helps validate the chosen allocation.

- **Implementation**

Once the goals are determined and the portfolio structure is identified, the plan is put to work through the implementation phase. Executing the plan is just as important as how the plan has been developed. Care must be given to the choice of investment strategies that will fill the various asset class "buckets". Determining the use of active investment versus passive (indexing), styles such as growth versus value, and rules for rebalancing the portfolio are all considerations that must be reviewed.

The "active versus passive" discussion gives investors the ability to take advantage of asset class efficiencies, or inefficiencies as the case may be. While some investors feel strongly one way or the other, the optimal solution can often be reached through a blend of the two. By blending passive and enhanced indexing (mostly in the more efficient asset classes) with active (mostly in the less efficient asset classes), investors can control the amount of risk that they take, make sure they are being compensated where they do take it, and ultimately create more efficient portfolios.

After the strategic asset allocation and investment strategies have been determined, a critical decision is how to manage the asset mix. One option is to manage the asset weights tactically (called Tactical Asset Allocation) based on the manager's evaluation of the current markets and opportunities. With this approach, the manager adjusts the weightings based on these views and, for example, sells stocks when they appear poised to fall and increase equity exposure when the manager sees them rising more than the alternatives. However, the manager would always keep the asset weights within the policy ranges as well as determine how cash flows are invested.

The other option is to keep asset mix consistently in line with the policy benchmark regardless of manager or client's views on the market (called Strategic Asset Allocation). The key decision then becomes how frequently to rebalance the strategic allocations of the portfolio, and how to manage cash flows as the holdings deviate from target allocations due to investment performance. Most investors agree that the strategic allocation will be the most important factor responsible for the long-term results of the

portfolio; any reallocation activity should be limited to preserving the integrity of the strategic policy.

There are a few schools of thought when it comes to Rebalancing Policies

- Calendar or periodic rebalancing at specific times such as monthly, quarterly, or annually.
- Rebalancing when the mix drifts to a set trigger point.
- Rebalancing to an allowable range within a set tolerance limit.
- Allowing the asset mix to drift.
- To minimize variation of returns away from a benchmark due to asset drift, monthly rebalancing has been found to be the "optimal" timeframe in the absence of any costs. This ensures a disciplined rebalancing that keeps weights close to target, but without incurring the high costs of trading each month.

- **Review**

A well-created investment policy is a good guide for an organization based on its circumstances at the time of the review. In reality, those circumstances are always changing, and it is important to regularly review the policy statement to ensure that it is still appropriate. A formal required review quite often is suggested to ensure that the investment committee, board, and staff know it is their responsibility to conduct the process. In between formal reviews, any changes in situation, such as a change in funding status, a change in ownership, a large cash inflow, or re-evaluation of risk tolerance should be discussed and reviewed for its impact on the investments. A review does not necessarily require a change in strategy, but to re-affirm that the approach is appropriate is an important step.

Developing an investment policy can be an involved process, but is necessary for a successful investment program. The steps of evaluation, construction, implementation and review provide the framework for developing a policy that will meet an organization's investment goals and objectives (By Daniel Farley, CFA, Head of U.S. Global Asset Allocation, Global Asset Allocation).

2.1.1.3 Purpose/Components of an Investment Policy and its Process

The investment policy statement (IPS) should be the basic building block in an intentional investment process. The Investment policy development process provides crucial education for the client and is a key communication step, helping each party to understand the other's perspective and goals. The Investment policy is the document that guides the advisor as future decisions are made; it serves as a guidepost against which the reality of what has happened can be measured against the rules and procedures and benchmarks that were agreed to. Finally, it serves to create a purposeful decision-making process in rational times, to guide clients through the inevitable rough periods when emotions may cause them to make less than optimal decisions.

- **Basic purpose of an Investment Policy**

The investment policy statement serves four basic purposes:

- Identifying objectives - to establish clear, reasonable and definable expectations, risk and return objectives, and guidelines for the investment of the assets.
- Defining the asset allocation policy - to set forth a structure and identify the investment asset classes that will achieve a diversified portfolio, as well as to determine how those assets are to be best allocated to help achieve the investor's objectives.
- Establishing management procedures - to provide a guide for selecting, monitoring and evaluating the performance of those charged with managing and investing the assets, and making changes as appropriate.
- Determining communication procedures - to provide a concise method of communicating the process and objectives among all parties involved with the investments and to assign responsibility for implementation.

Two cautions are worth repeating: (1) if you are going to create an investment policy statement, it is only useful if it is in writing; and (2) if you have an Investment policy, it is essential that you follow it. Worse than not having an investment policy statement is to have one and ignore it.

- **Components of an Investment Policy**

There is no one right way to construct an Investment policy, although advisors who use a consistent structure each time will find the process of writing an Investment policy much less arduous and time-consuming. Our approach is to categorize the common components of a complete investment policy statement into seven parts:

- Introduction-purpose of the Investment policy and an explanation of why the investments are being structured as suggested
- Key factual and account information and summary of investor circumstances
- Investment objectives, time horizon and risk attitudes
- Permissible asset classes, constraints and restrictions
- The asset allocation
- Selection, monitoring and control procedures
- Signatures

Each advisor will approach each of these parts differently and each client's Investment Policy will require a certain degree of individualization. At the same time, having a template to provide consistency in structure from one client to the next can help save time as well as improve the output.

- **Steps of a proper Investment Process**

Investment process describes how an investor should go about making investment decision with regard to how to invest (analysis), how much to invest (Portfolio Construction), and when to invest (timing and diversification) so that optimal portfolio (revision) is formed to suit investment strategy (objective).

A thorough and proper investment process has nine steps. Each step relies on many different inputs and will be uniquely determined based on the advisor's sophistication, his or her biases and preferences (Source*:* Norman M. Boone, CFP, and Linda S. Lubitz, CFP, are co-authors of the forthcoming book Creating an Investment Policy Statement-Guidelines & Templates. They have their respective financial planning firms in San Francisco, California, and Miami, Florida).

Step-I: - Identify Goals

Step-II: - Identify the target rate of return

Step-III: - Knowing the Time Horizon

Step-IV: - Understanding the client's risk tolerance

Step-V: - Identification of asset classes and Investment vehicles

Step-VI: - Design the asset allocation

Step-VII: - Write the investment policy statement

Step-VIII: - Select the Investments

Step-IX: - Monitoring, Managing and Reporting

2.1.1.4 Principle of Banking Investment Policy

Banking being the service industry- it performs various financial activities. The traditional view about the function of bank was just limited to accepting deposits and providing loan, but today the whole functioning of the bank has came through a revolutionary change; i.e. it provides multiple bank services and hence labeled as 'financial departmental store'. And providing these services includes some integral risks; as bankers are the trustees of the community, they cannot take undue risk. A banker hence has to follow a cautious policy and conduct its business on the basis of certain sound principles- especially regarding its investment plans. There is no universal rule as on how should any investment policy should be made, but there are some principles to guide them. So, here are some principles of the banking investment policy- Source: web- Metropolitan St. Louis Sewer district Public Funds Investment Policy Adopted February 8, 2001.

- **Principle of Safety and Security**

Preservation of principal is the foremost objective of any investment program. Investment should be undertaken in a manner that seeks to ensure the preservation of capital in the overall portfolio. The objective will be to lessen the extent of the banking risks. Normally banks confront different kinds of risks, like:

- Credit risk: Credit risk arises whenever another party enters an obligation to make payment or deliver value to the bank, which is mostly associated with the lending.

- Liquidity risk: Liquidity risk arises when bank itself fail to meet its obligation. The bank has obligations to make payments to different parties at any time, and when they fail to do so, that is termed as liquidity risk.
- Yield risk: The risk of the bank's assets generating less income than the expenses generated by its liabilities if the yield risk.
- Market risk: The risk of loss resulting from the movements in the market price of financial instruments, in which the bank has a position, is the market risk like bonds, equities, foreign exchange and associated derivative products.
- Operational risk: The risk of failure in the banks procedures or operation – whether internal or external failure due to the negligence of its operation is the operational risk.

- **Principle of Liquidity**

The investment portfolio should remain sufficiently liquid to meet all operating and debt service obligations that may be reasonably anticipated. This can be accomplished by structuring the portfolio in such a way that the securities mature with cash needs to meet anticipated demands. Furthermore, since all possible cash demands cannot be anticipated, the portfolio should consist largely of securities with active secondary or resale markets. A portion of the portfolio also may be placed in bank deposits or repurchase agreements that offer same-day or next-day liquidity for short-term funds.

- **Principle of Profitability/Yield**

The investment policy should be designed with the objective of attaining a market rate of return throughout the budgetary and economic cycles, taking into account the safety and liquidity objectives stated above. Return on investment- however can be stated as the secondary importance compared to the safety and liquidity objectives described above. The core of investment is limited to relatively low risk securities in anticipating of earning a fair return relative to the risk assumed. In simple words- a bank should focus on earning more profit and maximize the value of their shareholders; and for this it should invest its fund in a profitable sector. Without profit any bank will have difficulty in

achieving its success, i.e. profit maximization. Hence to achieve its goal- it should adopt the principle of profitability while making its investment policy.

- **Principle of Diversification**

According to this Principle, a bank should not invest all their funds in the same kind of investment or say in the same sector. The investments shall be diversified to minimize the risk of loss resulting from over concentration of assets in specific maturity, specific issuer, or specific class of securities. There is a saying 'Do not put all the eggs in the same basket'- this is so because it has high risk. Likewise in case of investment also a bank should invest on different areas/sectors; so that if one area is on loss and cannot yield sufficient return- the other one would compensate it. In this way, diversification of the investment would help to sustain loss and minimize the risk associated with it.

- **Principle of Legality**

Under this Principle, the investment provisions or the investment plans should be legal in the eyes of the nation's law – i.e. investing in illegal areas or business not supported by the law leads the bank to its dissolution in near future. Hence any commercial bank must abide by the rules and regulations issued by the Central Bank of the nation as well as the rules of the concerned ministries. The central bank- Nepal Rastra Bank issues directives to guide the financial institutions in its operation tracing its rules.

- **Principle of Social Economic Benefit**

While satisfying the objectives of safety, liquidity and yield – a bank should seek to place its investment with financial institutions that demonstrate a strong investment in, and supporting the overall national economy through the institutions' lending practices. Along with its own interest of earning profit, a bank should also consider the national interest. The directives of Nepal Rastra Bank instructs the banks to invest n such sectors/projects which has less attractive return for the bank but carries its obligation towards the society and the country as a whole. Hence, while preparing its own individual investment policy a bank should consider the national economic policy.

2.1.2 Review of Legislative Provisions

In this section we review those legislative provisions under which the commercial banks operates. There is the specified law, rules and regulations or say a proper defined legal framework to control every financial activities of a country. In case of our country we have our central bank-NRB which provides a legal framework which controls, regulates and supervises the banking activities and its operations. NRB issues different act and clauses on its directives to guide the financial activities along with the operation. These guidelines- directly or indirectly affect the banking functions and it's decision-making. Hence all the financial institutions and the bank must be aware and pretty much familiar with the directives/rules and regulations formulated by NRB.

The commercial banks are affected by the law/legal provision of the country form its establishment – its overall operation till its dissolution. To be more specific all the commercial banks have to operate under the legislative provisions specified in the Commercial Bank Act 2031 B.S.; along with its rules and regulations under the law which helps in facilitating the smooth running of the commercial banks. The main function of any commercial bank established under this act will be mainly dealing with the exchange of money, accepting of deposits, mobilize the bank deposits by providing loan to the commercial and business activities.

2.1.3 NRB Directives

The directives of NRB must be reviewed while making any decisions. Here, we focus on those which are related to investment function of a commercial bank.

The main provisions established by NRB in the form of prudential norms in the concerned area are basically has been focusing to the deprived and priority sectors. Besides, in course of timely rectification of the existing directives, the NRB has been clarifying, nullifying or modifying the unclear clauses in addition to enforcing new directives. In this action it has defined the provision for deprived and priority sector lending in the following way:

- **Priority Sector and Deprived Sector Lending Program**

With the financial liberalization, a policy of phasing out the priority sector lending program has been initiated. However, it has been equally challenging to meet credit demand in rural areas. The priority sector lending program has gradually been phased out since 2002/03. In 2004/05, commercial banks were required to disburse only 2.0 percent of total loans and advances to the priority sectors. However, the deprived sector lending program has been kept unchanged. Newly established commercial banks are required to disburse 0.25 percent and the existing commercial banks are required to disburse 3.0 percent of their loans and advances to deprived sectors. Individual credit up to Rs.100000 has been defined as deprived sector credit.

Besides, the following directives were enforced which is directly or indirectly related to lending program of a bank:

- Banks and financial institutions were required to make a loan loss provision of one percent in case of good loans, only if the loan was restructured or rescheduled with hundred percent interest collection. Distribution of dividend to shareholders is not allowed out of profit earned from the use of this facility.
- Banks and financial institutions should maintain minimum capital fund of 11.0 percent (of which, 5.5 percent should be primary capital) of risk weighted assets, instead of 12.0 percent as directed earlier. The downward revision was made in view of the prevailing adverse situation.

Similarly incase of the maintenance of the Monetary policy stance and instruments, Cash Reserve Ratio CRR), a compulsory cash balance to be maintained by commercial banks at the NRB, was slashed down to 5.0 percent from 6.0 percent. This released additional 2.0 billion loan-able funds to commercial banks. The effect of reduction in CRR at the outset of the fiscal year transmitted into short-term interest rates. As a result, short-term interest rates declined significantly. However, the reduction in CRR contributed to bring down the cost of fund of commercial banks. The reduction in CRR and the provision of Standing Liquidity Facility (SLF) provided commercial banks with confidence in

liquidity management. These phenomena have developed the base for effective transmission of monetary measures.

2.2 Review of Related Studies

In this section we go through the articles, journals, comments made on this topic and its related areas by the scholars of this area; which includes their views with their suggestions for the further improvement. There are various scholars sharing their views on the investment policy and its importance, but here are some relevant ones chosen to support the objective of the study.

2.2.1 Review of Articles/Journals

Bodhi B. Bajracharya (Bajracharya, 2047) in his article, "Monetary Policy and Deposit Mobilization in Nepal" has mentioned the mobilization of domestic saving being one of the prime objectives of the monetary policy in Nepal. Moreover, for this purpose commercial banks are the active financial intermediary for generating resources in the form of deposit of the private sector and providing credit to the investors in different sectors of the economy.

Shiba Raj Shrestha (2055), in his article, "Portfolio Management in Commercial Bank Theory and Practice" has focused on the use of the excess funds in the best and profitable investment. But here the question may arise on how to make any best investment decisions - and the answer would be proper portfolio management. Portfolio management basically means to invest funds in various schemes of mutual funds like deposits, shares and debentures for the investors with surplus income. Basically, the wealthy clients having plenty of surplus funds seek to maximize the return on their fund prepared to take certain amount of risk for this. But due to lack of technical expertise they can't make such investment decision of their own. Primarily, there are only two options for savers/investors, i.e. to use funds either for purchase of financial assets like securities or for purchase of financial assets like land, building etc. while selecting the best mix of investment assets there are things to be considered like; higher comparable return with

alternative opportunities available according to the risk of investor, good liquidity with adequate safety on investment, capital gains, tax concessions, flexible investment, etc.

However, Shrestha states that, in order to get success in portfolio management and customer's confidence, the bank should possess: skilled manpower, strong research and analysis team, Proper management information system.

Rewat Bahadur Karki (2000) in his article on "Nepalese Financial Sector: Challenges and Some Solution" has stated that, the financial institutions especially commercial banks have to identify new areas of investment to increase loan and advances in liquidity position. Especially with the rapid growth in the number of banks and financial institutions in today's world – deposit insurance scheme is a must. The principle reason for introducing such deposit insurance should be one of the social justice rather than economic justification in order to protect the interest of the small depositors.

Krishna D. Bhattarai (2003) has presented an article about the "Non Performing Assets (NPA) Management", where he has mentioned that it is very difficult for a borrower to pay back and for the lender to recover his lending. From a banker's view, it is just like a stone to roll down from the top of the hill while approving the loan, but too difficult to roll back the same stone to the top of the hill while recovering the loan. A loan not recovered within the given time frame either in the form of interest servicing or principal repayment is called non-performing loan. There are other parameters as well to quantify an NPL; like inadequate security and safety margin for the loan amount specified, value of security unrealizable, conflict of the charges – these are the various reasons which causes difficulties while recovering the loan. According to him, NPL for a bank is like a developing cancer in a human body, which will collapse the whole bank if not managed in time. Hence managing is an important discipline in banking to prevent whole NPL or avoid situations for a loan to turn into NPL. A loan disbursed as a good loan doesn't turn into a bad one over-night. It takes certain course of time to turn into a bad one. An efficient bank management can recover the loan before turning it into bad and can save itself from the unwanted collapse.

"Investment Policy Review of Nepal" a Report by UN has stated that, despite the growth in the number of financial institutions over the past decades, all is not well in financial sector. The main constraint in the financial sector is not a shortage of commercial institutions or financial resources but rather institutional weakness and low standard of governance (UNIDO, Vision-2020, 2002). The report further says that, in addition to corporate governance issues- commercial banks are also adversely affected by compulsory lending to small borrowers in 'Priority Sector'. Commercials banks must devote certain percent of their lending to these loans, which entail interest rate below the market rate. However, compulsory lending is expected to be phased out within five years. World Bank report on "Analyzing and Managing Banking Risk" by Hennie Van Greunning and Sonja Brajovie Bratanovic States that – the investment policy sets out the rationale for holding a liquidity portfolio and defines any target levels, usually in terms of short-term debt coverage/ liquid asset ratio. The investment policy also sets out broad credit and market risk parameters. According to the report the bank risk involved in this study such as liquidity risk, credit risk fall into pure risk which is a part of financial risk (Greunning and Bratanovic, 2003:3-223).

An article of Development centre seminar on Achieving Financial Stability in Asia International Development, Ramesh Adhikari and Soo-Nam Oh of OECD, Asian Development Bank give view on 'Banking Sector Reforms Recovery Prospects and Policy Issues' stating that – the importance of banks is premised on the grounds that banks are the main channels of savings and the allocators of credit in an economy. The efficiency of the banks therefore affects the financial system and the entire economy. Bank-failures or systematic banking crisis almost invariably are due to distorted management incentives, bad governance, weakness in macroeconomic policies (which includes their investment policy), weak supervision, or problems related to the real sectors (Adhikari and Ojha, 2001:105).

Here we get the idea on where the collected deposit of a bank goes and what are the aspects on the effective utilization of those deposits. Besides some have also reflected the

basic idea on the- who, what, where, when, how and how much on the investment done or to be done by the banks.

2.2.2 Review of Research Papers/Previous Studies

Here we go through the research papers on the previous studies by our seniors on this area or the related areas to recall the study made and to strengthen the portrayal of the scenario on this area which helps to bridge-in the gap to the research/findings to be made in this particular topic, among them.

Sabitri Shrestha, has conducted a study on "Impact and implementation of Nepal Rastra Bank's guidelines (directives) on Commercial banks", concentrated on Nabil Bank Ltd. And Nepal State Bank Of India.

The main objectives of her study were:

- To evaluate financial performance of the banks
- To study their investment policy
- To study portfolio structure of banks in investments.
- To study the preferences given by banks for investment.

In her study she has used various financial and statistical tools for the analysis and the findings from the study were concluded as follows:

- The investments of most of the joint venture banks are concentrated on government securities – so they were suggested to scatter their investment.
- The portfolio weight of loans and advances in other than private sectors just contributes in increasing their returns. And the heavy weight of investment on loan and advances on private sector – increases total risk of investment whereas on government enterprises, foreign bill purchase and discount; it decreases the risk.

Hence this study has suggested the banks to follow the market trend while composing the investment portfolio. Banks are also recommended to follow the directives of the Nepal

Rastra Bank regarding its directives on restricting the banks to invest more than fifty percent in one sector (Shrestha, 2003).

Nava Ratna Maharjan (2003), has conducted a study on "Investment Policy of Nepal Investment Bank in comparison to Standard Chartered Bank Ltd." The researcher has conducted primary as well as secondary study on his research work. The objectives he focused on was to study the asset management system, profitability and risk position of the banks under the study. He has also conducted an empirical study on the opinions of customers and the bank staffs regarding organizations' investment, facilities, services and their contribution to the nation.

Through the primary study, it found out that most of the customers did not have any problem with the bank service, and more than seventy percent of the customers had not borrowed loan yet. However the study showed that most of the customers and staffs had the opinion that the bank should give investment priority to the rural areas of the nation.
The study has recommended the banks to reduce its minimum required balance and to extend its branches to the under privileged sector. The bank is also suggested to follow liberal lending policy and to invest more of its total deposits on loan and advances and maintain its investment policy.

Sushil Chandra Mahat (2004), on his study on "Investment policy of Nepal Bangladesh Bank" has evaluated the investment policy of the specified bank and his basic objectives were:

- To find out the Non-Performing asset position of the bank
- To evaluate the portfolio management of the bank
- To find out priority sector of investment of the bank
- To analyze deposit utilization and relationship between total investment portfolio and its return.
- To suggest measure to improve the investment policy of the bank.

Through various tools of analysis on this study his major findings were as follows:

- The proportion of non-performing assets on total loan and advances of the bank is more than the satisfactory level. It should be less than 5% to be regarded as international A-graded commercial bank. The NPA level of the bank is higher than the standard NPA level in the context of Nepal. So the management should manage its NPA level with in the satisfactory level.
- The loan and advances portfolio if the bank is not satisfactory. The lending isn't properly diversified – as half of the loan from its total portfolio is given to the industrial sectors. As the bank is unable to explore the new and profitable sectors for its lending purpose, its portfolio of loan and advances if very risky.
- The bank is not fulfilling the priority sector investment requirement in the study period. In the course of failure to fulfill the directive of credit requirement- the bank is subject to penalty, which ultimately affects the profitability of the bank.
- The relation of total deposit is positive to the total investment, i.e. increase in total deposit increases the bank's loan and advances, investment on government securities, shares and debentures etc. However the total profit is irrespective to the total investment.

Chandra Dev Poudyal, on his study on "Practice of right share issue and its impact on share price movement of commercial banks in Nepal" has focused on evaluating the investment policy and the fund mobilization of SCBNL and NABIL bank ltd in comparative analysis with following objectives:

- To conduct hypothetical test to find whether there is significant differences between the various ratios of the concerned banks.
- To analyze the trends of most influential items like total deposits, total investment and net profit.
- To identify the financial strengths and weaknesses of the two banks concerning their investment policy and give required recommendation and suggestion to sum up the strengths and to overcome the weaknesses.

The major findings of the study are the conclusion drawn from the analysis and computation of the data. The computation was undertaken with the help of financial tools and statistical tools and the major findings of the study are as follows:

- Both the banks have maintained their liquidity position, having stable investment on government securities with due maintaining its cash and bank balance side by side.
- The banks have effectively utilized the deposit in loan and advances to increase their profit; however NABIL bank is more consistent than SCBNL which indicates that NABIL has used more stable portion of total deposit as loan and advances. Whereas, in terms of variability of the ratios, SCBNL is more consistent this indicates that SCBNL is more stable in terms of investing portion of its total deposit.
- In terms of total interest earned NABIL is more consistent with the ratios which indicate that the interest earning capacity out of total outside asset of NABIL is more stable - as the investment growth rate of NABIL is seen to be higher. Whereas the trend value of loan and advances of SCBNL are seen increasing rapidly; so as a result the total investment of SCBNL is found increasing rapidly.

2.3 Research Gap

We have had a plenty of research work done on the topic 'Investment Policy' of varying banks; from Government regulated banks to the emerging joint venture banks. And among those studies - some focused basically on the investment policy of the selected banks, some included the study on their deposit mobilization and some also emphasized on the consistency of the investment with the NRB directives.

Here, this study also focuses on all the above issues related to the investment policy of the bank – with similar kind of analysis tools. However the previous study on their selection of the samples, i.e. on their selection of the banks – they have done random sampling without any base to its selection. Hence in this study the sample selection is

categorized in a definable way which makes sense. The selection of the sample banks here is made on the basis of their establishment date, i.e. they are categorized on the basis of their establishment time, so that they represent the other banks established at that time or near to that. Besides this study on the investment policy on NABIL, NIBL, EBL, BOK, KBL and MBL has covered the latest data which covers the information from 2008-2012; which makes it the latest version on this study with these banks.

CHAPTER- III

RESEARCH METHODOLOGY

3.1 Introduction

Research Methodology, the combination of these two terms itself defines its meaning – if we define the terms separately the literal meaning of the term can be understood. Here research is basically considered as a movement from the known to the unknown- i.e. it is the systematized effort to gain new knowledge. In other words, research is to investigate or say repeatedly search in an effort to discover answers to the unsolved problems through reliance on empirical evidence. Whereas, methodology is known as the methods or procedures used to conduct the research to be done; or say the techniques and tactics used to show our research work done from collecting of the information to presenting it in a systematized form with a relevant conclusion.

We can thus say that research methodology is a process of conducting the research in an ordered way with selected method or technique to solve the research problem. In simple words, research methodology is a process of conducting the research logically in order to arrive at the solution of a problem.

Hence, here in this chapter we deal with all the techniques and tactics used to conduct this research process. This would highlight the research design used, population and samples used, sampling procedures, the data gathering procedure, the variables and measures, the statistical procedures, data processing procedure and the pilot study.

3.2. Research Design

Research design means drawing an outline of planning or arranging details in an economic, efficient and relevant manner before the data collection and data analysis. It is the process of making decisions before the situation arises in which the actual decision has to be made; it basically guides the researcher to progress in the right direction in order to achieve the goal. In short, we can say that research design is only a guideline for

the researcher to enable him to walk in right track whenever the research work is obstructed.

According to Kerlinger (1986) “Research design is the plan, structure, and strategy of investigation conceived so as to obtain answers to research questions and to control variance. The plan is the overall scheme or program of the research. It includes an outline of what the investigator will do from writing the hypothesis and their operational implications to the final analysis of data”.

Since the major objective of this study is to evaluate and analyze the investment policy of the commercial banks in Nepal; various parameters related to this topic has to be evaluated – which here will highly concentrate on the performance of the selected banks. Further, for the effective research work – the type of research design considered here are: historical research and descriptive research design.

3.3. Population and Sample

The population of this study is the number of commercial banks in Nepal – which today are increasing in a growing speed. According to the NRB licensed data the number of commercial banks is 32.

Table 2.1
List of Licensed Commercial Banks

S.N.	Commercial Banks	Established Date	Head Office
1.	Nepal Bank Ltd.	1937/11/15	Kathmandu
2.	Rastriya Banijya Bank	1966/01/23	Kathmandu
3.	Nabil Bank	1984/07/16	Kathmandu
4.	Nepal Investment Bank Ltd.	1986/02/27	Kathmandu
5.	Standard Chartered Bank	1987/01/30	Kathmandu
6.	Himalayan Bank Ltd.	1993/01/18	Kathmandu
7.	Nepal Bangladesh Bank	1993/06/05	Kathmandu
8.	Nepal SBI Bank Ltd.	1993/07/07	Kathmandu
9.	Everest Bank Ltd.	1994/10/18	Kathmandu
10.	Bank of Kathmandu Ltd.	1995/03/12	Kathmandu
11.	Nepal Credit and Commercial Bank	1996/10/14	Siddhartha Nagar
12.	Lumbini Bank Ltd.	1998/07/17	Naryanghat
13.	Nepal Industrial and Commercial Bank Ltd.	1998/07/02	Biratnagar
14	Macchapuchhre Bank Ltd.	2000/10/03	Kathmandu
15.	Kumari Bank Ltd	2001/04/03	Pokhara
16.	Laxmi Bank Ltd.	2002/04/03	Kathmandu
17.	Siddhartrha Bank Ltd	2002/12/24	Kathmandu
18	Agricultural Development Bank Ltd.	1968/01/02	Kathmandu
19	Global IME Bank Ltd.	2007/01/02	Birgunj, Parsa
20	Citizen Bank International Ltd.	2007/06/21	Kathmandu
21	Prime Commercial Bank Ltd.	2007/09/24	Kathmandu
22	Sunrise Bank Ltd.	2007/10/12	Kathmandu
23	Bank of Asia Nepal Ltd.	2007/10/12	Kathmandu
24	Grand Bank Nepal Ltd	2008/05/25	Kathmandu
25	NMB Bank	2008/06/02	Kathmandu
26	KIST Bank Nepal Ltd	2009/05/07	Kathmandu
27	Janta Bank Nepal Ltd	2010/04/06	Kathmandu
28	Mega Bank Nepal Ltd	2010/07/23	Kathmandu
29	Commerce and Trust Bank Nepal Ltd	2010/09/20	Kathmandu
30	Civil Bank Nepal Ltd	2010/11/26	Kathmandu
31	Century Commercial Bank Ltd	2011/03/10	Kathmandu
32	Sanima Bank Ltd	2012/02/15	Kathmandu

Source: http://brf.nrb.org.np

Since, it is not possible to study all of them regarding their investment policy - here the selection of the sample for the research topic is made according to their date/time of

establishment i.e. on the basis of their seniority in this area. They are distributed as follows:

- NABIL Bank Ltd
- Nepal Investment Bank
- Everest Bank Ltd
- Bank of Kathmandu
- Kumari Bank Ltd
- Machhapuchre Bank Ltd.

And the study period taken under consideration for the study is for the last five years i.e. 2008 -2012.

3.4. Sampling Procedure

In this section, we set forth the method of sampling such as random, block or stratified, purposive or representative or other – used under this study.

Here since we are focusing on the overall commercial banks in Nepal purposive/ representative sampling seemed more appropriate. Under representative sampling – banks from different phases (according to their time of establishment) are taken into consideration to represent the investment policy of the whole commercial banks in Nepal, without the bias of their seniority in this area.

3.5 Nature and Sources of Data

The nature of the data and information collected for this study is basically concentrated on secondary data; as the required information were available in the annual reports of the specific banks. Besides the supportive data for this study was gathered from various sources like: books, newspapers, periodical and bulletins, magazines, annual reports of the concerned banks via internet and self collection, different booklets (NRB/Statistical Bureau), various articles and journals, wide range of websites, different college libraries, selected published and unpublished thesis reports, informal chat with people having knowledge on this area.

3.6. Methods of Data Analysis

For the effective analysis of the available data to gain the objective of the study – various tools including financial and statistical tools would contribute to study on the topic. The selected tools which contribute in this research are categorized on the basis of their nature.

3.6.1. Financial Tools

The financial aspects according to the performance basis will be evaluated under certain financial tools. The appropriate financial tools for this study would be various financial ratios – which would be the best to emphasize on the different aspects related to the investment policy of the selected commercial banks.

The financial ratio basically contributes to identify the banks' strength and weakness on its financial facet; by expressing the relationship between the different prospects under its balance sheet and profit and loss account. As we know that, financial ratio basically shows the mathematical relationship between different accounting figures of the financial statements/ accounts – which in turn highlights the key aspects of the firm's operation and its financial performance so far.

For the simplicity and comprehensiveness in the calculation of the financial aspects, we have categorized the financial tools into five categories each with a set of calculations.

3.6.1.1. Liquidity Ratios
3.6.1.2. Asset Management Ratios
3.6.1.3. Profitability Ratios
3.6.1.4. Risk Ratios
3.6.1.5. Growth Ratios

3.6.1.1 Liquidity Ratios

The term Liquidity means the firms' ability to meet the short-term obligations, hence the liquidity ratios are considered to reflect the short-term financial strength of the firm which indicates its solvency as well. The liquidity aspect of a bank deals with the

capacity of a bank – as in how fast can it convert its assets into cash(these assets largely related to the current assets). Liquidity is a kind of risk which has to maintain to a certain level – lack of liquidity creates problems and high degree of liquidity assets is also a negative marking. Hence, a bank should maintain the balance of its liquidity position to a certain level – since the lack of sufficient liquidity creates image risk to the customers' and creditors; whereas high liquidity also leads to possessing idle assets which hinders the investment aspect of the bank.

Various ratios reflecting the liquidity position of a bank are as follows:

3.6.1.1.1. Current Ratio

Current ratio measures the mathematical relationship between the current assets and the current liabilities; where current assets include cash balance, bank balance, receivables, debtors, inventory and other assets which can be converted into cash within a short period of time(say within a year); whereas current liabilities includes payables, creditors, short-term liability and other short-term debts maturing in one year. Hence, this ratio indicates the availability of current assets in rupees for every one rupee of current liability. Higher the current ratio, higher will be the availability of money per rupee of current liability. The standard current ratio is supposed to be one according what we have studied, i.e. if the ratio is greater than one – it means that the bank has more current assets than its current liabilities against them and vice-versa: and either ways it is not good for any bank. But in the real working area we don't see it to be true; hence we cannot say that the standard ratio is one precisely.

Mathematically,

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

3.6.1.1.2. Cash and Bank Balance to Total Deposit Ratio

This ratio measures the mathematical relationship between the bank's cash and bank balance and its total deposit. Where, cash and bank balance is the most liquid fund under

the current assets which would include cash on hand, other cash items available, bank balance with other banks etc. Similarly total deposits include current deposits, saving deposits, fixed deposits and other types of deposits. Hence this represents the bank's ability to pay immediate deposit calls to their depositors whenever required. It is not that investment on profit motive should be such that the required cash and bank balance is neglected; thus the consideration of this ratio is also equally important.

Mathematically,

Cash and bank balance to Total Deposit Ratio = $\frac{\text{Cash and Bank Balance}}{\text{Total Deposits}}$

3.6.1.1.3. Investment on Government Securities to Current Assets Ratio

This ratio measures the mathematical relationship between the investment on government securities and its current assets. Government securities are one of the safest and profitable investments seen these days. Although they are not as liquid as the cash and bank balance, the ease in converting them into cash in one way or the other makes them categorized under liquid assets. Hence this ratio represents the portion of the investment made by the bank to the government securities.

Mathematically,

Investment on Government Securities to Current Assets Ratio

$$= \frac{\text{Investment on Government Securities}}{\text{Current Assets}}$$

3.6.1.2. Asset Management Ratios

Assets are the profit generating fund of any institution if managed properly. Hence a bank should efficiently utilize its assets to generate extra income and earn interest from the deposit as well to contribute to its profit. Asset management ratio shows how well the financial assets of banks have been utilized, to what extent and where- hence it is also known as turnover ratios. These ratios are based on the relationship between the level of activity- which is represented by sales or cost of goods sold, and the levels of different assets. The proper management of the assets leads to the efficiency of a bank's

performance which contributes to its profit. The measurement of efficiency of the management of the assets can be determined by various calculations under this ratio like:

3.6.1.2.1. Loan and Advances to Total Deposit Ratio

This ratio shows the mathematical relationship between the total deposit of a bank and its use as loan and advances. Loan and advances are the major source of income for a bank which highly influences its profit margin. This ratio shows how effectively a bank is utilizing its different deposit collected on loan and advances for profit generating motive. Here, greater of this ratio implies that there is better utilization of its deposit under the profit motive.

Mathematically,

$$\text{Loan and Advances to Total Deposit Ratio} = \frac{\text{Loan and Advances}}{\text{Total Deposits}}$$

3.6.1.2.2. Loan and Advances to Total Working Fund Ratio

This ratio shows the mathematical relationship of the total working fund (total assets) with the loan and advances. Banks uses some portion of its total assets as loan and advances to generate interest income – but the bank should be clear on the portion of the total asset which should be used as loan and advances – so that the optimum level utilization of the working fund is done (neither less nor more).

Hence this ratio portrays how well a bank mobilizes its total asset to generate the income not risking its liquidity ratio as well. Here higher the ratio, better the mobilization of the fund and vice versa.

Mathematically,

$$\text{Loan and Advances to Total Working Fund Ratio} = \frac{\text{Loan and Advances}}{\text{Total Working Func}}$$

3.6.1.2.3. Investment on Shares & Debentures to Total Working Fund Ratio

This ratio shows the mathematical relationship between the total working fund and its use on the investment on shares and debentures. According to the NRB directive the investment portfolio of a bank should be diversified – one of which could be investing on shares and debentures of other companies for the progress on the assets.

Mathematically,

Investment on Shares & Debentures to Total Working Fund Ratio

$$= \frac{\text{Investment on Shares and Debentures}}{\text{Total Working Fund}}$$

3.6.1.2.4. Total Investment to Total Deposit Ratio

This shows the mathematical relationship of the total deposit of a bank and its investment. Investment is the working of money for more money; hence here different deposit collected by a bank should be utilized in productive sectors to generate more money – instead of keeping it idle on interest generating accounts. This ratio basically shows the extent of the utilization of the banks' deposit on varying investment or says the productive investment portfolio created by the bank. Higher the ratio – higher the effectiveness in the mobilization of its total deposit is seen.

Mathematically,

Total Investment to Total Deposit Ratio = $\frac{\text{Total Investment}}{\text{Total Deposit}}$

3.6.1.3. Profitability Ratios

Profitability ratios are designed to highlight the end-result of business activities. These ratios are the resultant of the pattern of liquidity ratios, asset management ratios and debt management ratios. The operating efficiency of a firm and its ability to ensure adequate return to the shareholders depends ultimately to the profits earned by it. In this regards, profitability ratios are the measure of efficiency. It provides an incentive to achieve efficiency. Hence higher profitability ratio shows greater efficiency of the bank. Here the profitability aspect of the bank is shown through the calculation of following ratios:

3.6.1.3.1. Return on Loan and Advances

This ratio shows the mathematical relationship between the net profit and loan and advances. It actually shows the contribution of the return from loan and advances to the total net profit. This ratio basically portrays the bank's efficiency in the profit generation with the proper utilization of its funds as loan and advances. It shows the percentage of return on loan and advances out of total profit and loss in loan and advances. Here higher return on loan and advances indicates efficient management of loan and advances and vice-versa.

Mathematically,

$$\text{Return on Loan and Advances} = \frac{\text{Net Profit (loss)}}{\text{Loan and Advances}}$$

3.6.1.3.2. Return on Total Assets

Return on total asset is also called return on investment because bank generates profit by utilizing its assets in different sectors. However the bank should maintain the optimum level of utilization of its total asset (working fund) so that it generates highest level of profit and maintain its liquidity at the same time. Here higher ratio shows better utilization of its assets in terms of generating profit.

Mathematically,

$$\text{Return on Total Assets} = \frac{\text{Net Profit (Loss)}}{\text{Total Assets}}$$

3.6.1.4. Risk Ratios

Risk is an inevitable and unavoidable factor in any business. It is the prime factor which makes the business interesting and what pulls the profit. In brief we can say that the proper management of the risk factor increases the effectiveness and the profitability of the bank. Here we have taken those ratios into consideration which is associated with the various operation of the bank which ultimately influences the bank and its investment policy.

3.6.1.4.1. Credit Risk Ratio

Credit risk ratio is expressed as the percentage of non-performing loan to the total loan and advances. It deals with the uncertainty that all the loan and advances to be repaid with its interest on it. The bank always has to be cautious while giving out the loan and advances considering the default of collecting it back.

Hence the bank should measure the risk in granting loan and advances with the help of credit risk ratio; since this ratio shows the possibility that the loan will not be repaid or the investment made will go default with the consequent loss to the bank.

Mathematically,

$$\text{Credit Risk Ratio} = \frac{\text{Total Loan and Advances}}{\text{Total Assets}}$$

3.6.1.4.2. Liquidity Risk Ratio

Investment is an important aspect of any bank - no doubt, but the maintenance of the liquidity cannot be neglected either. Here the liquidity risk is not a marketability risk but a possibility that the bank may go short of its liquid assets. Knowing of this ratio is important because a bank should always be able to have trust with its customers and depositors who are the sources of their funds. Liquidity risk ratio measures the level of risk associated with the liquid assets of the bank for the purpose of fulfilling the demand of the depositors on their call. It shows the mathematical relationship between the total deposit of the bank and its most liquid asset- cash and bank balance.

Mathematically,

$$\text{Liquidity Risk Ratio} = \frac{\text{Total Cash and Bank Balance}}{\text{Total Deposit}}$$

3.6.1.5. Growth Ratios

Growth ratio basically measures the expansion and growth of a bank as in its stand on the financial and economic position in the area of banking. This ratio shows the overall performance of the bank towards success in terms of the ratios calculated. Here we have

considered the ratios which show the rate and pace of the growth of the banks in terms of its fund mobilization and investment management.

3.6.1.5.1. Growth Ratio of its Total Deposits

3.6.1.5.2. Growth Ratio of its Loan and Advances

3.6.1.5.3. Growth Ratio of its Investment

3.6.1.5.4. Growth Ratio of its Net Profit

All the above ratios are calculated by dividing the last year's figure by its preceding year's figure and referring it to the compound interest tables. Here higher the ratio – better the performance of the bank.

3.6.2 Statistical Tools

Just the financial analysis of the data does not give the answers to the entire question on the bank's performance. Like we know that the decision made by two heads is always better than the decision made by one head; varying analysis done to any research results to a more comprehensive interpretation. Hence here the analysis of the collected data are done with the help of the financial tools as well as the statistical tools so that the combination of these two will give us the comprehensive and clear picture on the performance of the bank on its investment aspect.

The relevant statistical tools used for this research work are as follows:

3.6.2.1 Coefficient of correlation

3.6.2.1.1 Deposit and loan and advances

3.6.2.1.2 Deposit and total investment

3.6.2.1.3 Investment and Net profit

3.6.2.1.4 Deposit and Net Profit.

3.6.2.1 Coefficient of Correlation

This is the mathematical method for measuring the degree of association between varying variables (usually two variables are considered) – which shows the closeness of their relationship. Through this analysis, we can describe the degree to which one variable is

linearly related to other variables. Here we have considered studying the relationship of the following variables for the study:

3.6.2.1.1 Deposit and Loan and Advances

3.6.2.1.2 Deposit and Total Investment

3.6.2.1.3 Investment and Net Profit

Mathematically, the coefficient correlation of the above variables can be measured by the following formula,

$$r = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{[N\sum X^2 - (\sum X)^2][N\sum Y^2 - (\sum Y)^2]}}$$

Where,

r= coefficient of correlation

N= No. of observations of X and Y

∑X=sum of the observations in series X

∑Y= sum of the observations in series Y

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

The result of coefficient of correlation is always between -1 to +1,

i.e. when,

r = +1, it means there is a significant relationship between the two variables

r = - 1, it means there is a no significant relationship between the two variables.

3.6.2.2 Regression Analysis

Regression is the statistical tool with the literal meaning returning back to the average value – with the help of which we estimate the unknown value of any one variable from the known variable. Here we assume that the two variables are closely related and we estimate the value of one variable from the value of another.

The variable whose value is given and known is called independent variable and the variable whose value unknown and to be predicted is called dependent variable.

Hence regression determines the average probable change in one variable based on a certain amount of change in another.

Here the analysis used is simple regression analysis - to describe the average relationship between two variables. Simple - because there is only one dependent variable and linear - because the relationship between the independent and dependent variable is assumed to be linear. The term linear means that an equation of a straight line of the form $Y = a + bX$

Where,

X = independent variable

Y = dependent variable

a and b = constants

The constants a and b are also known as the parameters of the line. The parameter 'a' determines the distance of the line directly above or below the origin, while parameter 'b' determines the slope of the line i.e. the change in Y per unit change in X.

Here we have shown the relationship of the variables in the equation form. The algebraic expressions of the regression lines are the regression equations and also known as estimating equations.

Regression equation of Y on X determines the variation in the values of Y for given changes in X.

CHAPTER- IV

DATA PRESENTATION AND ANALYSIS

The collected data need to be aggregated into a presentable form which portrays the summary of answers to the unanswered part. The collected data should be compiled, analyzed and interpreted carefully before their full meanings and implications can be understood. The collected data are thus transformed into information and this process of transformation of data is the analysis part – which is also the examination and interpretation of data to draw conclusions. The analysis of data consists of organizing, tabulating, performing statistical analysis and drawing inferences, i.e. interpretation. Data analysis and interpretation are so closely related that data analysis is considered as a special aspect of analysis rather than a separate activity.

The general purpose of this chapter is to examine the processes by which the meaning and implications of research data can best be extracted by using various financial tools and statistical tools.

4.1. Financial Tools

Here we have the analysis of the data collected have a conclusion with the help of few financial tools:

4.1.1. Liquidity Ratios

Few chosen liquidity ratios suitable for our study purpose on the sample banks from fiscal year 2008 to 2012 are as follows:

4.1.1.1 Current Ratio

Current ratio indicates the ability of a bank to meet its current obligation. Standard of current ratio is 2:1 for banking and seasonal business current ratio is 1:1 and so on.

We have,

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

Calculation of Mean, Standard Deviation and Coefficient of Variation Current Ratios

Current ratios of related banks from the fiscal year 2008 to 2012 are given below in Table 4.1 Standard deviation is calculated by using the formula of STDEV, mean is calculated by using the formula of average and C.V by $\frac{S.D}{Mean} \times 100$

Table 4.1

Current Ratio (Times)

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	1.0427	1.0470	1.0509	1.0512	1.0576	1.0499	0.0055	0.0527
MBL	1.0361	1.0467	1.0318	1.0236	1.0569	1.0390	0.0130	1.2522
EBL	1.0596	1.0460	1.0537	1.0490	1.0484	1.0513	0.054	0.5132
BOK	1.0618	1.0701	1.0729	1.0809	1.0762	1.0724	0.0072	0.6669
KBL	1.0898	1.0846	1.0879	1.1064	1.1004	1.0938	0.0092	0.8401
NIBL	1.0708	1.0729	1.0793	1.0893	1.0925	1.0810	0.0097	0.8941

Source: Annex 1

This above table along with its supporting figure shows that the current assets of all the banks exceeds its current liabilities in the study period from 2008 to 2012 – this indicates that all the banks had sound liquidity to meet their short term obligations in the given study period.

Above tables have shown consistency of the banks in maintaining their current ratio; as the fluctuating ratios are not significant once. However the change in their ratios are in fluctuating trend, whereas NABIL and NIBL shows increasing trend.

The above observation shows that the standard current ratio in the practical field is above one (i.e. the theoretical standard ratio); or say between 1.0390 and 1.0938.

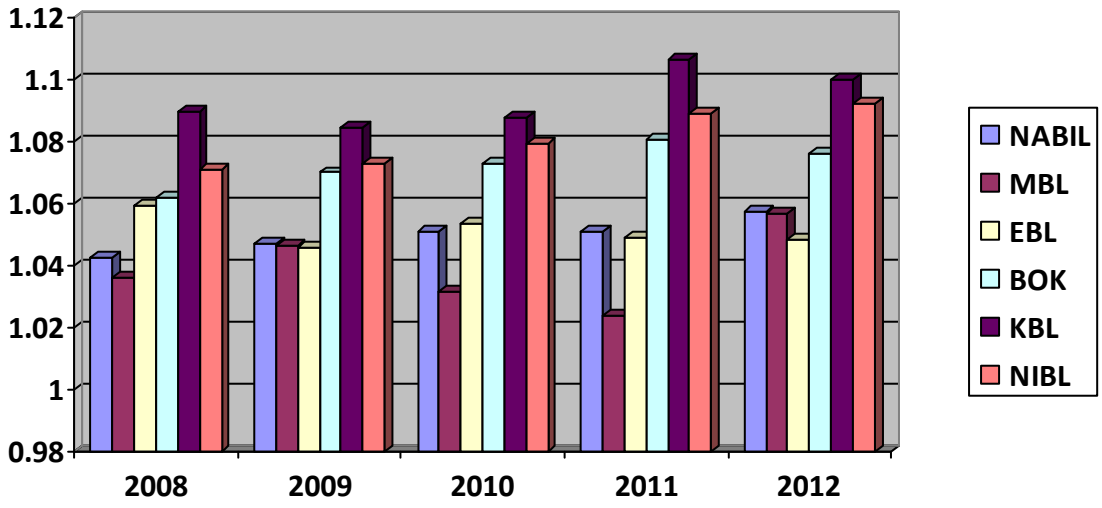


Figure 4.1

Current Ratio (Times)

4.1.1.2. Cash and Bank Balance to Total Deposit Ratio

Cash and bank balance is said to be the first defense of every banks. The ratio between cash and the bank balance and total deposit measure the ability of the bank to meet the unanticipated cash and all types of deposits. Higher the ratio, the greater will be the ability to meet sudden demand of deposit. But every high ratio is not desirable since bank to pay interest on deposits. This will also maximize the cost of fund to the bank.

$$\text{Cash and Bank Balance to Total Deposit Ratio} = \frac{\text{Cash and Bank Balance}}{\text{Total Deposits}}$$

Table 4.2

Cash and Bank Balance to Total Deposit Ratio

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.0837	0.0903	0.0302	0.0490	0.0779	0.0662	0.0256	38.6173
MBL	0.1351	0.1774	0.1723	0.1345	0.2524	0.1743	0.0480	27.5591
EBL	0.0887	0.1850	0.2117	0.1489	0.2072	0.1683	0.0510	30.2799
BOK	0.0910	0.0654	0.0856	0.0826	0.1354	0.0920	0.0261	28.3519
KBL	0.0731	0.1131	0.1563	0.0688	0.1693	0.1161	0.0462	39.7953
NIBL	0.1090	0.1696	0.1361	0.1624	0.2070	0.1568	0.0368	23.4915

Source: Annex 2

Above table shows that the cash and bank balance to total deposit ratio of all banks are in fluctuating trend.

In average, NABIL has maintained lower cash & bank balance to total deposit ratio than other banks i.e. 0.0662. It states that cash and bank balance in liquidity position of NABIL is lower than other banks. The C.V of KBL 39.7953 is comparatively higher than that of other banks.

Comparatively NABIL has maintained low ratios, it shows some difficulties to meet the demand of its customers on their deposit to pay at any time but it may be earning more by investing cash to different sectors. But it should ensure to have enough liquid funds to serve its customer.

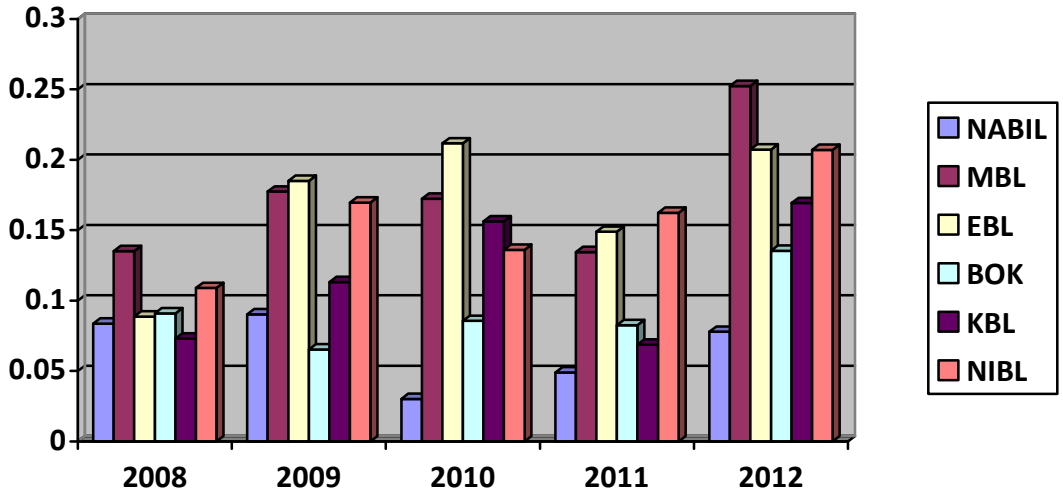


Figure 4.2
Cash and Bank Balance to Total Deposit Ratio

4.1.1.3. Investment on Government Securities to Current Assets Ratio (Times)

The commercial banks are interested to invest their funds collected in various government securities issued by government. The government securities are the safest place to make investment. But the government securities are not so much liquid as cash and bank balance. They can be easily sold in the market or they can be converted into cash in other ways. The main purpose of this ratio is to examine that portion of a commercial banks current asset that is invested on different government securities.

Investment on Government Securities to Current Assets Ratio =

$$\frac{\text{Investment on Government Securities}}{\text{Current Assets}}$$

Table 4.3: Investment on Government Securities to Current Assets Ratio (Times)

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.1293	0.0875	0.1582	0.1562	0.1317	0.1326	0.0285	21.5263
MBL	0.0704	0.0289	0.0972	0.0656	0.0612	0.0647	0.0244	37.7516
EBL	0.1825	0.1429	0.1078	0.1590	0.1121	0.1409	0.0316	22.4273
BOK	0.1230	0.1064	0.1304	0.1674	0.1802	0.1415	0.0311	21.9788
KBL	0.1016	0.0603	0.0869	0.1419	0.1047	0.0991	0.0297	29.9673
NIBL	0.0839	0.0491	0.0753	0.0756	0.0963	0.0760	0.0173	22.7632

Source: Annex 3

The above table shows that the ratio of NABIL is in fluctuating trend from FY 2008 to 2010 and then increasing trend in subsequently. In the case of other banks all are in fluctuating trend.

In overall, the mean ratio of investment in govt. securities to current assets ratio of MBL is lower than that of other bank i.e. 0.0647 & BOK mean ratio is greater than other i.e. 0.1415. It means MBL had invested its fewer portions of current assets on government securities, than other banks. On the other had C.V in ratios of MBL is greater than that other i.e. 37.7516 which means the variability's of ratios of MBL is less consistent than that of others.

It can be concluded that MBL has invested its less portion of current assets as government securities than that of other & BOK liquidity portion from the point of view of investment on government securities is richer than that of other banks.

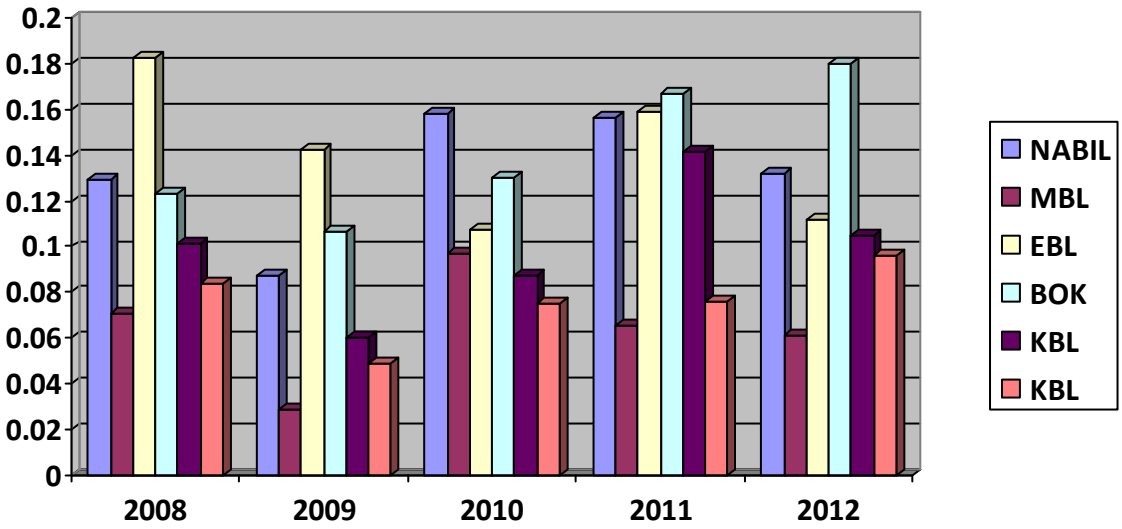


Figure 4.3

Investment on Government Securities to Current Assets Ratio (Times)

4.1.2 Asset Management Ratios (Activity Ratio)

Assets management ratio measures the efficiency of the bank to manage its assets in profitable and satisfactory manner. A commercial bank must manage its assets properly to earn high profit. Under this chapter following ratios are studied.

4.1.2.1 Loan and Advances to Total Deposit Ratio (Times)

This ratio measures the extent to which the banks are successful to mobilize their total deposit on loan and advances.

$$\text{Loan and Advance to Total Deposit Ratio} = \frac{\text{Loan and Advances}}{\text{Total Deposits}}$$

Table 4.4

Loan and Advances to Total Deposit Ratio (Times)

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.6694	0.7387	0.7116	0.7229	0.7578	0.7201	0.0332	4.6152
MBL	0.7784	0.8025	0.7709	0.8780	0.7241	0.7908	0.0564	7.1366
EBL	0.7649	0.7168	0.7461	0.7552	0.7181	0.7402	0.0218	2.9489
BOK	0.8051	0.8265	0.7929	0.8598	0.7528	0.8074	0.0397	4.9180
KBL	0.8869	0.9288	0.8470	0.8611	0.8012	0.8650	0.0473	5.4714
NIBL	0.7836	0.7761	0.8048	0.8196	0.7303	0.7829	0.0341	4.3504

Source: Annex 4

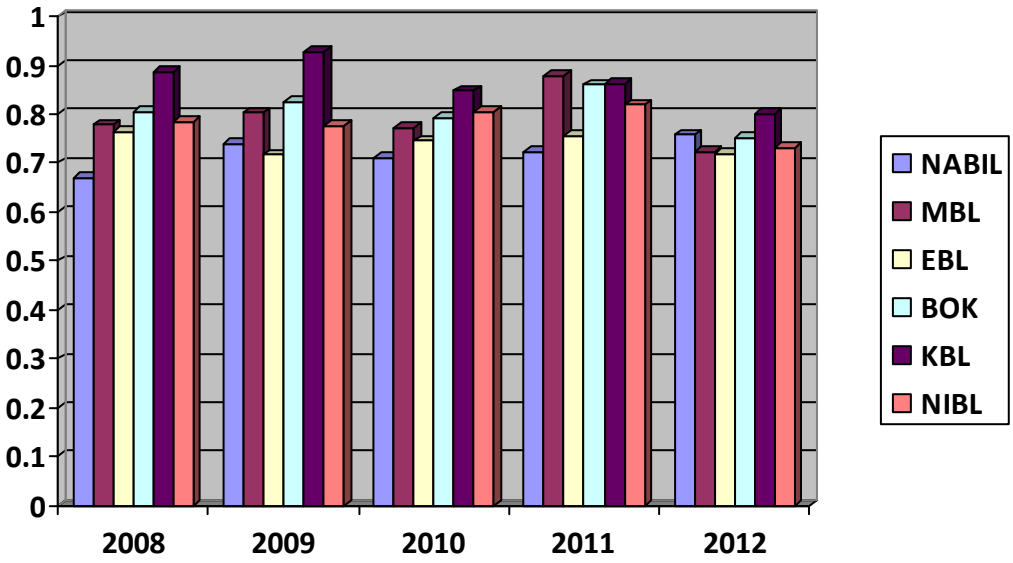
In the table, all the banks have fluctuating trend regarding the ratios. During the study period, KBL has highest ratio of 0.9288 in FY 2009 and NABIL has lowest ratio 0.6694 in FY 2008.

In over all mean ratio of loan & advances to total deposit of BOK is higher than that of other banks & S.D of MBL is greater than other banks. In other side co-efficient of variation of above banks MBL has 7.1366, which is comparatively higher than other bank.

In conclusion, MBL has strong position regarding the mobilization of total deposit on loan and advances and acquiring higher profit in comparison to other. It states that MBL is better is this regard.

Figure 4.4

Loan and Advances to Total Deposit Ratio (Times)



4.1.2.2Loan and Advances to Total Working Fund Ratio (Times)

Loan and advance is an important part of total assets (total working fund).Commercial bank must be careful in mobilizing in total assets. As loan and advances is appropriate level to generate profit. This ratio reflects the extent to which the commercial banks are success in mobilizing their assets on loan and advances for the purpose of income generation. A high ratio indicates better in mobilization of funds as loan and vice-versa.

$$\text{Loan and Advance to Total Working Fund Ratio } X \frac{\text{Loan and Advance}}{\text{Total Working Fund}}$$

Table 4.5: Loan and Advances to Total Working Fund Ratio (Times)

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.7254	0.7526	0.7352	0.7304	0.6728	0.7233	0.0300	4.1507
MBL	0.6290	0.5473	0.6620	0.7569	0.6799	0.6550	0.0764	11.6588
EBL	0.7357	0.6635	0.6824	0.6910	0.6955	0.6936	0.0265	3.8241
BOK	0.7254	0.7526	0.7357	0.7304	0.6728	0.7234	0.0301	4.1571
KBL	0.8844	0.7979	0.7310	0.7246	0.7741	0.7824	0.0646	8.2575
NIBL	0.7688	0.7029	0.7229	0.7234	0.6497	0.7135	0.0431	6.0390

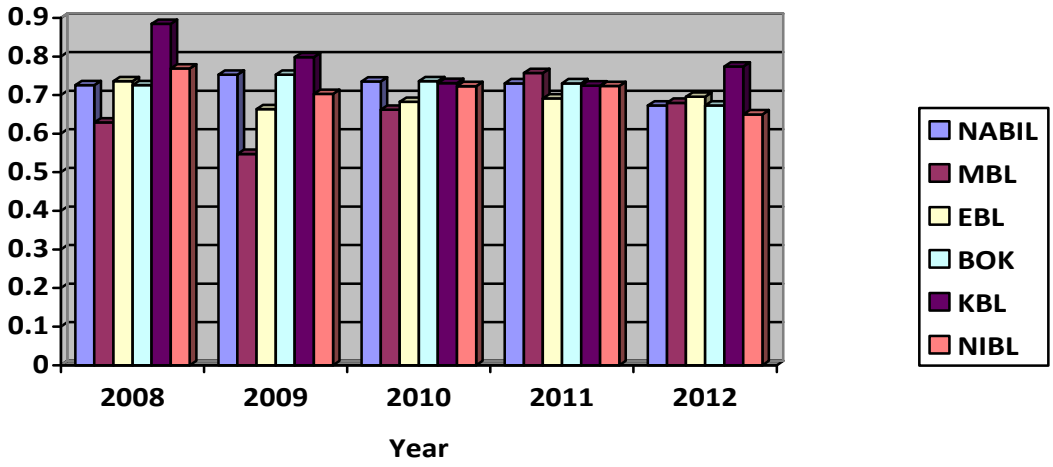
Source: Annex 5

The above table exhibits that the ratio of NABIL and BOK is decreasing trend in the study period. In case of other banks its ratio are in fluctuating trend. The greater ratio 0.7824 is maintained by KBL in FY 2008..

On the basis of mean ratios, KBL & on the basis of S.D. MBL has maintained the higher ratio than that other banks. So, KBL is in good condition to mobilize its total working fund as loan and advances. Co-efficient of variation of EBL is less than other banks. It indicates more uniform ratio of EBL in comparison to other banks.

Lastly, we can say that KBL's fund mobilization in terms of loan & advances with respect to total working fund is more satisfactory than that of other banks.

Figure 4.5: Loan & Advances to Total Working Fund Ratio (Times)



4.1.2.3 Investment on Shares and Debentures to Total Working Fund Ratio(Times)

Total investment has been broken down into two parts i.e., investment on governments securities and investment on shares and debentures. Now a days, commercial bank are interested to invest its fund not only on Government Securities but also in shares and debentures of other different types of companies. During the study period, most of the commercial banks in Nepal have purchased shares of regional development banks. But some of these have purchased the shares of other companies too.

Investment on shares and debentures to total working fund ratio reflects the extent to which the banks are successful to mobilize their total assets on purchase of shares and debentures of other companies to generate incomes and utilize their excess fund. A high ratio indicates more portion of investment on share and debenture out of total working fund and vice-versa.

$$\text{Investment on Shares and Debentures to Total Working Fund Ratio} \quad X \frac{\text{Investment on Shares and Debenture}}{\text{Total Working Fund}}$$

Table 4.6

Investment on Shares and Debentures to Total Working Fund Ratio (Times)

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.0089	0.0084	0.0188	0.0168	0.0142	0.0134	0.0047	34.6734
MBL	0.0052	0.0042	0.0037	0.0044	0.0036	0.0042	0.0006	15.2102
EBL	0.0038	0.0028	0.0025	0.0024	0.0020	0.0027	0.0007	25.1197
BOK	0.0066	0.0062	0.0017	0.0016	0.0015	0.0035	0.0026	74.8244
KBL	0.0014	0.0010	0.0010	0.0012	0.0010	0.0011	0.0002	15.9719
NIBL	0.0016	0.0015	0.0013	0.0012	0.0029	0.0017	0.0007	40.5413

Source: Annex 6

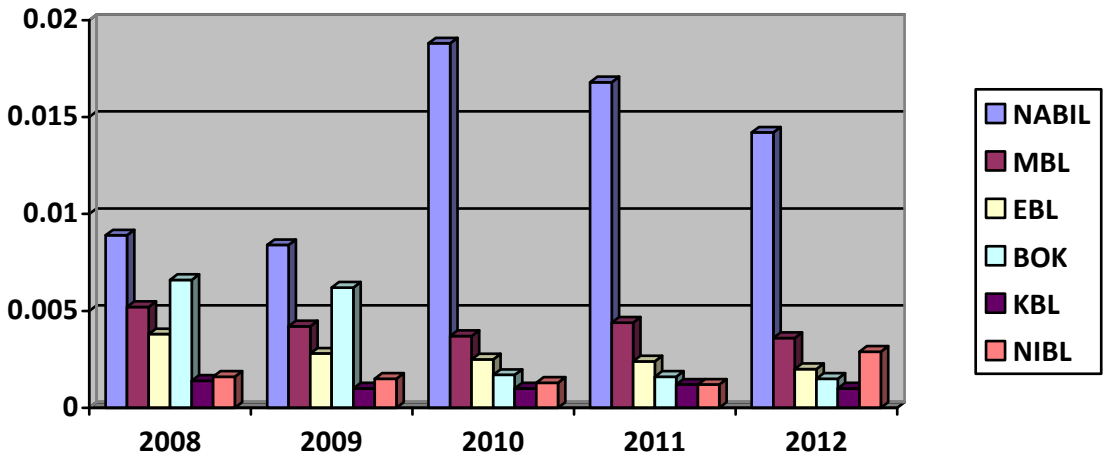
The above table exhibits that the ratio of EBL is in decreasing trend. In case of other banks, they are in fluctuating trend.

On the basis of mean ratios & S.D., NABIL has higher investment than other banks i.e. 0.0134 & 0.0047. Moreover, CV of MBL is less than other banks, which states that the position of MBL is better in this regard.

It can be concluded that MBL has invested more portion of its total working fund on shares & debentures than other banks. And also MBL is more consistent and homogeneous than other banks.

Figure 4.6

Investment on Shares and Debentures to Total Working Fund Ratio (Times)



4.1.2.4 Total Investment to Total Deposit Ratio (Times)

A commercial bank mobilizes its deposits by investing its fund in different securities issued by government and other financial or non-financial institutions. This ratio measures the extent to which the banks are able to mobilize their deposits on investment in various securities. A high ratio indicates the success in mobilizing in securities and vice-versa.

$$\text{Total Investment to Total Deposit Ratio} = \frac{\text{Total Investment}}{\text{Total Deposit}}$$

Table 4.7

Total Investment to Total Deposit Ratio (Times)

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.3114	0.2899	0.2955	0.2638	0.2564	0.2834	0.0228	8.0577
MBL	0.1300	0.0799	0.1131	0.0859	0.0792	0.0976	0.0228	23.3524
EBL	0.2111	0.1785	0.1357	0.1883	0.1573	0.1742	0.0289	16.6067
BOK	0.2025	0.1541	0.1555	0.2103	0.2099	0.1865	0.0291	15.5916
KBL	0.1674	0.0962	0.1318	0.2080	0.1338	0.1474	0.0422	28.6193
NIBL	0.2011	0.1585	0.1724	0.1481	0.2564	0.1873	0.0435	23.2007

Source: Annex 7

The above table exhibits that the ratio of NABIL is in decreasing trend. In the case of other banks all are in fluctuating trend in overall study period.

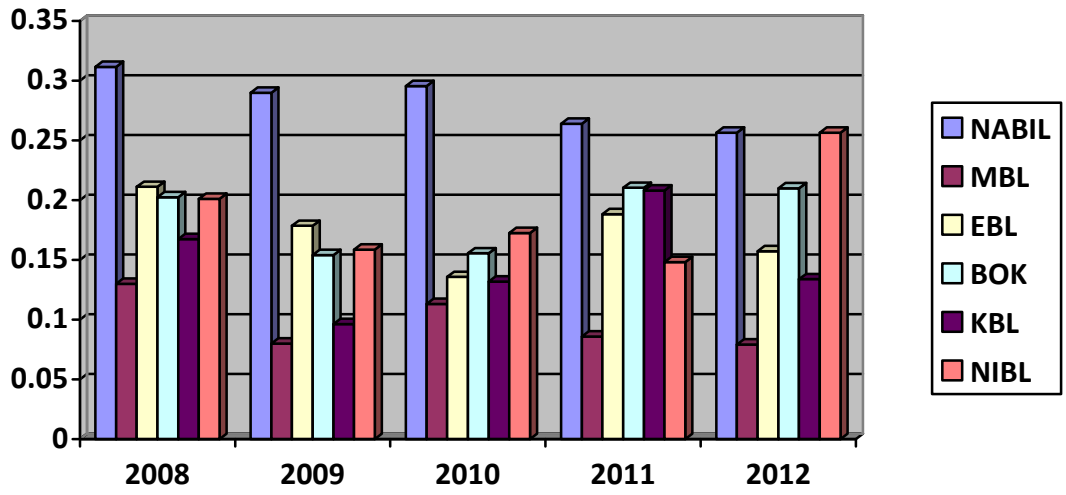
In average MBL has maintained lower mean value i.e. 0.0976 than other banks. NABIL has maintained the highest mean value of 0.2834. In other hand SD of MBL and NABIL are less value and NIBL has greater value than other banks.

The CV ratio of KBL is 28.6193 which is higher than other. KBL is more stable than that of other banks.

In conclusion, MBL is in weak condition to mobilize its deposits by investing is different sectors is comparison of other two banks.

Figure 4.7

Total Investment to Total Deposit Ratio (Times)



4.1.3 Profitability Ratios

Profitability ratios are calculated to measure the efficiency of operation of a firm in terms of profit. Profitability ratios are very much helpful to measure the overall efficiency of operation of financial institutions. In the context of bank, strictly speaking no bank can survive without profit. Profit is the indicator of efficiency in the operation of a bank. The banks acquire profit by providing different services to its customers by making investment of different kinds. Sufficient profit is a must to have good liquidity, grab investment opportunities, expand banking transaction, finance government in need of development fund, overcome the future contingencies and need fixed internal obligation of a bank. Profitability ratios measure the efficiency of bank. Higher the profit ratio shows that higher the efficiency of a bank. Following profitability ratios, which are related with profit and fund mobilization are studied under this heading.

4.1.3.1 Return on Loan and Advance Ratio(Times)

This ratio indicates how efficiently the bank has employed its resources in the form of loan and advances. This ratio is computed by dividing net profit (loss) by loan and advances. This can be expressed as,

$$\frac{\text{Net Profit}}{\text{Loan \& Advances}}$$

Table 4.8

Return on Loan and Advance Ratio (Times)

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.0483	0.0271	0.0345	0.0346	0.0409	0.0371	0.0080	21.4434
MBL	0.0098	0.0099	0.0051	0.0062	0.0024	0.0067	0.0032	48.0140
EBL	0.0246	0.0267	0.0302	0.0299	0.0304	0.0284	0.0026	9.1291
BOK	0.0284	0.0309	0.0306	0.0346	0.0323	0.0314	0.0023	7.2946
KBL	0.0154	0.0179	0.0214	0.0172	0.0156	0.0175	0.0024	13.8446
NIBL	0.0258	0.0249	0.0314	0.0286	0.0249	0.0271	0.0028	10.4469

Source: Annex8

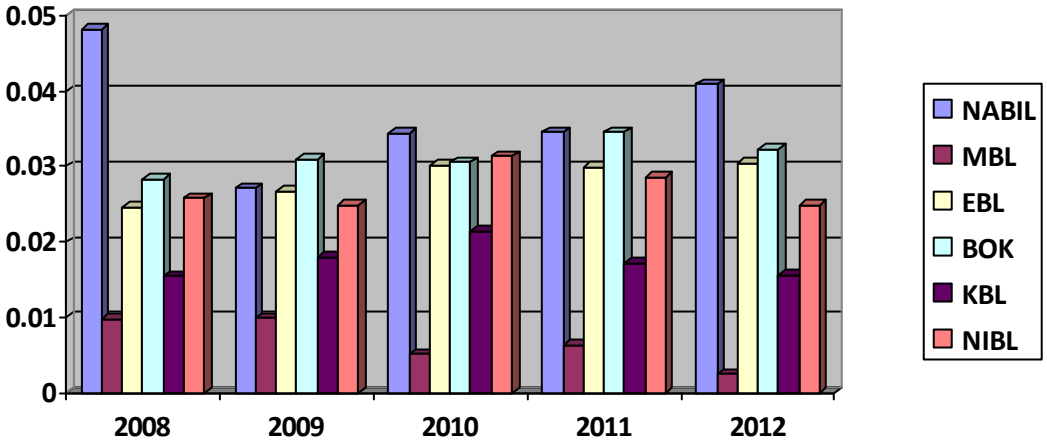
The above table exhibits that the ratio of all banks have followed fluctuating trend at the study period.

The mean of the NABIL is higher i.e. 0.371 and S.D. of NABIL is higher than other banks. On the other hand C.V of MBL is higher than that of other banks. So MBL has maintained high return with variability ratios.

From the above analysis, it can be concluded that NABIL is significantly able to earn high return on its loan and advances in comparison to other banks in point of view of average mean & low C.V ratio.

Figure 4.8

Return on Loan and Advance Ratio (Times)



4.1.3.2 Return on Total Assets

Return on total assets ratio measures the overall profitability of all working funds i.e. total assets. It is also known as return on Assets (ROA). A firm has to earn satisfactory return on assets or working fund for its survival. This ratio is calculated by dividing net profit by total Assets. This can be expressed as,

$$\text{ROA} = \frac{\text{Net Profit}}{\text{Total Assets}}$$

Here, Net profit includes income left to the internal equities after deducting all costs, charges and expenses.

Table 4.9: Return on Total Assets

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.0278	0.0170	0.0219	0.0230	0.0269	0.0233	0.0043	18.5619
MBL	0.0069	0.0070	0.0035	0.0043	0.0016	0.0047	0.0023	49.5564
EBL	0.0167	0.0173	0.0200	0.0201	0.0187	0.0186	0.0015	8.3086
BOK	0.0204	0.0225	0.0218	0.0244	0.0210	0.0220	0.0015	7.0383
KBL	0.0116	0.0141	0.0155	0.0122	0.0109	0.0129	0.0019	14.7397
NIBL	0.0179	0.0169	0.0221	0.0201	0.0158	0.0186	0.0025	13.6603

Source: Annex 9

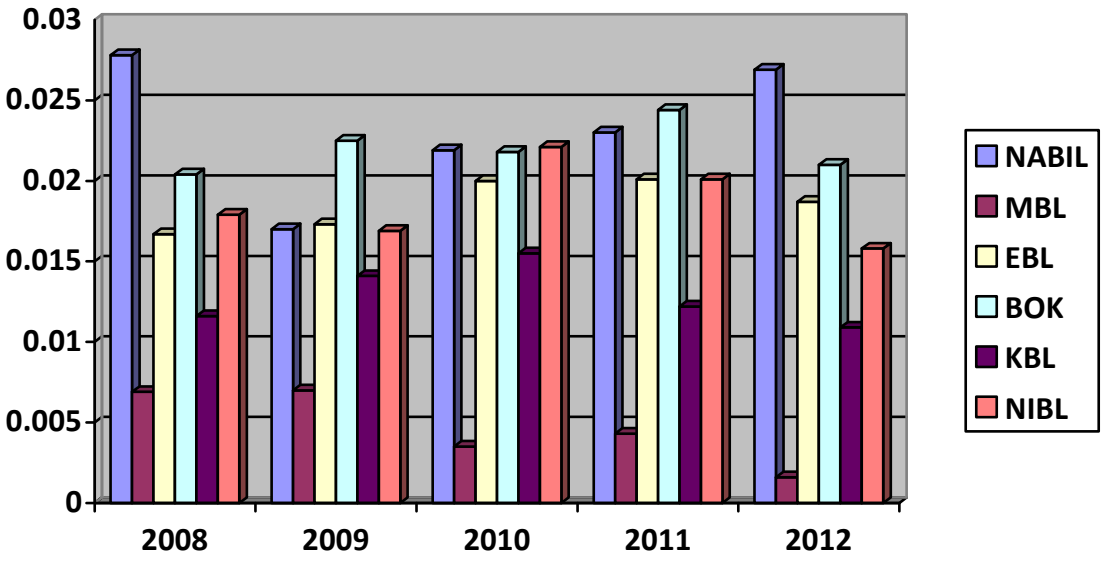
The above comparative table reveals that all banks have fluctuating trend in study period. The greater ratio is maintained by NABIL in 2008 in comparison to other banks.

On the basis of mean ratios MBL & S.D of EBL and BOK are less than other banks. NABIL has higher mean & S.D. than other in respect to return total assets. On the other hand, C.V of MBL is higher than other bank.

From the above analysis, it can be concluded the NABIL is in strong position in earning high income from its total assets in comparison to other banks.

Figure 4.9

Return on Total Assets



4.1.4 Risk Ratios

The possibility of risk makes banks investment a challenging task. Bank has to take risk to get return on investment. The risk taken is compensated by the increase in profit. A bank has to take high if it expects high return on its investment. So, the banks options for high profit, so it has to accept the risk and manage it efficiently. The risk measures the level of risk. The following ratios are studied for the purpose of measuring risk

4.1.4.1 Credit Risk Ratio

Credit risk ratios measures the possibility that loan will not be repaid or that investment will deteriorate in quality or go into default with consequent loss to the bank. By definition, credit risk ratio is expressed as the percentage of non-performing loan to total loan and advances. Here, dividing total loan and advance by total assets derives this ratio. This can be stated as,

$$\frac{\text{Total Loan and Advances}}{\text{Total Assets}}$$

Table 4.10

Credit Risk Ratio

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.5754	0.6289	0.6334	0.6692	0.6514	0.6317	0.0353	5.5831
MBL	0.6964	0.7154	0.6910	0.7349	0.6406	0.6957	0.0353	5.0738
EBL	0.6755	0.6470	0.6590	0.6717	0.6434	0.6593	0.0143	2.1721
BOK	0.7193	0.7292	0.7123	0.7056	0.6514	0.7036	0.0304	4.3266
KBL	0.7539	0.7872	0.7208	0.7138	0.7009	0.7353	0.0350	4.7576
NIBL	0.6945	0.6837	0.7036	0.7042	0.6332	0.6838	0.0295	4.3151

Source: Annex10

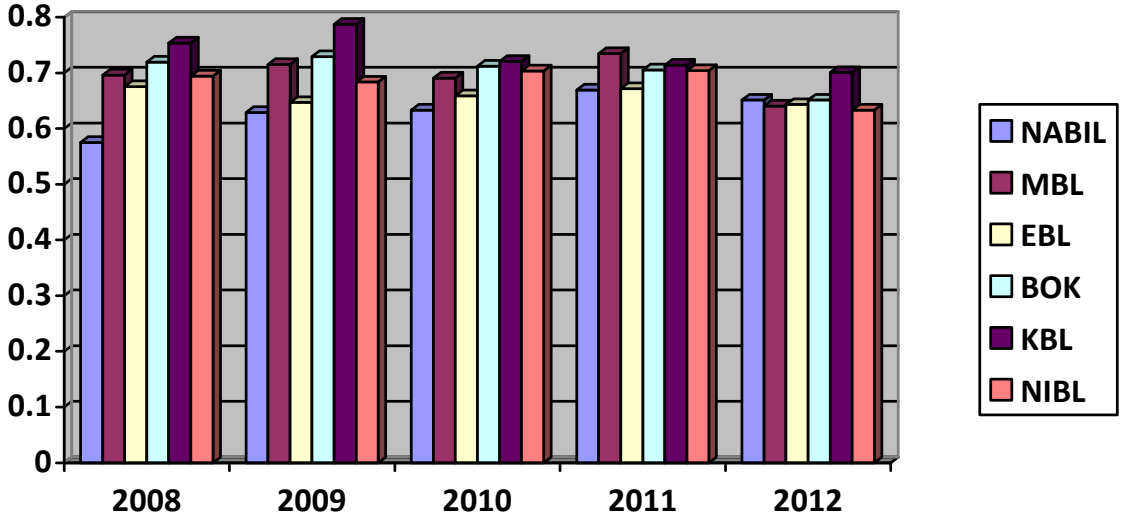
The above table shows that the credit risk ratio of all banks is in fluctuating trend in study period. In case of NABIL is in increasing trend upto 2011 and then in decreasing trend.

The mean ratio of KBL i.e. 0.7353 & S.D. of MBL and NABIL i.e. 0.0353 is higher than that of other banks. It means credit risk of NABIL & MBL is higher than of other banks. The C.V ratio of NABIL is greater than other banks.

From the above analysis it can be concluded that NABIL's degree of risk is higher & more variable than other banks.

Figure 4.10

Credit Risk Ratio



4.1.4.2 Liquidity Risk Ratio

The liquidity risk ratio measures the level of risk associated with the liquid assets i.e. cash and bank balance that are kept in the bank for the purpose of satisfying the depositor's demand for cash. Higher the ratio, lower is the liquid risk. This ratio is calculated by dividing cash and bank balance by total deposits. This can be expressed as,

$$\frac{\text{Total Cash and Bank Balance}}{\text{Total Deposit}}$$

Table 4.11

Liquidity Risk Ratio

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.0837	0.0903	0.0302	0.0490	0.0779	0.0662	0.0256	38.6173
MBL	0.1351	0.1774	0.1723	0.1345	0.2524	0.1743	0.0480	27.5591
EBL	0.0887	0.1850	0.2117	0.1489	0.2072	0.1683	0.0510	30.2799
BOK	0.0910	0.0654	0.0856	0.0826	0.1354	0.0920	0.0261	28.3519
KBL	0.0731	0.1131	0.1563	0.0688	0.1693	0.1161	0.0462	39.7953
NIBL	0.1090	0.1696	0.1361	0.1624	0.2070	0.1568	0.0368	23.4915

Source: Annex 11

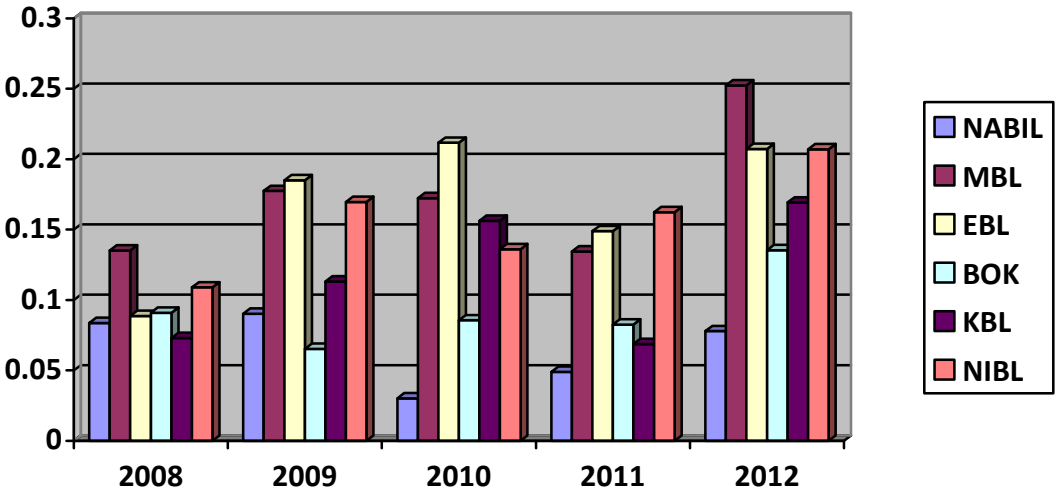
The above table shows that the liquidity risk ratio all studied banks is in fluctuating trend in study period.

The mean ratio and S.D. of MBL i.e. 0.1743 & 0.0480 is higher than of other banks. It means liquidity risk ratio of MBL is higher than of other banks. The C.V ratio of KBL i.e. 39.7953 is greater than other banks.

From the above analysis it can be concluded that KBL's degree of risk is higher & more variable than other banks.

Figure 4.11

Liquidity Risk Ratio



4.2 Statistical Tools

Under this heading some statistical tools such as co-efficient of correlation analysis between different variables, trend analysis of deposits, loan and advances, investment and net profit are used to achieve the objectives of the study.

4.2.1 Coefficient of Correlation Analysis

Under this chapter, Karl person's coefficient of correlation is used to find out the relationship between deposit and loan & advances and total investment, outside assets and net profit.

(i) Co-efficient of Correlation between Deposit and Loan & Advances

It is already mentioned that investment is dependent upon saving i.e. deposit. Longer the duration of deposit, higher the banker's ability to acquire long term asset. In the other words banker can't invest more, on long term assets if the duration of deposit is short. In this sense it can be said that investment is the function of deposit.

Theoretically it is assumed that long-term asset yield higher return. It means longer the duration of deposit, higher would be the profitability of the bank. But investment may not be the function of deposit only. Sometimes investment is made from the funds raised from other sources. In such situation investment is not dependent upon deposit only. Co-efficient of correlation between deposit and loan and advances measures the degree of relationship between these two variables. In this analysis: deposit is independent variable (y) and loan and advances is dependent variable (x).

The detail calculations in this regards are done in Annex 12 and the following table show the value of r_{xy}, r^2 and P.E and 6 P.E between those variable of NABIL, NIBL, EBL, BOK, KBL & MBL during the study period.

Table 4.12: Correlation between Deposits & Loan and Advances

Evaluation Criterions				
Banks	r	r^2	P.E.r	6 P.E.r
NABIL	0.9892	0.9785	0.0096	0.0576
MBL	0.6169	0.3806	0.2770	1.6621
EBL	0.9949	0.9898	0.0045	0.0273
BOK	0.9522	0.9067	0.0417	0.2504
KBL	0.9736	0.9479	0.0233	0.1398
NIBL	0.9587	0.9191	0.0362	0.2171

From the above table, co-efficient of correlation between the deposit and loan and advances shows high degree of positive relation ship. In case of NABIL it is found that co-efficient of correlation between deposit and loan and advances is 0.9892. When we consider, the value of coefficient of determination (r^2), it is 0.9785% of the variation is the dependent variable (loan and advances) has been explained by the independent variable (deposit).

Similarly, considering the value of (r) i.e. 0.9892 and comparing it with 6 PEr i.e. 0.0576 we can find that (r) is higher than the value of 6 PEr. This reveals that the value of r is significant. In other words there is significant relationship between total deposit and loan and advances in case of NABIL.

Likewise, in the case of EBL , it has high degree of positive correlation between deposit and loan & advances. However by application of coefficient of determination (r^2) it indicates that EBL has 98.98%. Moreover considering the probable error, in case of EBL (r) is greater than 6 P.Er is can be said that the value of (r) is significant i.e., there is significant relationship between total deposit and loan & advances.

Lastly, we can draw the conclusion from the above analysis that in KBL there is positive relationship between deposits and loan & advances. The relationship is significant and the value of (r^2) shows high percent in the dependent variable which has been explained by the independent variable. This indicates that sample banks are successful to mobilize their deposits in-proper way as loan & advances. Moreover, we can further conclude that EBL & NABIL have higher correlation between deposit and loan & advances as well as higher value of (r^2) than those of least banks. This indicates that it is in strong condition to grant loan & advances for mobilizing the collected deposits in comparison to other two banks.

(ii) Co-efficient of Correlation between Deposit and Total Investment

Co-efficient of correlation (r) between deposit and investment measures the degree of relationships between these two variables. Here, deposit is independent variable (x) and

total investment is dependent variable (x). The purpose of computing co-efficient of correlation between deposit and total investment is to find out whether deposit is significantly used as investment or not.

The table 4.13 shows the value of r, r^2, P.Er and 6 P.Er between deposit and total investment of NABIL,NIBL, EBL, BOK, KBL & MBL for the study period of 2008 to 2012 (details in Annex13).

Table 4.13

Correlation between Deposit and Total Investment

Evaluation Criterions				
Banks	r	r^2	P.Er.	6 P.E.r
NABIL	0.9571	0.9160	0.0375	0.2253
NIBL	0.8082	0.6532	0.1551	0.9306
EBL	0.8135	0.6618	0.1513	0.9075
BOK	0.8222	0.6760	0.1449	0.8693
KBL	0.4723	0.2231	0.3474	2.0844
MBL	0.5341	0.2853	0.3196	1.9178

From the above table 4.13, we find that co-efficient of correlation between deposits (independent) and total investment (dependent) value of 'r' is 0.9571 in case of NABIL. It shows highest degree of positive relationship between two variables. However, by application of coefficient of determination the value of (r^2) is 0.9160 which indicates 91.6% of the variation of the dependent variable (total investment) has been explained by the independent variable (deposits). Moreover, by considering the probable error. Since the value of r i.e.0.9571 is less than 6P.Er i.e. 22.53%. So, we can say that there is significant relationship between total deposits and total investments.

On the other hand in case of NIBL, EBL, BOK and MBL, all have high degree of correlation between deposit and total investment. However, by the application of coefficient of determination i.e. r^2 it indicates NIBL & EBL to be 65.32% and 66.81% and that of BOK & MBL to be 67.60% and 28.53% respectively of the variation in the

dependent variable i.e. total investment has been explained by the independent variables i.e. deposit more over considering the probable error since the value of r of NIBL, EBL, BOK & MBL are more than 6 P.Er. So we can say that there is significant relationship between total deposit and total investment of them.

Lastly, we can draw the conclusion from the above analysis that NIBL, EBL, BOK & MBL have high degree of positive relationship between deposit & investment. The relationship is significant and the value of (r^2) shows high percent in the dependent variable which has been explained by the independent variable. This indicates that banks are successful to invest their deposit in proper way. Moreover, we can further conclude that NABIL & KBL have lower correlation between investment & deposit as well as lower value of r^2 in comparison to other banks. It indicates that these two banks are in average position to follow the policy of maximizing the investment of their deposits in comparison to NIBL, EBL, BOK and MBL.

(iii) Coefficient of Correlation between Investment and Net Profit

Coefficient of correlation 'r' between investment and net profit measures the degree of relationship between these two variables. Here, investment is independent variable (x) and net profit is dependent variable (y). The purpose of computing co-efficient of correlation between investment and net profit is to find out whether the net profit is significantly correlated with respective total assets or not.

Table 4.14 shows the value of r, r^2 , P.Er, 6 P.Er between investment and net profit of NABIL, NIBL, EBL, BOK, KBL & MBL for the study period of 2008 to 2012 (details in Annex14).

Table 4.14

Co-efficient of Correlation between Investment and Net Profit

Evaluation Criterions				
Banks	r	r^2	P.Er.	6 P.E.r
NABIL	0.7594	0.5767	0.1277	0.7661
NIBL	0.4268	0.1822	0.2467	1.4802
EBL	0.7808	0.6096	0.1177	0.7065
BOK	0.7852	0.0092	0.2989	1.7932
KBL	0.0958	0.3875	0.1848	1.1085
MBL	-0.1315	0.0173	0.2963	1.7779

From the above listed table it has been found that the coefficient of correlation of NABIL, NIBL, EBL, BOK, KBL between total investment (independent) and net profit (dependent) are 0.7594, 0.4268, 0.7808, 0.7852 and 0.0958 respectively. On the other hand, considering the value of co-efficient of determination r^2 i.e. 0.5767, 0.1822, 0.6096, 0.0092, 0.3875 indicate that variation in the dependent variables (net profit) has been explained by the independent variables (investment) moreover by considering the probable error. We can further say that there is significant relationship between investment and net profit of NABIL, NIBL, BOK, EBL because the value of r is less than 6 P.Er but there is no significant relationship between investment and net profit of EBL because the value of r i.e. 0.7808 is greater than 6 P.Er i.e. 0.7065. It indicates that NABIL, NIBL, BOK, KBL are capable to earn net profit by mobilizing investment.

Similarly, co-efficient of correlation between investment and net profit in case of MBL is found to be -0.1315, which indicates low degree of correlation between these two variables. On the other hand, considering the value of co-efficient of determination r^2 i.e. 0.0173 indicates MBL to be 1.73% of the variation in the dependent variable i.e. net profit has been explained by the independent variables i.e. investment moreover, considering the probable error since the value of r i.e. -0.1315 of MBL is less than 6 P.Er. So we can say that there is nosignificant relationship between net profit and investment of MBL.

Lastly, we can draw the conclusion from the above analysis that NABIL, NIBL, BOK, EBL, KBL have high degree of positive relationship between deposit & investment. The relationship is significant and value of r^2 shows the high percent in the dependent variable which has been explained by the independent variable. But MBL has degree of negative relationship between deposit and investment. This indicates that sample banks are successful to mobilize fund and get return i.e. net profit from such mobilized assets. Moreover, we can further conclude that MBL has lower correlation between net profit & outside assets as well as lower value of r^2 in comparison to others. It means MBL is in lower position in its efficiency to get return i.e., net profit from outside assets.

4.2.2 Regression Analysis

Regression is the estimation of unknown values or prediction of one variable from known values of other variables. Since there are two regression lines, there are also two equations namely the regression equation of Y on X and the regression equation of X on Y. The regression equation of Y on X is used to describe the change in value of Y for given change in the value of X whereas the regression equation of X on Y is used to describe the change in the value of X for given variations in the value of Y.

4.2.2.1 Calculation of Regression Equation of Deposit & Net Profit

Net profit is assumed to dependent(Y) upon deposit (X) as follows:-

$Y = a + bx$

or

$NP = a + bD$

Where,

X = independent variable

Y = dependent variable

a and b = constants

Here, the constants a and b are also known as the parameters of the line. The parameter 'a' determines the distance of the line directly above or below the origin, while parameter 'b' determines the slope of the line i.e. the change in Y per unit change in X.

Here, the regression equation of Y on X determines the variation in the values of Y, i.e. net profit for given changes in X, i.e deposit.

Table 4.15

Regression Analysis between Net Profit (N.P.) and Deposit (D)				
Banks	**Regression Equation**	**Regression Equation**	**Value of Constant 'a'**	**Coefficient 'b'**
NABIL	N.P(Y) on D	Y = 223.57+0.03212D	223.57	0.03212
NIBL	N.P(Y) on D	Y = 63.4317+0.0200D	63.4317	0.02
EBL	N.P(Y) on D	Y = -160.356+0.0256D	-160.356	0.0256
BOK	N.P(Y) on D	Y = -14.0122+0.02609D	-14.0122	0.0261
KBL	N.P(Y) on D	Y = 81.05+0.01030D	81.05	0.0103
MBL	N.P(Y) on D	Y = -0.1182+0.00492D	-0.1182	0.0049

The above table shows in the case of NABIL and NIBL & KBL, the regression coefficient 'b' is positive i.e. 0.03212, 0.0200 &0.0261 respectively which indicates that one million increase in deposit leads to increase in net profit by Rs. 0.03212,0.0200 & Rs. 0.0261 millions respectively. The value of constant 'a' i.e. 223.57,63.4317 & 81.05 shows that net profit will be Rs. 223.57,63.4317 & 81.05 millions when total deposit is zero. Similarly, in the case of EBL,BOK & MBL the value of constant 'a' i.e.-160.356, -14.0122 &-0.1182 shows that net profit will be Rs. -160.356, -14.0122 & -0.1182 million when total deposit is zero.

Hence, this regression equation shows that the deposit of any bank affects its net profit to some extent, that relation too is because the deposit collected is invested in varying areas. Investment made effectively leads to effectively leads to effective utilization of the deposit collection which leads to generating net profit.

4.3 Major Findings of the Study

The main findings of the study are derived on the analysis of financial data of NABIL, NIBL,EBL, BOK, KBL and MBL are given below.

1. Liquidity Ratio

The liquidity position of concerned banks reveals that:

- From the analysis of current ratio the observation shows that the standard current ratio in the practical field is above one. The variations in the current ratio of all the three phase banks are insignificant, i.e. less than 0.01
- The mean ratio of cash and bank balance to total deposits comparatively NABIL has maintained low ratios, it shows some difficulties to meet the demand of its customers on their deposit to pay at any time but it may be earning more by investing cash to different sectors. But it should ensure to have enough liquid funds to serve its customer
- The mean ratio of investment on government securities to current assets, it can be concluded that MBL has invested its less portion of current assets as government securities than that of other & BOK liquidity portion from the point of view of investment on government securities is richer than that of other banks.

2. Assets Management Ratio (Activity Ratio)

The assets management ratio of concerned banks reveals that.

- KBL has strong position regarding the mobilization of total deposit on loan ad advances and acquiring higher profit with compare to other. It states that KBL is better is this regard.
- We can say that KBL's fund mobilization is terms of loan & advances with respect of total working fund is more satisfactory than that of other banks.
- MBL is in weak condition to mobilize its deposits by investing is different sectors is comparison of other two banks.
- The mean ratio of Investment on share and debentures to total working fund of NABIL is higher than other studied banks and also NABIL is more consistent and homogeneous than these banks.
- From the above findings it helps to conclude that NABIL, is comparatively successful in its on balance sheet operation is compared to other banks. It predicts that NABIL has successfully. Maintained and managed its assets towards different income generating activities.

3. Profitability Ratio

The profitability ratio of concerned banks reveals that:

- The mean ratio of total interest earned to total outside Assets, it can be concluded the NABIL is in strong position is earning high income from its total assets in comparison to other banks.
- It can be concluded that MBL is significantly able to earn high return on its loan and advances is comparison of other banks is point of view of average mean & low C.V ratio.
- From the above findings of profitability ratios, it can be concluded that the NABIL and MBL is comparatively in higher position than that of other banks. So, the profit earning capacity of NABIL and MBL is high in comparison to other banks.

4. Risk Ratios

The risk ratio of concerned banks reveals that:

- The mean credit risk ratio of NABIL is greater than other banks. So, it can be concluded that NABIL's degree of risk is higher & more variable than other banks.
- The mean of liquidity risk ratio of KBL is greater than other banks. It can be concluded that KBL's degree of risk is higher & more variable than other banks.

5. Co-efficient of Correlation Analysis from the Co-efficient of Correlation Analysis between different variables of NABIL , NIBL, EBL ,BOK, KBL & MBL **it reveals that:**

- KBL & MBL has lower correlation between net profit & outside assets as well as lower value of r^2 in comparison to others. It means KBL & MBL is in lower position in its efficiency to get return
- KBL has negative correlation between investment & NP as well as lower value of r^2 in comparison to other banks. It indicates that KBL is in average position to

follow the policy of maximizing the investment of their deposits in comparison to NABIL ,NIBL,EBL,BOK & MBL.

- NABIL & EBL higher correlation between deposit and loan & advances as well as higher value of (r^2) than those of least banks, which indicates that it is in strong condition to grand loan & advances for mobilizing the collected deposits in comparison to other two banks.

6. Calculation of Regression Equation of Deposit & Net Profit:

- This regression equation of Deposit and Net Profit shows that any change in the deposit of any bank changes the trend of its net profit. The deposit collected from various sources are the fund used for investment; hence if the investment policy of a bank is effective enough to have attractive investment schemes then this will automatically lead to generation of profit of a bank.
- The deposit collected and net profit has a linear relation is shown from the equation, likewise the relation of investment made and the deposit collected cannot be avoided.
- Though the relation may not be directly proportional but the relation of these three variables: Deposit, Net Profit and Investment can be seen from all the above analysis work.

CHAPTER - V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

The last chapter of this study is summary, conclusion and recommendations developed from the comparative analysis of various aspects of the investment of commercial banks by using some important financial as well as statistical tools. After completing the basic analysis required for the study the final and the most important task of the researcher is to be summarized for the study and to recommend for the further importance. This would be meaningful to the management of the bank to initiate the action and achieve the desired result. The findings of the study are summarized and conclusion and some recommendation drawn as below;

5.1 Summary

Economic development of a country cannot be imagined without the development of commerce and industry. No doubt, banking promotes the development of commerce to its extreme, as banking itself is the part of commerce.

In the study the word investment conceptualized the investment of income, savings or other collected fund. The term investment covers the wide range of activities. It is only possible where there is adequate savings. Investment policy is an important ingredient of overall national economic development because it ensures efficient allocation of fund to achieve the materials and economic well being of the society as a whole.

Commercial banks play an important role for economic development of a country as they provide capital for the development of industry trade and business by investing the saving collected as deposits from public joint venture banks are the commercial banks firmed by joining the two or more enterprises for the purpose of carrying out specific operation such as investment in trade, business and industry as well as in the form of negotiation between various groups of industries or traders to achieve mutual exchange of goods and services.

Commercial Banks formulate sound investment policies to make it more effective, which eventually contribute to the economic growth of a country.

Commercial banks should be careful while performing the credit creation function. Investment policy should ensure minimum risk and maximum profit from lending, good investment policy ensures maximum of investment to all sector with proper utilization.

Banking in Nepal in true sense started from the establishment of the first commercial bank, Nepal Bank Limited in 1994 B.S. government sector. The establishment of Nepal Rastra Bank, Central Bank of Nepal in 2013 BS. was a significant dimension in the development of banking sector.

When the government adopted liberal and market oriented economic policy since mid - 1980, Nepal allowed foreign banks on joint venture banks to operate in the country after getting the approval from Nepal Rastra Bank.

The study basically deals with the utilization of available fund, relationship of investment loan and advances with total deposit and total Net Profit, Investment decision and liquidity position of concerned banks i.e. NABIL ,NIBL, EBL, BOK, KBL & MBL.

The objective of the study is to examine and evaluate the investment policy trend of the commercial banks in Nepal and to suggest for its improvement in the investment policy. The study has been constrained by various common limitations.

.On the second chapter the focus has been made on the review of literatures relevant to the investment policy of commercial banks for this the following areas have been reviewed.

In the study the financial tools ratio analysis liquidity ratio, assets management ratio, profitability ratio, risk ratios are used. The statistical tools like co-efficient of correlation, regression have been used for the analysis and interpretation of the data. The data which

were employed in this research are secondary in nature. They are obtained from annual reports of the concerned banks, likewise, the financial statement of five years (2008 to 2012) were selected for the purpose of evaluation.

5.2 Conclusion

Nabil and have shown their consistency in maintaining their current ratio; as the fluctuating ratios are not significant once. However the change in their ratios of banks shows trend in the fluctuation.

From the analysis of assets management ratio it can be concluded that MBL has successfully maintained and managed its assets towards different income generating activities. In conclusion, MBL has strong position regarding the mobilization of total deposit on loan and advances and acquiring higher profit with comparision to other. It states that MBL is better is this regard. In over all mean ratio of loan & advances to total deposit of MBL is higher than that of other banks & S.D of MBL is greater than other banks.

In profitability ratio, the mean of the NABILL is higher and S.D. of NABIL is higher than other banks. On the other hand C.V of MBL is higher than that of other banks. So MBL has maintained high return with variability ratios.

It also can be concluded that MBL is significantly able to earn high return on its loan and advances in comparison to other banks in point of view of average mean & low C.V ratio. For return on total assets, on the basis of mean ratios & S.D. it can be concluded the is in strong position is earning high income from its total assets in comparison to other banks.

From the view point of risk ratios, the mean ratio & S.D. of banks it can be concluded that NABIL's degree of risk is higher & more variable than other banks.

There is high degree of significant relationship between deposit and loan and advances, deposit and total investment and outside assets and net profit of NABIL is comparison to other banks.

From the above analysis, it can be concluded that all banks have significant difference between loan and advances, return on loan and advances. There is no significance difference between investment on government securities to current assets of NABIL and EBL and ratios of total interest earned to total outside assets of NABIL and EBL.

5.3 Recommendations

- Current ratio of sample banks is not sufficient to achieve standard ratio i.e. 2:1, so it is recommended to all banks to maintain required current ratio. They need to maintain the present mean current ratio for the proper management of their liquidity position.
- The liquidity position of a bank may be affected by external as well as internal factors. The affecting factors may be interest rates, supply as demand position of loan and advances as well as savings, investment situations, central banks directives, the lending policies, capability of management, strategic planning and funds flow situation. As NABIL has maintained lower cash and banker to total deposit and current assets ratio, NABIL is recommended to increase cash and bank balance to meet current obligations and loan demand.
- To get success in competitive banking environment, depositors money must be utilized as loan and advances. Negligence in administering these assets could be the main cause of liquidity crisis in the bank and one of the main reasons of bank failure. It has been found from the study that MBL has greater ratios at all, because its large portion of fund invested as loan and advances and negligence to invest on other sector. Other banks has not properly used their existing fund as loan and advances to over come this situation, so, they are strongly recommended to follow liberal lending policy.
- Out of working fund, MBL has not invested its more funds as total investment in comparison to other two banks. MBL is in weak condition to mobilize its deposits by investing in different sectors in comparison to other banks. Though, the percentage of invested fund by all banks is very nominal. So, it is recommended to all banks to invest their more funds in different types of companies' indifferent areas.

- Portfolio condition of all banks should be examined carefully from time to time and attention should be made to maintain equilibrium in the portfolio condition as far as possible. So it can be said, "all eggs should not be kept in the same basket". The bank should make continuous efforts to explore new competitive and high yielding investment opportunities to optimize their investment portfolio.
- In terms of recovery of loan of NABIL is worse in comparison to other banks. The loan loss ratio is comparatively high that makes negative impact on profit. It may be facing a lot of problems on recovering loans. It has large non-performing asset as loan unrecovered. Therefore it is recommended to apply recovery act that would help to realize overdue loan in time.
- Most of the commercial banks have focused their banking services especially to big clients such as multinational companies, large-scale industries, manufactures and exporters of garments and carpets. The minimum level bank balance and the amount needed to open an account in all banks are very high amount. So, small depositors are very far from enjoying the banking facilities provided by such commercial banks. So, all banks should open its doors to the small depositors and entrepreneurs for promoting and mobilizing small investors' funds and to attract depositors through variety of deposit schemes and facilities like cumulative deposit scheme, prize bonds scheme, gift cheques scheme, recurring deposit scheme (life insurance), monthly interest scheme etc. Recently the collection of fund for Global bank is the good example to support this point.
- The project oriented approach has to be encouraged in lending business of the banks, in which, security is not necessary, risk is high but the project is important from the point of view of national economy. The project should be allowed to make them capable to generate their own funds and to repay loans timely. So, it is recommended to all banks that it should follow project oriented approach for their efficient performances. Because the chance of loan loss can be minimized by the project - oriented approach.
- One of the main objectives to operate commercial banks of Nepal is to boost foreign investments in to the kingdom. However, all these banks don't seem to be successful in this aspect. Therefore, all commercial banks are recommended to

activate for increasing foreign investment in Nepal by means of their wide international banking networks.

- Though commercial banks have played important role in the economic development of the country, they are not efficiently playing the role of a merchant bank. So, the commercial banks is suggested to play the role of financial intermediary and merchant banking like underwriting of securities brokers, development of capital markets and supportive role to the security exchange center.
- In the light of growing competition in the banking sector, the business of the bank should be customer oriented. It should strengthen and activate its marketing function, as it is an effective tool of attracting and retaining customers. For this purpose, the banks should develop an "Innovative approach to Bank Marketing" and formulate new strategies of serving customers in a more convenient and satisfactory way.
- Although most of the banks have recently expanded their braches all over the country but some of them do not have branches in the rural areas of the country. Its branches are limited to the urban areas only. Therefore, commercial banks are recommended to open branches in rural areas too to help in economic development of the country. N/G has also encouraged the joint venture banks to expand baking service in rural areas and communities without making unfavorable impact in their profit.

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ANNEX

Annex 1: Current ratio

CURRENT RATIO (TIMES)

Rs (in million)

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	1.0427	1.0470	1.0509	1.0512	1.0576	1.0499	0.0055	0.0527
MBL	1.0361	1.0467	1.0318	1.0236	1.0569	1.0390	0.0130	1.2522
EBL	1.0596	1.0460	1.0537	1.0490	1.0484	1.0513	0.054	0.5132
BOK	1.0618	1.0701	1.0729	1.0809	1.0762	1.0724	0.0072	0.6669
KBL	1.0898	1.0846	1.0879	1.1064	1.1004	1.0938	0.0092	0.8401
NIBL	1.0708	1.0729	1.0793	1.0893	1.0925	1.0810	0.0097	0.8941

NABIL					
Fiscal year	2008	2009	2010	2011	2012
Current assets	36928.83	42341.71	50388.63	56004.36	60763.79
Current liabilities	34455.56	40437.16	47945.49	53274.92	57449.41
Ratio	1.0427	1.0470	1.0509	1.0512	1.0576
MBL					
Fiscal year	2008	2009	2010	2011	2012
Current assets	11744.44	16528.82	19507.87	18880.32	22946.18
Current liabilities	11335.20	45790.58	18905.28	18445.02	21710.83
Ratio	1.0361	1.0467	1.0318	1.0236	1.0569
EBL					
Fiscal year	2008	2009	2010	2011	2012
Current assets	26412.61	35997.53	40383.48	44924.48	54137.91
Current liabilities	24928.12	34413.22	38323.62	42822.67	51638.60
Ratio	1.0596	1.0460	1.0537	1.0490	1.0484
BOK					
Fiscal year	2008	2009	2010	2011	2012
Current assets	17179.89	19856.36	22664.49	23913.64	27961.95
Current liabilities	16179.85	18554.42	21122.66	22122.56	25981.16
Ratio	1.0618	1.0701	1.0729	1.0809	1.0762
KBL					
Fiscal year	2008	2009	2010	2011	2012

Current assets	14463.09	17910.47	19908.89	19779.74	24598.78
Current liabilities	13271.36	16513.61	18299.82	17877.95	22354.33
Ratio	1.0898	1.0846	1.0879	1.1064	1.1004
NIBL					
Fiscal year	2008	2009	2010	2011	2012
Current assets	37625.62	51559.02	55769.73	56808.99	64084.59
Current liabilities	35136.52	48052.96	51670.02	52147.07	58656.29
Ratio	1.0708	1.0729	1.0793	1.0893	1.0925

Annex 2: Cash and Bank Balance to Total Deposit Ratio

CASH AND BANK BALANCE TO TOTAL DEPOSIT RATIO

Rs (in million)

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.0837	0.0903	0.0302	0.0490	0.0779	0.0662	0.0256	38.6173
MBL	0.1351	0.1774	0.1723	0.1345	0.2524	0.1743	0.0480	27.5591
EBL	0.0887	0.1850	0.2117	0.1489	0.2072	0.1683	0.0510	30.2799
BOK	0.0910	0.0654	0.0856	0.0826	0.1354	0.0920	0.0261	28.3519
KBL	0.0731	0.1131	0.1563	0.0688	0.1693	0.1161	0.0462	39.7953
NIBL	0.1090	0.1696	0.1361	0.1624	0.2070	0.1568	0.0368	23.4915

NABIL					
Fiscal year	2008	2009	2010	2011	2012
Cash and Bank Balance	2671.14	3372.51	1400.09	2436.55	4275.32
Total Deposit	31915.05	37348.26	46416.70	49696.11	54905.68
Ratio	0.0837	0.0903	0.0302	0.0490	0.0779
MBL					
Fiscal year	2008	2009	2010	2011	2012
Cash and Bank Balance	2244.41	2766.65	3193.32	2207.14	5438.31

Total Deposit	11102.24	15596.79	18535.92	16409.97	21546.39
Ratio	0.1351	0.1774	0.1723	0.1345	0.2524
EBL					
Fiscal year	2008	2009	2010	2011	2012
Cash and Bank Balance	2658.17	6164.37	7818.82	6122.86	10363.31
Total Deposit	29976.29	33372.95	36932.31	41127.91	50006.10
Ratio	0.0887	0.1850	0.2117	0.1489	0.2072
BOK					
Fiscal year	2008	2009	2010	2011	2012
Cash and Bank Balance	1440.47	2181.11	1798.37	1678.93	3382.70
Total Deposit	15833.74	18083.39	21018.42	20315.83	24991.45
Ratio	0.0910	0.0654	0.0856	0.0826	0.1354
KBL					
Fiscal year	2008	2009	2010	2011	2012
Cash and Bank Balance	933.84	1080.09	1731.39	2806.17	3722.63
Total Deposit	12780.15	15710.93	17432.25	16986.28	21985.19
Ratio	0.0731	0.1131	0.1563	0.0688	0.1693
NIBL					
Fiscal year	2008	2009	2010	2011	2012
Cash and Bank Balance	3754.94	7918.00	6815.89	8140.37	11803.75
Total Deposit	34451.73	46698.10	50094.73	50138.12	57010.60
Ratio	0.1090	0.1696	0.1361	0.1624	0.2070

Annex 3: Investment on Government Securities to Current Assets Ratio

INVESTMENT ON GOVERNMENT SECURITIES TO CURRENT ASSETS RATIO

Rs (in million)

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.1293	0.0875	0.1582	0.1562	0.1317	0.1326	0.0285	21.5263
MBL	0.0704	0.0289	0.0972	0.0656	0.0612	0.0647	0.0244	37.7516
EBL	0.1825	0.1429	0.1078	0.1590	0.1121	0.1409	0.0316	22.4273
BOK	0.1230	0.1064	0.1304	0.1674	0.1802	0.1415	0.0311	21.9788
KBL	0.1016	0.0603	0.0869	0.1419	0.1047	0.0991	0.0297	29.9673
KBL	0.0839	0.0491	0.0753	0.0756	0.0963	0.0760	0.0173	22.7632

NABIL					
Fiscal year	2008	2009	2010	2011	2012
Investment on Government Security	4646.88	3706.10	7973.66	8745.23	7999.98
Current Assets	35928.83	42341.71	50388.63	56004.36	60763.79
Ratio	0.1293	0.0875	0.1582	0.1562	0.1317
MBL					
Fiscal year	2008	2009	2010	2011	2012
Investment on Government Security	951.27	827.35	477.81	1896.48	1238.63
Current Assets	11744.44	19507.87	16528.82	18880.32	22946.18
Ratio	0.0704	0.0289	0.0972	0.0656	0.0612
EBL					
Fiscal year	2008	2009	2010	2011	2012
Investment on Government Security	4821.60	5146.05	4354.35	7145.02	6068.88
Current Assets	26412.61	35997.53	40383.48	44924.48	54137.91
Ratio	0.1825	0.1429	0.1078	0.1590	0.1121
BOK					
Fiscal year	2008	2009	2010	2011	2012
Investment on Government Security	2113.22	1744.98	2954.93	4002.14	5037.63
Current Assets	17179.85	18554.42	21122.66	22122.56	25981.16
Ratio	0.1230	0.1064	0.1304	0.1674	0.1802
KBL					

Fiscal year	2008	2009	2010	2011	2012
Investment on Government Security	1469.09	1080.09	1731.39	2806.11	2574.62
Current Assets	14463.09	17910.47	19908.09	19779.74	24854.13
Ratio	0.1016	0.0603	0.0869	0.1419	0.1047
NIBL					
Fiscal year	2008	2009	2010	2011	2012
Investment on Government Security	3155.00	2531.30	4201.85	4294.60	6169.49
Current Assets	37625.61	51559.02	55769.73	56808.99	64084.59
Ratio	0.0839	0.0491	0.0753	0.0756	0.0963

Annex 4: Loan and Advances to Total Deposit Ratio (Times)

LOAN AND ADVANCES TO TOTAL DEPOSIT RATIO (TIMES)

Rs (in million)

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.6694	0.7387	0.7116	0.7229	0.7578	0.7201	0.0332	4.6152
MBL	0.7784	0.8025	0.7709	0.8780	0.7241	0.7908	0.0564	7.1366
EBL	0.7649	0.7168	0.7461	0.7552	0.7181	0.7402	0.0218	2.9489
BOK	0.8051	0.8265	0.7929	0.8598	0.7528	0.8074	0.0397	4.9180
KBL	0.8869	0.9288	0.8470	0.8611	0.8012	0.8650	0.0473	5.4714
NIBL	0.7836	0.7761	0.8048	0.8196	0.7303	0.7829	0.0341	4.3504

NABIL					
Fiscal year	2008	2009	2010	2011	2012
Loan and Advance	21365.05	27589.93	33030.97	38905.49	41605.68
Total Deposit	31915.05	37348.26	46416.70	40696.11	54905.68
Ratio	0.6694	0.7387	0.7116	0.7229	0.7578
MBL					
Fiscal year	2008	2009	2010	2011	2012
Loan and Advance	8642.32	12516.01	14289.79	14408.75	15602.70
Total Deposit	11102.24	15596.79	18535.92	16409.97	21546.39
Ratio	0.7784	0.8025	0.7709	0.8780	0.7241
EBL					

Fiscal year	2008	2009	2010	2011	2012
Loan and Advance	18339.09	23884.67	27556.36	31057.69	35910.97
Total Deposit	23976.29	33322.95	36932.31	41127.91	50006.10
Ratio	0.7649	0.7168	0.7461	0.7552	0.7181
BOK					
Fiscal year	2008	2009	2010	2011	2012
Loan and Advance	12747.72	14945.72	16664.93	17468.19	18813.94
Total Deposit	15833.74	18082.98	21018.42	20315.83	24991.45
Ratio	0.8051	0.8265	0.7929	0.8598	0.7528
KBL					
Fiscal year	2008	2009	2010	2011	2012
Loan and Advance	11339.09	14593.35	14765.91	14626.00	17614.35
Total Deposit	12780.15	15710.93	20199.94	16986.28	21985.19
Ratio	0.8869	0.9288	0.8470	0.8611	0.8012
NIBL					
Fiscal year	2008	2009	2010	2011	2012
Loan and Advance	26996.65	36241.21	40318.31	41095.51	41636.99
Total Deposit	34451.73	46698.10	50094.73	50138.12	57010.60
Ratio	0.7836	0.7761	0.8048	0.8196	0.7303

Annex 5: Loan and Advances to Total Working Fund Ratio

LOAN AND ADVANCES TO TOTAL WORKING FUND RATIO

Rs (in million)

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.7254	0.7526	0.7352	0.7304	0.6728	0.7233	0.0300	4.1507
MBL	0.6290	0.5473	0.6620	0.7569	0.6799	0.6550	0.0764	11.6588
EBL	0.7357	0.6635	0.6824	0.6910	0.6955	0.6936	0.0265	3.8241
BOK	0.7254	0.7526	0.7357	0.7304	0.6728	0.7234	0.0301	4.1571
KBL	0.8844	0.7979	0.7310	0.7246	0.7741	0.7824	0.0646	8.2575
NIBL	0.7688	0.7029	0.7229	0.7234	0.6497	0.7135	0.0431	6.0390

NABIL					
Fiscal year	2008	2009	2010	2011	2012
Loan and Advances	21365.05	27589.93	33030.97	38905.49	31605.68
Total Working Fund	35928.83	42341.71	50388.63	56004.36	60763.79
Ratio	0.7254	0.7526	0.7352	0.7304	0.6728
MBL					
Fiscal year	2008	2009	2010	2011	2012
Loan and Advances	8642.32	12516.01	14289.79	14408.75	15602.70
Total Working Fund	11744.44	16528.82	19507.87	18880.32	22946.18
Ratio	0.6290	0.5473	0.6620	0.7569	0.6799
EBL					
Fiscal year	2008	2009	2010	2011	2012
Loan and Advances	18339.09	23884.67	27556.36	31057.69	35910.97
Total Working Fund	26412.61	35997.53	40383.48	44924.48	55265.20
Ratio	0.7357	0.6635	0.6824	0.6910	0.6955
BOK					
Fiscal year	2008	2009	2010	2011	2012
Loan and Advances	12747.72	12945.72	16664.93	17468.19	18813.94
Total Working Fund	17179.85	18554.42	21122.66	22122.56	25981.16
Ratio	0.7254	0.7526	0.7357	0.7304	0.6728
KBL					
Fiscal year	2008	2009	2010	2011	2012
Loan and Advances	11335.09	14593.35	14765.91	14626.07	17614.35

Total Working Fund	14463.09	17910.47	19908.09	19779.74	24598.78
Ratio	0.8844	0.7979	0.7310	0.7246	0.7741
NIBL					
Fiscal year	2008	2009	2010	2011	2012
Loan and Advances	26996.65	36241.21	40318.31	41095.51	41636.99
Total Working Fund	37625.62	51559.02	55769.73	56808.99	64084.59
Ratio	0.7688	0.7029	0.7229	0.7234	0.6497

Annex 6: Investment on Share and Debebtures to Total Working Fund Ratio

INVESTMENT ON SHARES AND DEBENTURES TO TOTAL WORKING FUND RATIO

Rs (in million)

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.0089	0.0084	0.0188	0.0168	0.0142	0.0134	0.0047	34.6734
MBL	0.0052	0.0042	0.0037	0.0044	0.0036	0.0042	0.0006	15.2102
EBL	0.0038	0.0028	0.0025	0.0024	0.0020	0.0027	0.0007	25.1197
BOK	0.0066	0.0062	0.0017	0.0016	0.0015	0.0035	0.0026	74.8244
KBL	0.0014	0.0010	0.0010	0.0012	0.0010	0.0011	0.0002	15.9719
NIBL	0.0016	0.0015	0.0013	0.0012	0.0029	0.0017	0.0007	40.5413

NABIL					
Fiscal year	2008	2009	2010	2011	2012
Investment on Shares and Debentures	323.23	354.93	946.09	940.95	862.56
Total Working Fund	34455.56	35634.72	51372.14	57206.35	60763.79
Ratio	0.0089	0.0084	0.0188	0.0168	0.0142
MBL					
Fiscal year	2008	2009	2010	2011	2012
Investment on Shares and Debentures	59.29	69.39	73.09	83.35	83.35
Total Working Fund	11744.43	16528.82	19507.87	18880.32	22946.18
Ratio	0.0052	0.0042	0.0037	0.0044	0.0036
EBL					
Fiscal year	2008	2009	2010	2011	2012
Investment on Shares and Debentures	101.15	102.03	102.03	109.58	110.78
Total Working Fund	26412.61	35997.53	40383.48	44924.48	51635.83
Ratio	0.0038	0.0028	0.0025	0.0024	0.0020
BOK					
Fiscal year	2008	2009	2010	2011	2012
Investment on Shares and Debentures	114.06	115.04	40.14	40.14	41.61
Total Working Fund	17179.85	18554.42	21122.66	22122.56	26181.16
Ratio	0.0066	0.0062	0.0017	0.0016	0.0015
KBL					

Fiscal year	2008	2009	2010	2011	2012
Investment on Shares and Debentures	18.22	18.35	21.92	23.42	23.42
Total Working Fund	14463.00	17910.47	19908.09	19779.74	24598.79
Ratio	0.0014	0.0010	0.0010	0.0012	0.0010
NIBL					
Fiscal year	2008	2009	2010	2011	2012
Investment on Shares and Debentures	59.95	64.27	63.35	70.96	171.86
Total Working Fund	37625.62	51559.02	55769.73	56808.99	64084.59
Ratio	0.0016	0.0015	0.0013	0.0012	0.0029

Annex 7: Total Investment to Total Deposit Ratio

TOTAL INVESTMENT TO TOTAL DEPOSIT RATIO

Rs (in million)

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.3114	0.2899	0.2955	0.2638	0.2564	0.2834	0.0228	8.0577
MBL	0.1300	0.0799	0.1131	0.0859	0.0792	0.0976	0.0228	23.3524
EBL	0.2111	0.1785	0.1357	0.1883	0.1573	0.1742	0.0289	16.6067
BOK	0.2025	0.1541	0.1555	0.2103	0.2099	0.1865	0.0291	15.5916
KBL	0.1674	0.0962	0.1318	0.2080	0.1338	0.1474	0.0422	28.6193
NIBL	0.2011	0.1585	0.1724	0.1481	0.2564	0.1873	0.0435	23.2007

NABIL					
Fiscal year	2008	2009	2010	2011	2012
Total Investment	9939.77	10826.38	13714.51	13085.77	14076.85
Total Deposit	31915.05	37348.26	46416.70	49696.11	54905.68
Ratio	0.3114	0.2899	0.2955	0.2638	0.2564
MBL					
Fiscal year	2008	2009	2010	2011	2012
Total Investment	1443.55	1246.16	2096.79	1409.56	1705.42
Total Deposit	11102.24	15596.79	18535.92	16409.97	21546.39
Ratio	0.1300	0.0799	0.1131	0.0859	0.0792
EBL					
Fiscal year	2008	2009	2010	2011	2012
Total Investment	5061.16	5948.48	5009.91	7745.53	7863.63
Total Deposit	23976.29	33322.95	36932.31	41127.91	50006.10
Ratio	0.2111	0.1785	0.1357	0.1883	0.1573
BOK					
Fiscal year	2008	2009	2010	2011	2012
Total Investment	3206.83	2786.36	3269.20	4286.59	5246.68
Total Deposit	15833.74	18083.98	21018.42	20315.83	24991.45
Ratio	0.2025	0.1541	0.1555	0.2103	0.2099
KBL					
Fiscal year	2008	2009	2010	2011	2012

Total Investment	2138.79	1510.83	2298.35	3533.62	2940.56
Total Deposit	12780.15	15710.93	17432.25	16986.28	21985.19
Ratio	0.1674	0.0962	0.1318	0.2080	0.1338
NIBL					
Fiscal year	2008	2009	2010	2011	2012
Total Investment	6874.02	7399.81	8635.53	7423.11	10438.49
Total Deposit	34186.52	46698.10	50094.73	50138.12	57010.60
Ratio	0.2011	0.1585	0.1724	0.1481	0.2564

Annex 8: Return on Loan and Advance Ratio

RETURN ON LOAN AND ADVANCE RATIO

Rs (in million)

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.0483	0.0271	0.0345	0.0346	0.0409	0.0371	0.0080	21.4434
MBL	0.0098	0.0099	0.0051	0.0062	0.0024	0.0067	0.0032	48.0140
EBL	0.0246	0.0267	0.0302	0.0299	0.0304	0.0284	0.0026	9.1291
BOK	0.0284	0.0309	0.0306	0.0346	0.0323	0.0314	0.0023	7.2946
KBL	0.0154	0.0179	0.0214	0.0172	0.0156	0.0175	0.0024	13.8446
NIBL	0.0258	0.0249	0.0314	0.0286	0.0249	0.0271	0.0028	10.4469

NABIL					
Fiscal year	2008	2009	2010	2011	2012
Return on Loan	1031.05	746.47	1141.05	1337.75	1700.38
Advance	21365.05	27589.93	33030.97	38905.49	41605.68
Ratio	0.0483	0.0271	0.0345	0.0346	0.0409
MBL					
Fiscal year	2008	2009	2010	2011	2012
Return on Loan	85.02	123.25	73.31	88.92	38.21
Advance	8642.32	12516.01	14289.79	14408.75	15602.17
Ratio	0.0098	0.0099	0.0051	0.0062	0.0024
EBL					
Fiscal year	2008	2009	2010	2011	2012
Return on Loan	451.22	638.73	831.77	931.30	1090.56
Advance	18339.09	23884.67	27556.36	31057.69	35910.97
Ratio	0.0246	0.0267	0.0302	0.0299	0.0304
BOK					
Fiscal year	2008	2009	2010	2011	2012
Return on Loan	361.49	461.73	509.26	605.15	607.66
Advance	12747.72	14945.72	16664.93	1746.19	18813.94
Ratio	0.0284	0.0309	0.0306	0.0346	0.0323
KBL					
Fiscal year	2008	2009	2010	2011	2012

Return on Loan	174.93	261.44	316.54	251.24	275.50
Advance	11335.09	14593.35	16664.93	17468.19	18813.94
Ratio	0.0154	0.0179	0.0214	0.0172	0.0156
NIBL					
Fiscal year	2008	2009	2010	2011	2012
Return on Loan	696.73	900.62	1265.95	1176.64	1039.78
Advance	26996.65	36241.21	40318.31	41095.51	41636.99
Ratio	0.0258	0.0249	0.0314	0.0286	0.0249

Annex 9: Return on Total Assets

RETURN ON TOTAL ASSETS

Rs (in million)

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.0278	0.0170	0.0219	0.0230	0.0269	0.0233	0.0043	18.5619
MBL	0.0069	0.0070	0.0035	0.0043	0.0016	0.0047	0.0023	49.5564
EBL	0.0167	0.0173	0.0200	0.0201	0.0187	0.0186	0.0015	8.3086
BOK	0.0204	0.0225	0.0218	0.0244	0.0210	0.0220	0.0015	7.0383
KBL	0.0116	0.0141	0.0155	0.0122	0.0109	0.0129	0.0019	14.7397
NIBL	0.0179	0.0169	0.0221	0.0201	0.0158	0.0186	0.0025	13.6603

NABIL					
Fiscal year	2008	2009	2010	2011	2012
Net Profit	1031.05	746.47	1141.05	1337.75	1700.38
Total Assets	37132.76	43867.39	52151.68	58141.44	63257.37
Ratio	0.0278	0.0170	0.0219	0.0230	0.0269
MBL					
Fiscal year	2008	2009	2010	2011	2012
Net Profit	85.02	123.25	73.31	88.92	38.21
Total Assets	12410.04	17490.78	20678.79	19605.87	24357.25
Ratio	0.0069	0.0070	0.0035	0.0043	0.0016
EBL					
Fiscal year	2008	2009	2010	2011	2012
Net Profit	451.22	638.73	831.77	931.30	1090.56
Total Assets	27149.34	36916.85	41382.76	46236.21	55183.13
Ratio	0.0167	0.0173	0.0200	0.0201	0.0187
BOK					
Fiscal year	2008	2009	2010	2011	2012
Net Profit	361.49	461.73	509.26	605.15	607.66
Total Assets	17721.93	20496.01	23396.19	24757.75	28881.99
Ratio	0.0204	0.0225	0.0218	0.0244	0.0210
KBL					
Fiscal year	2008	2009	2010	2011	2012
Net Profit	174.73	261.44	316.54	215.24	275.50
Total Assets	15036.25	18538.57	20485.58	20491.79	25131.40
Ratio	0.0116	0.0141	0.0155	0.0122	0.0109

NIBL					
Fiscal year	2008	2009	2010	2011	2012
Net Profit	696.73	900.62	1265.95	1176.64	1039.28
Total Assets	38873.31	53010.80	57305.41	58356.83	65756.23
Ratio	0.0179	0.0169	0.0221	0.0201	0.0158

Annex 10: Credit Risk Ratio

CREDIT RISK RATIO

Rs (in million)

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.5754	0.6289	0.6334	0.6692	0.6514	0.6317	0.0353	5.5831
MBL	0.6964	0.7154	0.6910	0.7349	0.6406	0.6957	0.0353	5.0738
EBL	0.6755	0.6470	0.6590	0.6717	0.6434	0.6593	0.0143	2.1721
BOK	0.7193	0.7292	0.7123	0.7056	0.6514	0.7036	0.0304	4.3266
KBL	0.7539	0.7872	0.7208	0.7138	0.7009	0.7353	0.0350	4.7576
NIBL	0.6945	0.6837	0.7036	0.7042	0.6332	0.6838	0.0295	4.3151

NABIL					
Fiscal year	2008	2009	2010	2011	2012
Total Loan and Advances	21365.05	27589.93	33030.97	38905.49	41605.68
Total Assets	37132.76	43867.39	52151.68	58141.44	63257.37
Ratio	0.5754	0.6289	0.6334	0.6692	0.6514
MBL					
Fiscal year	2008	2009	2010	2011	2012
Total Loan and Advances	8642.32	12516.01	14289.79	14408.75	15602.70
Total Assets	12410.04	17490.78	20678.79	19605.87	24357.25
Ratio	0.6964	0.7154	0.6910	0.7349	0.6406
EBL					
Fiscal year	2008	2009	2010	2011	2012
Total Loan and Advances	18339.09	23884.67	27556.30	31057.69	35910.97
Total Assets	27149.34	36916.85	41382.76	46236.21	55813.13
Ratio	0.6755	0.6470	0.6590	0.6717	0.6434
BOK					
Fiscal year	2008	2009	2010	2011	2012
Total Loan and Advances	12747.72	14945.72	16664.93	17468.19	18813.94
Total Assets	17721.93	20496.01	23396.19	24757.75	28881.99
Ratio	0.7193	0.7292	0.7123	0.7056	0.6514
KBL					
Fiscal year	2008	2009	2010	2011	2012

Total Loan and Advances	11335.09	14593.35	14765.91	14626.07	17614.35
Total Assets	15036.25	18538.57	20485.58	20491.79	25131.40
Ratio	0.7539	0.7872	0.7208	0.7138	0.7009
NIBL					
Fiscal year	2008	2009	2010	2011	2012
Total Loan and Advances	26996.69	36241.21	40318.31	41095.51	41636.99
Total Assets	38873.31	53010.80	57305.41	58356.83	65756.23
Ratio	0.6945	0.6837	0.7036	0.7042	0.6332

Annex 11: Liquidity Risk Ratio

LIQUIDITY RISK RATIO

Rs (in million)

Banks	Year							
	2008	2009	2010	2011	2012	Mean	S.D.	C.V.
NABIL	0.0837	0.0903	0.0302	0.0490	0.0779	0.0662	0.0256	38.6173
MBL	0.1351	0.1774	0.1723	0.1345	0.2524	0.1743	0.0480	27.5591
EBL	0.0887	0.1850	0.2117	0.1489	0.2072	0.1683	0.0510	30.2799
BOK	0.0910	0.0654	0.0856	0.0826	0.1354	0.0920	0.0261	28.3519
KBL	0.0731	0.1131	0.1563	0.0688	0.1693	0.1161	0.0462	39.7953
NIBL	0.1090	0.1696	0.1361	0.1624	0.2070	0.1568	0.0368	23.4915

NABIL					
Fiscal year	2008	2009	2010	2011	2012
Cash and Bank Balance	2671.14	3372.51	1400.09	2436.55	4275.32
Total Deposit	31915.05	37348.26	46416.70	49696.11	54905.68
Ratio	0.0837	0.0903	0.0302	0.0490	0.0779
MBL					
Fiscal year	2008	2009	2010	2011	2012
Cash and Bank Balance	2244.41	2766.65	3193.32	2207.14	5438.31
Total Deposit	11102.24	15596.79	18535.92	16409.97	21546.39
Ratio	0.1351	0.1774	0.1723	0.1345	0.2524
EBL					
Fiscal year	2008	2009	2010	2011	2012
Cash and Bank Balance	2658.17	6164.37	7818.82	6122.86	10363.31
Total Deposit	29976.29	33372.95	36932.31	41127.91	50006.10
Ratio	0.0887	0.1850	0.2117	0.1489	0.2072
BOK					
Fiscal year	2008	2009	2010	2011	2012
Cash and Bank Balance	1440.47	2181.11	1798.37	1678.93	3382.70
Total Deposit	15833.74	18083.39	21018.42	20315.83	24991.45
Ratio	0.0910	0.0654	0.0856	0.0826	0.1354
KBL					
Fiscal year	2008	2009	2010	2011	2012

Cash and Bank Balance	933.84	1080.09	1731.39	2806.17	3722.63
Total Deposit	12780.15	15710.93	17432.25	16986.28	21985.19
Ratio	0.0731	0.1131	0.1563	0.0688	0.1693
NIBL					
Fiscal year	2008	2009	2010	2011	2012
Cash and Bank Balance	3754.94	7918.00	6815.89	8140.37	11803.75
Total Deposit	34451.73	46698.10	50094.73	50138.12	57010.60
Ratio	0.1090	0.1696	0.1361	0.1624	0.2070

Annex 12: Correlation coefficient between loans and advance and deposit of KBL

CORRELATION COFFICIENT BETWEEN LOAN& ADVANCE & DEPOSIT OF KBL (SAMPLE BANK)

Rs (in million)

Year	Loan & Advance (X)	Deposit(Y)	X^2	Y^2	XY
2008	11335.09	12780.15	128484265.31	163332234.02	144864150.46
2009	14593.37	15710.93	212966447.96	246833321.46	229275414.53
2010	14765.91	17432.25	218032098.13	303883340.06	257403034.60
2011	14626.07	16986.28	213921923.64	288533708.24	248442520.32
2012	17614.35	21985.19	310265325.92	483348579.34	387254831.48
Total	**72934.79**	**84894.80**	**1083670060.96**	**1485931183.12**	**1267239951.38**

$$r = \frac{N.\sum XY - \sum X.\sum Y}{\sqrt{N.\sum X^2 - (\sum X)^2}.\sqrt{N.\sum Y^2 - (\sum Y)^2}}$$

$$= \frac{5 \times 1267239951.39 - 72934.79 \times 84894.80}{\sqrt{5 \times 1083670060.96 - (72934.79)^2} \times \sqrt{5 \times 1485931183.12 - (84894.80)^2}}$$

$$= \frac{144415346.86}{9943.17 \times 14917.23}$$

$$= \frac{144415346.86}{148324553.82}$$

$$= 0.9736$$

Calculation of Probable Error (P. Er):

$$\text{P. Er} = 0.6745 \frac{1-r^2}{\sqrt{n}}$$

$$= 0.6745 \frac{1-0.9479}{\sqrt{5}}$$

$$= 0.023301$$

6 P.Er = 0.139805

Similarly the correlation coefficient , P.E & 6P.E between different variables of five banks have been calculated.

Annex 13: Correlation between deposit and investment of KBL

CORRELATION BETWEEN DEPOSIT AND INVESTMENT OF KBL (SAMPLE BANK)

Rs (in million)

Year	Deposit (X)	Investment (Y)	X^2	Y^2	XY
2008	12780.15	2138.79	163332234.02	4574422.66	27334057.02
2009	15710.93	1510.83	246833321.46	2282607.29	23736544.37
2010	17432.25	2298.35	303883340.06	5282412.72	40065411.79
2011	16986.28	3533.62	288533708.24	12486470.30	60023058.73
2012	21985.19	2940.56	483348579.34	8646893.11	64648770.31
Total	**84894.80**	**12422.15**	**1485931183.12**	**33272806.09**	**215807842.22**

$$r = \frac{N.\sum XY - \sum X.\sum Y}{\sqrt{N.\sum X^2 - (\sum X)^2}.\sqrt{N.\sum Y^2 - (\sum Y)^2}}$$

$$= \frac{5 \times 215807842.22 - 84894.80 \times 12422.15}{\sqrt{5 \times 1485931183.12 - (84894.80)^2} \times \sqrt{5 \times 33272896.09 - (12422.15)^2}}$$

$$= \frac{24463271.28}{14917.40 \times 3471.92}$$

$$= \frac{42263271.28}{51792019.41}$$

$$= 0.4723$$

Calculation of Probable Error (P. Er):

$$\text{P. Er} = 0.6745 \frac{1-r^2}{\sqrt{n}}$$

$$= 0.6745 \frac{1-0.2231}{\sqrt{5}}$$

$$= 0.3474$$

6 P.Er = 2.0847

Similarly the correlation coefficient , P.E & 6P.E between different variables of five banks have been calculated.

Annex 14: Correlation between Investment and NP of KBL

Year	Investment (X)	NP (Y)	X²	Y²	XY
2008	2138.79	174.93	4574422.66	30600.50	374138.53
2009	1510.83	261.44	2282607.29	68350.87	394991.40
2010	2298.35	316.54	5282412.72	100197.57	327519.71
2011	3533.62	215.24	12486470.30	46328.26	760576.37
2012	2940.56	275.50	8646893.11	75900.25	810124.28
Total	**12422.15**	**1243.65**	**33272806.09**	**321377.46**	**3067350.29**

CORRELATION BETWEEN INVESTMENT AND NP OF KBL (SAMPLE BANK)

Rs (in million)

$$r = \frac{N.\sum XY - \sum X.\sum Y}{\sqrt{N.\sum X^2 - (\sum X)^2}.\sqrt{N.\sum Y^2 - (\sum Y)^2}}$$

$$= \frac{5 \times 3067350.29 - 12422.15 \times 1243.65}{\sqrt{5 \times 33272806.09 - (12422.15)^2} \times \sqrt{5 \times 321377.46 - (1243.65)^2}}$$

$$= \frac{-112055.40}{3471.92 \times 245.38}$$

$$= \frac{-112055.40}{851939.73}$$

$$= -0.1315$$

Calculation of Probable Error (P. Er):

$$\text{P. Er} = 0.6745 \frac{1-r^2}{\sqrt{n}}$$

$$= 0.6745 \frac{1-0.0173}{\sqrt{5}}$$

$$= 0.2963$$

$$6 \text{ P.Er} = 1.7779$$

Similarly the correlation coefficient , P.E & 6P.E between different variables of five banks have been calculated.

Annex 15: Calculation of Regression Equation of Deposit and NP of KBL

Calculation of Regression Equation of Deposit and NP of KBL (Sample Bank)

Let the regression of y and x be

$Y = a + bX$…….equation 1

Where Y is dependent variable, a and b are constants and X is independent variable.

Then,

Two normal equations estimating a and b are:

$\sum Y = na + b\sum X$……..equation 2

$\sum XY = a\sum X + b\sum X^2$……..equation 3

Where $\sum X = 84894.8$

$\sum Y = 1279.65$

$\sum X^2 = 1485031183$

$\sum XY = 22185654.43$

N = 5

Putting the respective values in equations (2) and (3), we have

1279.65 = 5a + 84894.8b…….……equation 4

22185654.43 = 84894.8a + 1485931183b……equation 5

Multiplying equation (4) by 16978.96 and (5) by 1, we get

21727126.16 = 84894.8a + 1441425413b

_22185654.43 = _84894.8a _+ 1485931183b

-458528.27 = - 44505769.59b

Hence b = 0.01030

Now substituting the value of b in equation (4), we get

1279.65 = 5a + 84894.8×0.01030

Hence a = 81.05

Now putting the values of a and b in equation (1), we get

Y = 81.05 + 0.01030X

This is the estimated regression of NP (Y) on total deposit (X) of KBL.

Similarly the correlation coefficient , P.E & 6P.E between different variables of five banks have been calculated.