

# CHAPTER - ONE

## INTRODUCTION

### 1.1 Background of the study

The economy of nation depends on the uses of available resources in efficient way. The proper utilization of assets appreciates in wealth position of individual and country as well. To mobilize available resource, there should be proper planning, efficient management, far sighting strategy, good financial management and up-to-date information. Integrated and speedily development of the country is possible only when competitive banking and financial service reaches nook and corners of the country. To grow financial activities, it requires the banking habit of the community as well as potentially strong lending opportunities. Simply, bank is an institution whose main function is to accept deposit and invest it. Bank collects money from public by providing attractive sound interest and can earn profit by lending it on mainly in business organization, industrial, agricultural sectors etc. So, we can say the main task of commercial bank is to mobilize idle resources in productive areas by collecting it from scattered sources and generating profit. Banking plays significant role in the economic development of country. Banks role as intermediaries channeling between saving and investment and fulfill the credit needs of customer as well as investment requirement of savers. It is clear the efficient and stable banking systems are crucial for any orderly economic growth. The pace development of country largely depends on the level of financial development.

Successful formulation of investment policy and its proper utilization or implementation is the prime require for the development of banks and other financial institution. Good investment policy has positive impact on economic development of the country and vice-versa. A healthy development of any bank depends heavily upon its investment policy. A sound and viable investment policy is one of the major effective tools of the economy to attain the economic objective directed towards the acceleration of the pace of development. Bank should attract to its customer by implementing best or competitive investment policy. It helps to

increase the quality of banking services as well as volume of quality deposits, loans and investment. Investment management of bank is about operating as per investment policy adopted by bank. The best investment policy helps to minimize risk and increase efficiency of investment operations so-that the profit is maximized.

Economic development is the most important factor for development of any country. Nepal is least developed country. Capital formation and its proper utilization play a paramount role for rapid economic development. A key factor in the development of a country is the mobilization of domestic resources and their investment for productive use to various sectors. Investment portfolio is one such tool that helps for proper utilization of resources. A portfolio is usually defined as a combination of assets. It is a collection of securities. Portfolio means the lists of holding in securities owned by an investor or institution.

Portfolio theory deals with the selection of optimal portfolios i.e. portfolio provides the highest possible return for any specified degree of risk or the lowest possible risk for any specified return. Portfolio theory has been developed for the financial assets. This making investment from the selected optimal portfolio i.e. the portfolio that provides the highest rate of return with least possible amount of risk is the real investment portfolio.

The income or profit of the bank's directly depending upon the investment portfolio of the bank. Commercial banks formulate sound investment policies which help to maximize quality and quantity of investment and eventually to the economic growth of a country. Commercial banks must follow the rules and regulation as well as directions issued by the central bank. The loan provided by a commercial bank is guided by several principles such as time, their purpose, profitability, safety etc. These fundamental principles of commercial bank's investment are fully considered while making investment portfolio. Investment decision is one of the major decision functions of financial management.

Finally, commercial banks and financial institution are the backbone of the Nepalese economy at present. It plays a vital role in capital formulation and proper

utilization of the collected fund. Mobilization of saving is most essential for the economic growth of the country. Commercial banks are the mediator of mobilizing such savings. Their sound performance makes them able to mobilize such fund in a proper way. Development of the country is directly related to the volume of investment in productive sectors.

### **1.1.1 Commercial Banks in Nepal**

Commercial banks are very important for the development of national economy. They accept public saving as deposits and advance them as loans to the persons, business organizations and government when they required. The development of commercial banks is in increasing trend after the restoration of democracy in 1990A.D. The first commercial bank is Nepal Bank Limited that was established in 30 Kartik 1994 B.S (1937 A.D.). And the second is RBB established in 10/10/2022 B.S.

After a long period of establishment of these two banks, NABIL Bank is the first commercial bank from the private sector. This is the first joint venture bank of Nepal also. There after many other joint venture and non joint venture banks were set up under the Commercial Bank Act, 2031 and Company Act, 2053.

Now, Thirty-Two Commercial banks are operating in the country. The door is opened now for the establishment of commercial banks with new policy relating to commercial bank issued by Nepal Rastra Bank considering that banking of entrance is not favorable in the liberal and market oriented economic environment and to create the competitive environment. Thus, it is expected that the numbers of commercial banks will be increased in future. According to new policy issued by NRB, the paid up capital of new opening commercial bank at national level must be Rs. 2000 million.

If the newly opened bank is joint venture with foreign bank or financial institution, it is permitted to open new commercial banks with head office at Kathmandu valley contracting three years management with 67% investment of foreign such institution, the ratio of ownership of share will be 7:3 between founder and public respectively.

There are many functions of commercial banks and the principal functions are as follows:

- To accept deposit
- To provide loans and advances
- To create credits
- To perform agency function
- To carry out utility functions.

The commercial bank and banker has its own right and duties. The rights are mentioned point-wise as follows:

- Banker enjoys a general lien over customer's securities in his possession.
- He has an implied right to charge a reasonable commission for his service and interest upon loans.
- He has the right of set-off like any other debtors.
- He has the right to appropriate payment as per the rules laid down in Clayton's case.
- Banker need not seek out the creditor to make the payment. It is the creditor who should demand payment.

Similarly, the duties of banker are as follows:

- To receive his customer's money and cheques and other instruments for collection.
- To repay the customer's deposit on the presentation of customer's mandate known as the cheque.
- To maintain secrecy in respect of customer's account and affairs.
- To give a reasonable notice before closing a customer's account.

### **1.1.2 Profile of Everest Bank Limited**

Everest Bank Limited was registered on November 17, 1992 and come into operation on October 18, 1994 with an objective of extending professionalized and

efficient banking services to various segments of the society. Today the bank has grown to become one of the leading banks in Nepal.

Panjab National Bank (PNB) joined hands with EBL as a Joint Venture in 1997 and turned it around to a highly profitable bank. There has been no looking back since then. PNB provides top management support under the Technical Service Agreement. PNB joint venture partner of EBL one of the largest nationalized bank in India having 114 years of banking history, holds 20% equity.

Everest Bank has recognized the value of offerings a complete range of services and has pioneered in extending various customer friendly products such as home loan, education loan, EBL flexi loan, EBL property plus (future lease rental), Home equity loan, vehicles loan, Loan against share, loan against life insurance policy and loan for professional. The bank is providing customer friendly services through a network of 22 branches.

Everest Bank Limited was the first bank to introduce Any Branch Banking System (ABBS) in Nepal. All the branches of the bank are connected with ABBS which enables the customers to do all their transactions from any branches other than where they have their account. Everest Bank has introduced the Mobile Vehicle Banking System to see the segment deprives of proper banking facilities through Birtamod branch, which is the first of its kind.

The bank has committed to provide excellent professional services & improve its position as a leader in the field of financial related services, use latest technology aimed at customer satisfaction & act as an effective catalyst for socio-economic developments. The bank was bestowed with the “NICCI Excellence award “twice in 1999 and 2003 by Nepal India chamber of commerce for its spectacular performance under finance sector and the bank has been conferred with “Bank of the Year 2006, Nepal” by the banker, a publication of financial times, London.

**Table: 1.1**  
**Present Share Capital of EBL**

Share Capital	Amount in NRS.
Authorized Capital	2,00,00,00,000
Issued Capital	1,28,14,06,500
Paid up Capital	1,27,96,09,490
Proposed Bonus Share	11,19,60,949

*Source: Annual Report of EBL 2067/068*

**Table: 1.2**  
**Detail of Share Ownership of EBL**

Owners	Figure in %
General Public (Nepali)	68
Foreign (Panjab National Bank India )	20
Nepali (Institutions)	12
Total	100

*Source: Annual Report of EBL 2067/68*

## **1.2 Statement of Problem**

The major problem in almost all the under developed countries is the formulation of capital and its proper utilization, this directly affects the economic development of the country. To avoid this problem and contribute to welfare of national economy, various commercial banks have established. The main role of these commercial banks is to act as the bridge between the savers and users. They collect scattered deposits and give various types of loans to maximize their wealth. Banks are established to develop the economic development of the country.

After the liberalization policy of the government several joint venture banks, financial institutions are established rapidly but due to poor investment policy and lack of investment strategy, most of the joint venture banks might be collapsed in future. Due to high competition between the financial institution the collected huge amount from the public and the investment in practice of the collected funds is

comparatively low and also the most important factor, the lack of appropriate investment policy and strategy. There are problems of investment and proper utilization of collected funds. Strong investment policy plays a significant role in utilization of collected funds and overall development of the economy. Nepalese commercial banks have not formulated their investment policy in an organized manner. They only depend upon the direct guidelines of Nepal Rastra bank. They don't have clear view towards investment policy; furthermore the implementation of policy is not in an effective way. Commercial banks are report to be criticized by customer due to implementation of wrong investment policies. They are said to be investing in less risky and liquid sector, they keep high liquid position and flow less funds in productive sectors, so these types of examples provide less investment opportunity of the funds.

Now-a- days commercial banks do not seem to be capable to invest their funds in more profitable sector. They are found to be more interested in investing in less risky and highly liquid sectors i.e., treasury bills, development bonds and other securities. They keep high liquid position and flow lower funds to the productive sectors. This has resulted into lower profitability for the commercial banks and ignorance to the national economic growth process. This is the main reason for crisis in the commercial banks and in the whole national economy as well. Investment policy may differ in different commercial banks but there is no optimum utilization of shareholders fund to have greater return in any financial institution. Under such situation, the present study will try to analyze investment, portfolio management of EBL return on various types of investment, portfolio risk and return and performance towards investment. Thus this study will deal with the following issues:

1. What is the relationship of investment and loan and advance with total deposits?
2. Does the investment decision affect to the total earnings of the bank?
3. How is the investment portfolio managed by the Sample bank?
4. How far CBs have been able to mobilize and utilize resources?

5. EBL is effectively utilizing the portfolio concept in their investment directed towards objectives of maximization return?
6. What is the trend of investment in different assets?

### **1.3 Objectives of the Study**

The general objective of this research is to identify the current situation of investment portfolio of commercial banks in Nepal. The main objectives are as follows:

1. To analyze the risk and return of EBL on investment using portfolio concept.
2. To analyze the investment portfolio of EBL.
3. To examine the trend of investment of EBL and to provide complimentary measures based on analysis.

### **1.4 Need & Significance of the Study**

At present, commercial banks are gaining wide popularity through the efficient management and professional service and playing eminent role in the economy. Regarding the economic structure of the country, banks do not have sufficient investment opportunities. Rapidly increasing financial institutions are creating threats to the commercial banks. The main objective of commercial banks is to earn more profit by the proper mobilization of funds. They provide different banking facilities to the banking customers. Commercial banks have pivotal role in collection of dispersed small saving and transforming them into meaningful capital investment. Success and prosperity of the bank relies heavily upon the successful investment of collected resources to the productive sector of economy. Hence, successful formulation and effective implementation of investment policy is the primerequisite for the successful performance of banks and other financial institutions. Therefore, the study is aimed to analyze the existing investment portfolio of commercial banks of Nepal and point out the various weaknesses or defect inherent in it and provide package of suggestions for its improvement. The result of the research will be helpful for CBs, especially for sample banks to formulate strategies to face the increasing competitions. There is no doubt that the

study will also have multi-dimensional importance for various areas which are mentioned below in brief.

1. Importance to policy formulators and also useful for teachers, students of the subject, particularly those in commerce, chartered accountancy and institutional finance.
2. Importance to Shareholders
3. Importance to management body of these banks for the evaluation of the performance of their banks and in comparison to other banks
4. Importance to government bodies and policymakers such as central banks Interested outside parties such as investors, customers (Depositors, loan takers as well as others types of clients), competitors and personnel of the banks, stockbrokers, dealers and market makers.

### **1.5 Limitations of the Study**

This study is not a comprehensive study. This study is conducted for the partial fulfillment of degree of MBS. So, there are many deficiencies in this study due to various limitations. Some of the limitations are as follows.

1. The study has covered only one bank i.e EBL.
2. This study is based on secondary data, the calculation and conclusion of the study fully depends on the accuracy of data available from various sources and concerned organizations.
3. The analysis period of research covers only five years i.e. the fiscal years from 2063/64 to 2067/68 A.D.
4. There are many factors that affect investment decision and valuation of the firm. However, only those factors which are related with investment portfolio analysis will is considered in this study.
5. Due to the wide range of data deficiencies, only simple techniques have been used in analysis.

6. It focuses on investment performance and doesn't cover other aspects and in this study only selected financial and statistical tools and techniques are used.

## **1.6 Organization of the Study**

The research will be divided into five chapters.

### **Chapter -1 - Introduction**

It introduces background of study, statement of problem, objective of the study, significance, scope of the study and limitation of the study.

### **Chapter - 2 - Review of Literature**

It includes pilot studies and textual concepts with regard to conceptual framework on investment, Portfolio and funds mobilization.

### **Chapter - 3 - Research Methodology**

This chapter includes research design, population & sample, sources and types of data, data processing and method of analysis.

### **Chapter - 4 - Data Presentation and Analysis**

This chapter deals with the presentation and analysis of data. It analyses the data and interprets the results using different financial and statistical tools and also includes the major findings of the study.

### **Chapter - 5 - Summary, Conclusion and Recommendation**

This is the last chapter of the study. It summarizes the result of analysis and suggestive framework.

Besides these, bibliography and annexure are presented at the end of the thesis. Similarly acknowledgements, table of contents, list of tables, list of figures, abbreviations are included in the front part of the thesis report.

## **CHAPTER - TWO**

### **REVIEW OF LITERATURE**

This chapter focuses on the review of literature, research studies and other pertinent prepositions in the related field study, textbooks and reference books relevant to the investment portfolio analysis of commercial banks in Nepal particularly different journals, Article, Annual reports and some research paper related with this topic .This chapter is arranged into the following manner.

1. Conceptual Review
2. Review of Legislative provision.
3. Review of Related study:
  - Review of International Journals and Articles.
  - Review of Nepalese Journals and Articles.
  - Review of Thesis

#### **2.1 Conceptual Review**

Conceptual Review provides the fundamental theoretical frame work and foundation to the present study. Hence books, research paper etc. dealing with theoretical aspects of investment and portfolio analysis are taken into consideration.

##### **2.1.1 Definition of Investment**

Investment usually means the sacrifice of the current money for future money. The sacrifice takes place in the present and the reward comes later, if at all, and the magnitude is generally uncertain. However, Shrestha (2002) describes investment as utilization of saving for something that is expected to produce profit or benefits. Investment is employment of funds to achieve added income or growth in value. It involves the commitment of resources put off from current consumption with hope of capitalizing some benefits in future. It includes both real asset and financial asset .Real asset investment denotes the tangible assets like building, land, machinery, factory and the like. On the other hand, financial asset investment

indicates papers representing an indirect claim to real asset held by someone else. Nevertheless, real asset is less liquid than financial asset.

“Investment is any vehicle into which funds can be placed with the expectation that will preserve or increase in value and generated positive returns” (Gitman & Joehnk;1990:265).

“Investment is the current commitment of funds for a period of time to derive a future flow of funds that will compensate the investing unit for the time funds are committed, for the expected rate of inflation and also for uncertainty involved in the future flow of the funds”(Frank & Reilly; 1972:299).

The above definitions infer that an investment is the allocation and mobilization of funds for a certain time period to acquire some extra benefit or extra attachment with mobilized fund.

### **2.1.2 Portfolio Management**

Portfolio management is basically concerned with efficient management of portfolio investment in financial assets, including shares and debentures of companies. Portfolio management assumes periodic supervision of the security in the portfolio.

Buy and hold philosophy in the present competitive society and in view of the fluctuations of the stock market is not a very prudent. There has to be rational planning of action for sound portfolio management. The management may be by professionals or by individuals themselves. Portfolio of an individual or a corporate unit is the holding of securities and investment in financial assets holding are the result of individual’s preferences and decision regarding risk and return. The process of portfolio management is closely and directly linked with the process of decision making.

The basic problem of portfolio management is to establish an investment objective or goal and then decide the best ways to reach the goal with the securities available. This has been stated as an attempt by the investor to obtain the maximum return with minimum risk. The process of portfolio management

involves a logical set of steps common to any decision planning, implementation and monitoring.

“Portfolio management is the art of handling a pool of funds so that it not only preserves its original worth but also overtime appreciates in value and yields an adequate return consistent with the level of risk assumed” (Cohen, J.B., Edward D.Z. and Arthur, Z. 1977).

### **2.1.3 Investment Portfolio**

A portfolio is usually defined as a combination of assets. It is a collection of securities. Portfolio means the lists of holding in securities owned by an investor or institution. A portfolio is a collection of investment securities. Example, if you hold some stocks of Nepal Investment Bank Ltd., some of Bottlers Nepal Co., some of Radisson Hotel and some of Standard Chartered Bank Ltd. Your investment portfolio consists of the stocks of these four different companies. Portfolios analysis considers the determination of future risk; and return is a weighted average of the expected return of the individual securities.

Portfolio theory deals with the selection of optimal portfolio i.e. the portfolio that provides the highest possible return for any specified degree of risk or the lowest possible risk for any specified rate of return. Portfolio theory has been developed for the financial assets. Thus making investment from the selected optimal portfolio i.e. the portfolio that provides the highest rate of return with least possible amount of risk is the real investment portfolio.

“A portfolio simply represents the practice among the investors of having their funds in more than one asset. The combination of investment assets is called a portfolio” (Weston, J.F. and Brigham, E.F :1982).

An investor who has been paying someone or actively manages his or her portfolio has every right to insist on knowing what sort of performance was obtained. Such information can be used to alter either the constraint placed on the manager, the investment objective given to the manager, to the amount of money allocated to manager. Perhaps more importantly, by evaluating performance in specified ways

a client can forcefully communicate his\ her interest to the investment manager and in all likelihood, affect the way in which his or her portfolio is managed in the future. Moreover, an investment manager, by evaluating his or her own performance, can identify sources of strengths or weakness.

#### 2.1.4 Investment Alternatives

There are various alternatives for investors.

1. Equity Securities	<ul style="list-style-type: none"> <li>• Common Stock</li> <li>• Preferred Stock</li> </ul>	
2. Short term debt securities	<ul style="list-style-type: none"> <li>• Negotiable certificates of deposit</li> <li>• Commercial paper</li> <li>• Banker’s acceptances</li> <li>• Treasury Bills</li> </ul>	
3. Intermediate and Long Term Debt Securities	<ul style="list-style-type: none"> <li>• Government securities</li> </ul>	<ul style="list-style-type: none"> <li>➤ Treasury Notes</li> <li>➤ Treasury Bonds</li> <li>➤ Saving Bonds</li> </ul>
	<ul style="list-style-type: none"> <li>• Agency securities</li> </ul>	
	<ul style="list-style-type: none"> <li>• Municipal Securities</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revenue bonds</li> <li>➤ General obligation bonds</li> </ul>
	<ul style="list-style-type: none"> <li>• Corporate bonds</li> </ul>	
4. Hybrid Securities	<ul style="list-style-type: none"> <li>• Convertible preferred stock</li> <li>• Convertible bonds</li> </ul>	
5. Derivative securities	<ul style="list-style-type: none"> <li>• Options</li> <li>• Community futures</li> <li>• Financial futures</li> <li>• Options in futures</li> <li>• Rights</li> <li>• Warrants</li> </ul>	
6. Real Assets	<ul style="list-style-type: none"> <li>• Precious Metal</li> <li>• Real State</li> <li>• Collectibles</li> </ul>	
7. International Investment	<ul style="list-style-type: none"> <li>• Multinationals Corporations</li> <li>• Foreign stocks traded on all local exchange</li> <li>• American Depository Receipts ( ADRs)</li> </ul>	
8. Other Investment Alternatives	<ul style="list-style-type: none"> <li>• Pension Funds</li> <li>• Mutual funds</li> <li>• Closed –end Companies</li> </ul>	

### 2.1.5 Investment Uncertainty (Risk)

Every investment involves uncertainties that make future investment returns risky. Some of the sources of uncertainty that contribute to investment risk are as follows:

1. **Interest Rate Risk:-** It is defined as the potential variability of return caused by changes in the market interest rates. In more general terms, if market interest rates rise, then investment values and market prices will fall, and vice versa. The variability of return is the result of change in interest rate. This interest rate risk affects the prices of bonds, stocks, real estate, gold, puts, calls, future contracts and other investment as well.
2. **Purchasing power Risk:-** It is the variability of return an investor suffers because of inflation. The rate of inflation is measured by using a consumer price index (CPI). The percentage change in the CPI is a widely followed measure of the rate of inflation.
3. **Bull-Bear Market Risk:-** Bull-Bear market risk arises from the variability in market return resulting from alternating bull and bear market forces. When a security index rises fairly consistently from a low point called a trough, for a period of time, this upward trend is called a bull market. The bull market ends when the market index reaches a peak and starts a downward trend. The period during which the market declines to the next trough is called bear market.
4. **Default Risk:-** It is the portion of an investment's total risk that results from changes in the financial integrity of the investment. Default risk is the variability of return that investors experience as a result of changes in the creditworthiness of a firm in which they invest. Investor losses from default risk usually result from security prices falling as the financial integrity of a firm weakens. By the time an actual bankruptcy occurs, the market prices of the troubled firm's securities will already have declined to near zero.

5. **Liquidity Risk:-** It is that portion of an asset's total variability which results from price discounts given or sales commissions paid in order to sell the asset without delay. Perfectly liquid are highly marketable and suffer no liquidation costs. Liquid assets are not readily marketable – either price discounts must be given or sales commissions must be paid, or both of these costs must be incurred by the seller. Hence, the more liquid an asset is, the larger the price discounts and/or commissions which must be given up by the seller in order to affect a quick sale.
6. **Callability Risk:-** Some bonds and preferred stocks are issued with a provision that allows the issuer to call them in for repurchase. The portion of a security's total variability of return that derives from the possibility that the issue may be called is the callability risk. Callability risk command a risk premium that comes the form of a slightly higher average rate of return. This additional return should increase as the risk that the issue will be called increases.
7. **Convertibility Risk:-** Convertibility risk is that portion of the total variability of return from a convertible bond or a convertible preferred stock that reflects the possibility that the investment may be converted into the issuer's common stock.
8. **Political Risk:-** The portion of an asset,s total variability of return cased by changes in the political environment that affect the asset's market value. Whether the changes that cause political risk are sought by political or by economic interests, the resulting variability of return is called political risk.
9. **Industry Risk:-** An industry may be viewed as a group of companies that compete with each other in a market of homogenous product. Industry risk is that portion of an investment's total variability of return caused by events that affect the products and firms that make up an industry. The stage of the industry's life cycle, international tariffs and/or quotas on the products produces by an industry, product or industry related taxes; industry

wide labour union problems, environmental restrictions, raw material availability, and similar factors interact and affect all the firms in an industry simultaneously. As a result of these commonalities, the process of the securities issued by competing firms tends to rise and fall together.

### **2.1.6 Diversification and Portfolio Analysis**

Investment positions are undertaken with the goal of earning the expected rate of return. Investors seek to minimize inefficient deviations from this expected rate of return. Diversification is essential for the creation of an efficient investment because it can reduce the variability of returns around the expected return.

Diversification is the one important means that control portfolio risk. Investments are made in a wide variety of assets so that exposure to the risk of any particular security is limited. By placing one's egg in many baskets, overall portfolio risk actually may be less than the risk of any component security considered in isolation.

The objective of portfolio analysis is to reduce risk. By combining securities of low risks with securities of high risks, success can be achieved by an investor in making a choice of investment outlets. Investment positions are undertaken with the goal of earning some expected rate of return. Diversification is essential to the creation of an efficient investment because it can reduce the

variability of returns around the expected return. The objective of portfolio analysis is to develop a portfolio that has the maximum return at whatever level of risk the investor deems appropriate. (Francis, J.C:2003) Some different diversification techniques for reducing portfolio's risk are follows:

**2.1.6.1 Simple Diversification:** - Simple diversification can be defined as “not putting all the eggs in one basket”, or “spreading the risks”. The simple diversification would be able to reduce unsystematic or diversifiable risk. It is the random selection of securities that are to be added to a portfolio. Simple diversification reduces a portfolio's total diversifiable risk to zero and only the undiversifiable risk remains.

**2.1.6.2 Diversification Across Industries:** - Some investment counselors advocate selecting securities from different industries to achieve better diversification. It is certainly better to follow this advice than to select all the securities in a portfolio from one industry. But, empirical research has shown that diversifying across industries is not much better than simply selecting securities randomly. Studies of the rates of return from securities in many industries have shown that nearly all industries are highly correlated with one another and diversifiable variability cannot be diversified away simply by selecting securities from different industries.

**2.1.6.3 Superfluous Diversification:** - Large no. of assets spreading of the portfolio's asst is superfluous diversification. It refers to the investors spreading himself in so many investments on his portfolio. Superfluous diversification will usually result in the following portfolio management problems:

- **Impossibility of good portfolio management:** If the portfolio contains dozens of different assets, the portfolio's management cannot consider the status of all of them simultaneously.
- **Purchase of lackluster performers:** The search for numerous different assets to buy will ultimately lead to the ill-informed purchase of investment that will not yield an adequate rate of return for the risk they bear.
- **High search costs:** As the number of candidate securities for a portfolio increases, it will be more costly to do the necessary security analysis.
- **High transactions costs:** Frequent purchases of small quantities of shares will result in larger broker's commission.

More money is spent to manage a superfluously diversified portfolio, there will most likely be no concurrent improvement in the portfolio performance. This, superfluous diversification may lower the net return to portfolio's owner after the portfolio's management expenses are deducted.

**2.1.6.4 Simple Diversification across Quality Rating Categories:** - Simple diversification reduces risk within categories of stocks that all have the same

quality ratings. The standard deviations of portfolios of different homogenous quality rating attained different levels of risk. The highest quality portfolio randomly diversified stocks was able to achieve lower levels of risk than the simply diversified portfolios of lower quality stocks. This result reflects the fact that default risk is part of total risk. The higher quality portfolios contain assets with less default risk. Portfolio managers can reduce portfolio risk to levels lower than those attainable with simple diversification by not diversifying across lower quality assets.

**2.1.6.5 Markowitz Diversification:** - Markowitz Diversification is the combination of assets which are less than perfectly correlated in order to reduce portfolio risk without sacrificing portfolio returns. It can sometimes reduce risk below the undiversifiable level. Markowitz diversification is more analytical than simple diversification and considers assets correlations. The lower the correlation between assets, the more that Markowitz diversification will be able to reduce the portfolio's risk.

Markowitz diversification can lower risk below the indiversifiable level if the securities analyst can find securities whose rates of return have low enough correlations. Unfortunately, there are only a precious few securities that have low correlations. Therefore, using Markowitz diversification requires a data bank of financial statistics for many securities, a computer and some econometric analysis.

Applying Markowitz diversification to collection of potential investment assets with a computer is called Markowitz portfolio analysis. It is a scientific way to manage a portfolio, and its results are quite interesting. Since Markowitz Portfolio analysis considers both the risk and return of dozens or hundreds or thousands of different securities simultaneously, it is a more powerful method of analyzing portfolio than using intuition or selecting investments by committee.

According to the Markowitz "The portfolio theory establishes a relationship between a portfolios expected return and its level of risk as the criterion for selecting the optimum portfolio". Thus, Markowitz suggested following two measures for evaluating the merits of a portfolio:

- The expected return from the portfolio
- Level of risk exposure associated with the portfolio

So as to find the efficient set of portfolios & select the most efficient one, the portfolio manager will need to know the expected returns and the risk of these returns for the individual's securities.

- The portfolio model developed by Markowitz is based on the following reasonable assumption:
- The expected return from an asset is the mean value of a probability distribution of future returns over some holding period.
- The risk of an individual asset of portfolio is based on the variability of returns ( i.e. standard deviation or variance)
- Investors depend solely on their estimates of return and risk in making their investment decision. This means that investors utility (indifference) curves are only a function of expected return and risk.
- Investors adhere to the dominance principle. That is, for any given level of risk, investors prefer assets with a higher expected return to assets with a lower expected return for assets with the same expected return investors prefer lower to higher risk.

According to the Markowitz, the expected return of the portfolio is the weighted average of the expected return of the individual assets in the portfolio. The weights are defined as the portion of the investor's wealth invested in particular asset. Alongside the expected return to the portfolio manager must also consider the risk associated with the portfolio.

According to the Markowitz, the risk of the portfolio consists of the riskiness of the individual securities and the covariance between the returns of the securities among all possible combinations of them.

### **2.1.7 Capital Asset Pricing Model (CAPM)**

CAPM is a model based on the presentation that the required rate of return on any stock is equal to the risk free rate of return plus its risk premium, where risk is

measured by the beta coefficient. The CAPM is a relationship in which the expected rate of return of the asset is a linear function of that asset's systematic risk. The CAPM represents the trade-off systematic risk for the returns that investors expect to receive. The CAPM explains the behaviour of security prices. It further explains how the prices and interest rate on risky financial assets are determined in the capital market. CAPM combines the principles of portfolio theory with certain assumptions regarding investors' expectations and market characteristics.

### 2.1.7.1 Assumptions

- Individual are risk averse.
- Individual can borrow and lend free at risk free rate of interest.
- Individuals have homogenous expectations regarding risk and returns of securities.
- The market is perfect and competitive.
- There are no transaction costs and taxes.
- Securities are divisible.

The CAPM equation is written as follows:

$$\sum(R_j) = R_f + (R_m - R_f)\beta_j$$

where,

$$\sum(R_j) = \text{Expected return on assets}$$

$$R_f = \text{Risk free rate of return}$$

$$R_m = \text{Market return}$$

$$\beta_j = \text{Coefficient of Beta}$$

### 2.1.7.2 Total Risk

The total variation of the rate of return for an individual security is measured by the standard deviation or variance of the rate of return. There are two kinds of risk which are as follows:

- Market risk or Undiversifiable risk or Systematic risk measured by its beta and
- Company risk or Diversifiable risk of Unsystematic risk

According to CAPM total risk divided into two parts. They are unsystematic and systematic risk.

$$\text{Total Risk} = \text{Systematic Risk} + \text{Unsystematic Risk}$$

### 2.1.8 Portfolio Risk and Return

Each asset's expected return and risk along with the expected return and risk for other asset's and their interrelationships are important inputs in portfolio selection. In order to construct efficient portfolios, the investor must be able to quantify the portfolios expected return and risk (Cheney, J. M. & Mosses, E. A. 1992)

From an investor's standpoint the fact that a particular stock goes up or down is not very important. What is important is the return on his /her portfolio, and the portfolio's risk. Logically, then the risk and return characteristics of an investment should not be evaluated in isolation: rather, the risk and return of an individual security should be analyzed in terms of how the security affects the risk and return of the portfolio in which it is held.

**2.1.8.1 Portfolio Return:** - The expected return of a portfolio is the weighted average of the expected returns of the individual assets in the portfolio. The weights are the proportions of the investor's wealth invested in each asset and the sum of the weight must equal to one (Cheney, J. M. & Mosses, E. A. 1992)

The expected return on portfolio depends upon the amount of funds invested in each security, given expected return on the individual securities. The portfolio expected return is defined in equation as follows:

$$\text{Portfolio return } (R_P) = W_A \bar{R}_A + W_B \bar{R}_B + \dots + W_N \bar{R}_N$$

Where,

$R_P$  = Return on Portfolio

$W_A$  = Weight or Proportion of Assets 'A'

$W_B$  = Weight or Proportion of Assets 'B'

$\bar{R}_A$  = Expected Return of Assets 'A'

$\bar{R}_B$  = Expected Return of Assets 'B'

**2.1.8.2 Portfolio Risk:** - The calculation of a portfolio risk is not as straight forward as the calculation of a portfolio's expected return. In order to calculate the risk of a portfolio, consideration must be given not only to the risk of the individual assets in the portfolio and their relative weights but also to the extent to which the assets returns move together. We measure the risk of an individual asset by the variance of returns or its square root, the standard deviation. The degree to which the asset's return move together is measured by the covariance or correlation coefficient. By combining the measures of individual asset risk (variance or standard deviation), relative asset weights, and the co-movement asset's return (covariance or correlation), the risk of the portfolio can be estimated. Total risk is measured by either the variance or its square root, the standard deviation of returns (Cheney, J. M. & Mosses, E. A. 1992).

### **2.1.9 Diversification of Risk**

Diversification is the one prominent means to control portfolio risk. Investments are made in a wide variety of assets so that exposure to the risk of any particular securities is limited. Diversification of portfolio helps minimize risk. If investors invest their fund in more securities, they can reduce risk and maximize the return. However, even with large number of stocks, investors fail to avoid risk altogether, since virtually all securities are affected by the common micro economic factors. Followings are diversification techniques for reducing a portfolio risk.

**2.1.9.1 Simple Diversification:** - Simple diversification can be defined as "not putting all the eggs in one basket" or "spreading the risks." (Francis; 2003:228) It is the random selection of securities that are added to a portfolio. Simple diversification reduces a portfolio's total diversifiable risk to zero and only the non- diversifiable risk remains.

**2.1.9.2 Superfluous Diversification:** - Under simple diversification, maximum risk reduction is achieved through inclusion of 10-15 assets in the portfolio. If we add further more assets in the portfolio, such diversification is called superfluous diversification and should be avoided. The investor finds it impossible to manage the asset on his portfolio, because the management of a large number of assets calls for knowledge of liquidity of each investment return, tax liability and thus becomes impossible without specialized knowledge. Superfluous diversification usually results in the following portfolio management problems.

- Impossibility of good portfolio management
- Purchase of lackluster performers
- High search cost
- High transaction costs

Although more money is spent to manage a superfluously diversified portfolio, there will most likely be no concurrent improvement in the portfolio performance. Thus, superfluous diversification may lower the return the net return to the portfolio owners after the portfolio management expenses are deducted.

**2.1.9.3 Diversification across industries:-** Diversification can also be experienced by combining securities from different industries. It is certainly better to follow this advice than select all the securities in a portfolio from one industry. Nevertheless empirical research has demonstrated that diversifying across industries is worst than simply selecting securities randomly.

**2.1.9.4 Simple Diversification across Quality rating categories:-** Diversification of portfolio is also possible across quality rating assets or securities. Different rating agencies rate different companies and their assets based on possibility of default risk. In this technique, assets are selected randomly from the homogeneous quality rating. The standard deviation of portfolio of different homogeneous quality rating attained different level of risk. The highest quality portfolio randomly diversified stocks are able to achieve lower level risk than simply diversified portfolio of lower quality stocks. It indicates default risk is a part of total risk. The higher quality portfolios contain assets with less default risk.

Thus portfolio managers can reduce portfolio risk to levels lower than those attainable with simple diversification by not diversifying across lower quality assets.

**2.1.2.5 Markowitz Diversification:** - “Markowitz Diversification may be defined as combining assets which are less than perfectly positively correlated in order to reduce portfolio risk without sacrificing portfolio return.” (Weston & Brigham; 1987:194) It can sometime reduce below the un-diversifiable level. There is a nature trade- off between risk return in the market but at any given level of expected return. Markowitz diversification can reduce risk more than simple diversification. Applying diversification to a collection of potential investment assets with a computer is Markowitz portfolio analysis. It is a scientific way to manage a portfolio and its results are quite interesting. Since, Markowitz portfolio analysis considers both the risk and return of dozen and hundreds of different securities simultaneously; it is a more powerful method of analyzing a portfolio than using intuition. It is more analytical than simple diversification and considers assets correlation or covariance in portfolio formation. It shows that lower the correlation between assets, the more that diversification will be able to reduce the portfolio risk.

#### **2.1.10 Covariance, Correlation Coefficient and Portfolio Risk**

“Portfolio Risk can be measured by using covariance of return securities in portfolio. Covariance is a statistical measure of the relationship between two random variables. A positive value for covariance indicates that the securities returns tend to move in the same direction and the negative value indicates that returns of two securities move in opposite side. If the value of covariance is zero, The square root of the coefficient of determination is called Correlation Coefficient ( $\rho$ ). It is defined as the covariance between dependent there is little or no relationship between the returns for two securities.”(Sharp, Alexander & Bailey; 2001:180).and independent variables divided by the product of their standard deviation (Weston & Copeland; 1992:372).

$$r_{AB} = \frac{COV_{AB}}{\delta_A \delta_B}$$

Where,

$r_{AB}$  = Correlation Coefficient between securities A and B

$COV_{AB}$  = Covariance of return between securities A and B

$\delta_A$  = Standard deviation of return for security A

$\delta_B$  = Standard deviation of return for security B

Correlation Coefficient always lies between -1 and +1. A value of -1 represents perfect negative correlation and a value of +1 represents positive correlation. (Sharp, Alexander & Bailey;2001:180). If the correlation is perfectly positive (+1), the portfolio cannot reduce any level of risk. On the contrary, if the correlation is perfectly negative (-1), the proper combination of the two securities can reduce unsystematic risk upto zero. Hence, the positive correlation between securities return is not so beneficial and vice-versa. A zero coefficient means two variables are unrelated to each other. Hence changes in one variable are independent of changes in the other. On the other hand, when securities in a portfolio are perfectly negatively correlated, all risks can be diversified away. When securities are perfectly positively correlated, diversification does not do good whatsoever. In the typical case, correlation among individual stocks is positive but less than +1, some, but not all risk can be eliminated (Weston & Brigham; 1992:127).

### **2.1.11 Market Portfolio**

The market portfolio contains every asset in proportion to their market value; it is by definition, a perfectly diversified portfolio. The market portfolio is, therefore, subject only to systematic or non- diversifiable risk. The volatility of the market portfolio is due to macroeconomic factors that affect all risky assets and not to company or industry specific factors. Volatility in returns created by unsystematic risk, this can be diversified away by adding risky assets to a portfolio. A portfolio's total risk is equal to the sum of its systematic risk and unsystematic risk. In the case of the market portfolio, there is no unsystematic or diversifiable risk, and total risk is equals systematic risk. Since it is possible to eliminate all

unsystematic risk through perfect diversification, the capital markets do not reward investors for facing unsystematic risk (Cheney, J. M. & Mosses, E. A. 1992).

The market portfolio is the unanimously desirable portfolio containing all securities in exactly the proportions in which they are supplied. The return on the market portfolio is the weighted average return on all capital on assets. In reality, it is possible to obtain only estimates of the market portfolio. However, the market portfolio is a useful theoretical construct since the return of market portfolio is the return estimated by the Dow Jones Averages, Standard & Poor's indexes, The NYSE Index and similar indexes (Francis, J. C. 2003).

### **2.1.12 Features of Sound lending and Investment Policy**

The income and profit of the bank depends upon its lending procedures, lending policy and investment of its funds in different securities. A sound lending and investment policy is not only the prerequisite for bank's profitability, but must consider explained as follows.

1. **Safety and Security**:- The bank should never invest its funds in those securities which are subject to too much depreciation and fluctuation because a little difference causes a great loss. It must not invest its fund into speculative businessman who may be bankrupt. Thus the banks should accept such types of securities which are commercial, durable, marketable and high market prices.
2. **Profitability**:- A commercial bank can only maximize its volume of wealth if it maximizes the return on investment and lending. So the banks must invest their funds where they gain maximum profits.
3. **Liquidity**:- Liquidity is the ability of a firm to repay the money when needed. People deposit money in the bank in different accounts with the confidence that the bank will repay the money where needed. To maintain such confidence of the depositors, the bank must keep this point in mind while investing its excess funds in different securities if at the time of

lending so that it can meet current or short-term obligation when they become due for payment.

4. **Diversification:-** A bank should not lay all eggs on the same basket. This saying is very much important to the bank and it should always careful not to grant loan in only one sector. To minimize risk, a bank must diversify its investment on different sectors.
5. **Legality:-** Illegal securities will bring out many problems for the investor. A commercial bank must follow the rules and regulations as well as different directions issued by the NRB, ministry of finance and other while mobilizing its funds.

## **2.2 Review of Legal Provision**

### **2.2.1 Minimum Capital Requirements**

Unless a higher minimum ratio has been set by Nepal Rastra Bank for an individual bank through a review process, every bank shall maintain at all times, the capital requirement set out below:

- A Tier 1 (core) capital of not less than 6 per cent of total risk weighted exposure;
- A total capital fund of not less than 10 per cent of its total risk weighted exposure.

The Capital Adequacy Ratio (CAR) is calculated by dividing eligible regulatory capital by total risk weighted exposure. The total risk weighted exposure shall comprise of risk weights calculated in respect of bank's credit, operational and market risks. The methodologies to calculate RWE for each of these risk categories are described in detail in subsequent chapters.

### **2.2.2 Provisions Relating to Classification of Loans/advances and Loan Losses**

Having exercised the powers conferred by Section 79 of the Nepal Rastra Bank Act, 2002, the following Directives have been issued with regard to classification

of credit/advances and provisions to be made for its possible loss by the institutions obtaining licenses from this Bank to carry out financial transactions.

### 1. Classification of loans/advances

Entire loans and advances extended by a licensed institution have to be classified as follows based on expiry of the deadline of repayment of the principal and interest of such loans/advances.

- a. **Pass:-** Loans/advances which have not overdue and which are overdue by a period up to three months.
- b. **Sub-standard:-** Loans/advances which are overdue by a period from three months to a maximum period of six months.
- c. **Doubtful:-** Loans/advances which are overdue by a period from six-months to a maximum period of one year.
- d. **Loss:-** Loans/advances which are overdue by a period of more than one year. The loans which are in pass class and which have been rescheduled/restructured are called as "the performing loan, and the sub-standard, doubtful and loss categories are called non-performing loans.

(Note: Loans/advances also include bills purchased and discounted.)

### 2. Provision to be maintained for loan loss

For the loans and bills purchase classified according to these Directives, the following loan loss provision shall be maintained based on the remaining amount of principal.

**Table: 2.1**  
**Loan Loss Provision**

S.N	Loan classification	Minimum Provision for loan loss
1	Pass	1%
2	Sub-Standard	25%
3	Doubtful	50%
4	Loss/ the loan extended to blacklisted	100%

*Source: NRB Directives 2067/068*

### **2.2.3 Provisions Relating to Investments**

The following Directives have been issued with regard to investment of financial resources of a licensed institution having exercised the powers conferred by Section 79 of the Nepal Rastra Bank Act, 2002.

#### **1. Implementation of Investment Policy and Procedures upon Approval**

The licensed institutions shall implement the policies and procedures regarding the investment in Government of Nepal securities, Nepal Rastra Bank bonds, and other corporate bodies' share and debentures only upon the approval of investment policy and procedures by the Board of Directors.

#### **2. Provision for Investment in Government of Nepal Securities and Nepal Rastra Bank Bonds**

There shall be no restriction as to investment by the licensed institutions in the securities of Government of Nepal and Nepal Rastra Bank bonds.

#### **3. Provisions for Investment in Shares and Debenture of Corporate Bodies**

- a. Licensed Institutions shall invest only in the shares and debentures of corporate bodies listed in the Nepal Stock Exchange after the public issues of shares. Provided that, where the investment has been made in the shares and debentures of corporate bodies which are not listed in the stock exchange, and if such listing is not completed within one year from the date of investment, a provision of equivalent to the whole amount of such investment be provided and credited to Investment Adjustment Reserve by creating such reserve fund. The outstanding amount in such Reserve shall not be utilized for any other purpose till the said shares and securities of the corporate body are listed. With respect to investment in newly opened corporate body that where such company is not listed in stock exchange within two years from the date of operation or investment being made, a

provision of equivalent to the whole amount of such investment be provided and credited to Investment Adjustment Reserve.

- b. While carrying out projects such as land development, land purchase and housing construction for residential purpose and sale and management of such houses and land pursuant to clause (ad) of sub-Section (2) of Section 47 of the Banks and Financial Institutions Act, 2006 by the class "B" licensed institutions and pursuant to clause (u) of sub-Section (3) of the same Section of the same Act, licensed institution shall not invest more than twenty-five percent of the core capital of immediately preceding month.
- c. While investing in housing construction and land development by a licensed institution, it may invest an amount not exceeding ten percent of the core capital maintained immediately preceding month. If found to have been invested more than the limit, the core capital shall be maintained having deducted the amount equal to the exceeded investment from the core capital. While making such investment, investment shall be made only in the building construction and land development companies that have been incorporated as public companies.
- d. Licensed institutions may invest in shares and securities of any one corporate body up to 10 percent of its core capital maintained at immediately preceding trimester and not exceeding the cumulative amount of such investment in all the companies by more than 30 percent of its core capital. Similarly, while investing in shares and debentures of corporate bodies by a licensed institution, investment shall be made not exceeding 10 percent of the paid up capital of the institution in which the investment is being made and not exceeding 25 percent of the same in case of investment made in class "D" institutions. Any amount in excess of this limit, for the purpose of calculation of the capital fund, shall be deducted from the Core capital fund.

#### **4. Provision for Review of Investment Portfolios**

Licensed institutions shall review its investment portfolios on half-yearly basis. With respect to such review, a statement from the Internal Auditor of

the licensed institution certifying that the investments are made according to the existing investment policy and according to this Directives be obtained and shall also be approved by the management of the institution within 1 (one) month from the close of the half yearly period.

**5. Additional Arrangement Regarding Investment**

- a. Licensed institutions shall not invest in any shares, securities and hybrid capital instruments issued by any other institution of "A", "B" and "C" class licensed by this Bank. Provided that, this clause is not applicable in case of share investment in class "D" institution and income of share investment with approval from this Bank.
- b. The core capital maintained in the Directives relating to investment means, the core capital maintained at the immediately preceding trimester except specifically stated otherwise.

**2.2.4 Risk Measurement and Risk Weights**

**2.2.4.1 Claims on government & central bank**

- 1. All claims on Government of Nepal and Nepal Rastra Bank shall be risk weighed at 0 %.
- 2. Claims on foreign government and their central banks shall be risk-weighted on the basis of the consensus country risk scores as follows:

<b>ECA risk Sector</b>	0-1	2	3	4-6	7
<b>Risk Weights</b>	0%	20%	50%	100%	150%

**2.2.4.2 Claims on other official entities**

- 1. Claims on the Bank for International Settlements, the International Monetary Fund, the European Central Bank and the European Community will receive a 0% risk weight.
- 2. Following Multilateral Development Banks (MDBs) will be eligible for a 0% risk weight.

- World Bank Group, comprised of the International Bank for Reconstruction and Development (IBRD) and the International Finance Corporation (IFC),
  - Asian Development Bank (ADB),
  - African Development Bank (AfDB),
  - European Bank for Reconstruction and Development (EBRD),
  - Inter-American Development Bank (IADB),
  - European Investment Bank (EIB),
  - European Investment Fund (EIF),
  - Nordic Investment Bank (NIB),
  - Caribbean Development Bank (CDB),
  - Islamic Development Bank (IDB), and
  - Council of Europe Development Bank (CEDB).
3. The standard risk weight for claims on other Multilateral Development Banks will be 100%.
  4. Claims on public sector entities (PSEs) will be risk-weighted as per the ECA country risk scores.

<b>ECA Risk Sector</b>	0-1	2	3-6	7
<b>Risk Weights</b>	20%	50%	100%	150%

#### **2.2.4.3 Claims on banks**

1. All claims, irrespective of currency, excluding investment in equity shares and other instruments eligible for capital funds, on domestic banks/financial institutions that fulfill Capital Adequacy Requirements will be risk weighed at 20% while for the rest, it will be 100%. Banks should make use of the publicly available information of the immediately preceding quarter of the respective banks to gauge their status on capital adequacy.

2. Claims on a foreign bank excluding investment in equity shares and other instruments eligible for capital funds shall be risk weighed as per the ECA Country risk score subject to the floor of 20%. The primary basis for applying the ECA Country Risk score shall be the country of incorporation of the bank. Where the bank is a branch office, the ECA score of the country where the corporate office is located shall be used while in the case of a subsidiary the basis shall be the country where the subsidiary is incorporated.

<b>ECA Risk Sector</b>	0-1	2	3-6	7
<b>Risk Weights</b>	20%	50%	100%	150%

However, the claims on foreign banks incorporated in the SAARC region and which operate with a buffer of 1% above their respective regulatory minimum capital requirements may be risk weighed at 20%. The banks shall be responsible to submit the latest capital adequacy position of such banks and demonstrate that they fulfill the eligibility requirements. Such capital adequacy position submitted by the banks should not be prior to more than one financial year. Moreover, such claims shall be subject to a supervisory review and supervisors may require the bank to risk weigh the claims on ECA country risk scores where the review process deems necessary.

#### **2.2.4.4 Claims on corporate & securities firms**

1. The risk weight for claims on domestic corporates, including claims on insurance companies and securities firm will be 100%. The domestic corporates includes all firms and companies incorporated in Nepal as per prevailing Acts and regulations.
2. The claims on foreign corporate shall be risk weighed as per the ECA Country risk score subject to the floor of 20% as follows:

<b>ECA Risk Sector</b>	0-1	2	3	4-6	7
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<b>Risk Weights</b>	20%	50%	100%	100%	150%
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#### **2.2.4.5 Claims on regulatory retail portfolio**

1. Claims that qualify all criteria listed below may be considered as regulatory retail portfolio and risk weighed at 75%, except for past due loans. Such claims however, have to be in strict compliance with the Product paper developed by the bank and approved by their respective board of directors.

#### **Criteria**

- **Orientation criteria :-** exposure is to an individual person or persons or to a small business. Bank should obtain written declaration from the borrower to the effect that their indebtedness is within the threshold across all banks and FIs..
  - **Product criteria :-** The exposure takes the form of any of the following:
    - Revolving credits and lines of credit, (including overdraft, hypothecation etc.)
    - Term loans and leases (e.g. hire purchase, auto loans and leases, student and educational loans ) and,
    - Small business facilities and commitments,
    - Deprived sector loans upto a threshold of Rs.10 million (Ten Million only)
  - **Granularity criteria:-** NRB must be satisfied that the regulatory retail portfolio is sufficiently diversified to a degree that reduces the risks in the portfolio, warranting the 75% risk weight. No aggregate exposure to one counterpart can exceed 0.5 % of the overall regulatory retail portfolio.
  - **Low value individual criteria :-** The total aggregated exposure to one counterpart cannot exceed an absolute threshold of Rs.10 million (Nepalese Rupees Ten Million only)
2. Banks which have claims that fulfill all criterion except for granularity may risk weigh those claims at 100%

### **3. Claims secured by residential properties**

Lending to individuals meant for acquiring or developing residential property which are fully secured by mortgages on residential property, that is or will be occupied by the borrower or that is rented, will be risk-weighted at 60%. However, banks should ensure the existence of adequate margin of security over the amount of loan based on strict valuation rules. Banks have to develop product paper and get it approved from the board of directors to regulate this kind of lending. The claims in order to be eligible for this category have to be in strict compliance with this product paper

- Where the loan is not fully secured, such claims have to risk weighed at 150%
- When claims secured by residential properties are or have been past due at any point of time during the last two years, they shall be risk-weighted at 100%, net of specific provisions.

### **4. Claims secured by commercial real estate**

Claims secured by mortgages on commercial real estate, except past due, shall be risk-weighted at 100%. Commercial real estate hereby refers to mortgage of Office buildings, retail space, multi-purpose commercial premises, multi-family residential buildings, multi-tenanted commercial premises, industrial or warehouse space, hotels, land acquisition, development and construction etc.

### **5. Past due claims**

Any loan, except for claim secured by residential property, which is or has been past due at any point of time during the last two years, will be risk-weighted at 150% net of specific provision.

### **6. High risk claims**

- a. 150% risk weight shall be applied for venture capital and private equity investments.
- b. Exposures on Personal loan in excess of the threshold of regulatory retail portfolio and lending against securities (bonds and shares) shall

attract a risk weight of 150%. Similarly, exposures on credit card shall also warrant a risk weight of 150%.

- c. Investments in the equity and other capital instruments of institutions, which are not listed in the stock exchange and have not been deducted from Tier 1 capital, shall be risk weighed at 150% net of provisions.
- d. Investments in the equity and other capital instruments of institutions, which are listed in the stock exchange and have not been deducted from Tier 1 capital, shall be risk weighed at 100% net of provisions.
- e. The claims which are not fully secured or are only backed up by personal guarantee shall attract 150% risk weight.
- f. Where loan cannot be segregated/or identified as regulatory retail portfolio or qualifying residential mortgage loan or under other categories, it shall be risk weighed at 150%.

## **7. Other assets**

With regard to other assets, following provisions have been made;

- Interest receivable/claim on government securities will be risk-weighted at 0%.
- Investments in equity or regulatory capital instruments issued by securities firms will be risk-weighted at 100%.
- Cash in transit and other cash items in the process of collection will be risk-weighted at 20%. For this purpose, cash items shall include Cheque, Draft, and Travellers Cheques.
- Fictitious assets that have not been deducted from Tier 1 capital shall be risk weighed at 100%.
- All Other assets will be risk-weighted at 100% net of specific provision.

## **8. Off balance sheet items**

Off-balance sheet items under the simplified standardized approach will be converted into equivalent risk weight exposure using risk weight as follows:

<b>Off Balance Sheet Exposure</b>	<b>Risk Weights</b>
Any commitments those are unconditionally cancelable at any time by the bank without prior 0% notice, or that effectively provide for automatic cancellation due to deterioration in a borrower's creditworthiness (for example bills under collection)	0%
<b>Forward exchange contracts</b>	10%
<p><b>Short Term Trade-related contingencies;</b></p> <p>Contingent liabilities arising from trade-related obligations, which are secured against an underlying shipment of goods for both issuing and confirming bank and are short term in nature. This includes documentary letters of credit, shipping guarantees issued and any other trade-related contingencies with an original maturity up to six months.</p>	20%
Undertaking to provide a commitment on an off-balance sheet items	20%
Unsettled securities and foreign exchange transactions between bank to bank and between bank and customer	20%
<p><b>Long Term Trade-related contingencies;</b></p> <p>Contingent liabilities arising from trade-related obligations, which are secured against an underlying shipment of goods for both issuing and confirming bank and are long term in nature. This includes documentary letters of credit, shipping guarantees issued</p>	50%

and any other trade-related contingencies with an original maturity of over six months	
<p><b>Performance-related contingencies</b></p> <p>Contingent liabilities, which involve an irrevocable obligation to pay a third party in the event that counterparty fails to fulfill or perform a contractual non-monetary obligation, such as delivery of goods by a specified date etc. This includes issue of performance bonds, bid bonds, warranties, indemnities, underwriting commitments and standby letters of credit in relation to a non-monetary obligation of counterparty under a particular transaction.</p>	50%
<p><b>Long term irrevocable Credit Commitments</b></p> <p>Any un-drawn portion of committed credit lines sanctioned for a period of more than 1 year. This shall include all unutilized limits in respect of revolving working capital loans except for trade finance exposures e.g. Overdraft, Cash credit, working capital loan etc.</p>	50%
<p><b>Short term irrevocable Credit Commitments</b></p> <p>Any un-drawn portion of committed credit lines sanctioned for a period of upto 1 year. This shall include all unutilized limits in respect of revolving working capital loans except for trade finance exposures e.g. Overdraft, Cash credit, working capital loan etc.</p>	20%
Repurchase agreements, securities lending, securities borrowing, reverse repurchase agreements and equivalent transactions. This includes sale and repurchase agreements and asset sales with recourse, where the credit risk remains with the purchasing bank.	100%

<p><b>Direct credit substitutes</b></p> <p>Any irrevocable off-balance sheet obligations which carry the same credit risk as a direct extension of credit, such as an undertaking to make a payment to a third party in the event that a counterparty fails to meet a financial obligation or an undertaking to a counterparty to acquire a potential claim on another party in the event of default by that party, constitutes a direct credit substitute. This includes potential credit exposures arising from the issue of financial guarantees and credit derivatives, confirmation of letters of credit (acceptances and endorsements), issue of standby letters of credit serving as financial guarantees for loans, securities and any other financial liabilities, and bills endorsed under bill endorsement lines (but which are not accepted by, or have the prior endorsement of, another bank).</p>	100%
UNPLid portion of partly paid shares and securities	100%
Other Contingent Liabilities	100%

*Source: NRB Directives 2067/068*

### **2.3 Review of Journal and Articles**

**Shrestha (1995)** A study on “*Portfolio Behavior of commercial Banks in Nepal*” has made remarkable efforts to examine various portfolio behavior of commercial bank in Nepal such as investment portfolio, liability portfolio, assets portfolio etc. In the study, investment of commercial banks when analyzed individually, were observed in Nepalese domestic banks invest in government securities, national saving bond, debentures and company’s shares. On the basis of this study the author found that the supply of bank credit was expected to depend on total deposit, lending rate, bank rate, lagged variables and the dummy variables, similarly demand of bank credit was assure to be affected by national income, lending rate, treasury bill rate and other variables. The resources of commercial

banks were expected to be related with variables like total deposits, cash reserve requirement, bank rate and lending rate. The following were the findings of the study.

- The relationship of banks portfolio variables as found to be best explained by log linear equations.
- Demand of deposit for commercial banks in Nepal is positively affected by the GDP from non agriculture and the deposit rate and lending rate of interest.
- The investment of commercial banks on govt. securities has been observed to be affected by total deposit, cash reserve requirement, and treasury bills rates and lending rates.
- The investment of commercial banks in shares and securities is normal and nor found to have strategic decisions towards investment in shares and securities.
- The loan loss ratio has been found to increase with low recovery of loan.

**Sharma (1998)** the article “*Joint Venture Banks in Nepal: Co-existing or Growing Out*” it would be definitely unwise for Nepal not to let the CBs operate in the country and not to take advantage of them as additional means of resources mobilization. So far one should admit frankly no different treatment has been extended to the domestic and CBs, at least from the government side, which is commendable. If Nepal Government keeps on the stance of treating the domestic and CBs equally and if the CBs also show their alacrity to come forward to share the trials and tribulations of this poor country, both types of banks will coalesce and co-exist complementing each other and contributing to the nation’s accelerated development. On the contrary, if the CBs use their strength against trading into the number, some path of development along with domestic banks and the government, they will eventually grow out the domestic banks from the more profitable urban areas and lucrative urban sectors unless remedying by the determination of the government.

**Shrestha (2055)** an article entitled “*Portfolio Management in Commercial Bank, Theory and Practice*” mentioned that the portfolio management becomes very important for both individuals as well as institutional investors; investors would like to select a best mix of investment assets subject to the following aspects.

- Higher return which is comparable with alternative opportunities available according to the risk class of investors.
- Good liquidity with adequate safety of investment.
- Certain capital gains.
- Maximum tax concession
- Flexible investment
- Economic, efficient and effective investment mix

In the view of above aspects, following strategies are adopted.

- Do not hold any single security i.e. try to have a portfolio of different securities.
- Do not put all the eggs in one basket i.e. to have diversified investment. (Making investment in different sectors)
- Choose such portfolio of securities, which ensures maximum return with minimum risk or lower of return but with added objective of wealth maximization.

However, Author has also attempted the following approaches to be adopted for designing a good portfolio and its management.

- To find out the invisible assets ( generally securities) having scope for better returns depending upon individual characteristics like age, health, need, disposition, liquidity, tax liability etc.
- To find out the risk of securities depending upon the attitude of investor towards risk.
- To develop alternative investment strategies for selecting a better portfolio that will ensure a trade-off between risk and return to attach the primary objective of wealth maximization at lowest risk.

- To identify securities for investment to reduce volatility of return and risk.

Regarding the commercial banks, they are very eager to provide such services but because of above mentioned problems, very limited opportunity are available to the banks for exercising the portfolio management. Even considering the attraction of deposits commercial banks are facing problems since investors have not developed full confidence of putting money in fixed time deposit certificates of various maturing and sizes.

The author has drawn following conclusion for smooth running and operation of banks and financial institutions.

- The survival of the banks depends upon its own financial health and various activities
- In order to develop and expand the portfolio management activated successfully the investment management methodology of a portfolio manager should reflect high standards and give their clients the benefits of global strengths, local insights and products philosophy.
- With the discipline and systematic approach with the selection of appropriate countries, financial assets and the management of various risks, the portfolio manager could enhance the opportunity for each investor (client) to earn superior returns over time.
- The Nepalese banks having greater network and access to national and international capital markets have to go for portfolio management activities for the increment of their fee based income as well as to enrich the client base and to contribute in national economy.

In this context, the author has presented two types of investment analysis techniques and fundamental analysis and technical analysis to consider any securities such as equity, debentures or bond and other money and capital market instruments. The author has also pointed out the required skilled manpower research and analysis and proper management Information system (MIS) in any type of

commercial banks to get success in portfolio management and customer's confidence.

**Thapa (2003)** published an article "*Managing a Banking Risk*" stating the subsequent issues. Banking and financial service are among the fastest growing industries in the developing world and are also emerging as cornerstone for the other developing and underdeveloped nations as well. According to him, the primary function of a bank is trade risk. Risk cannot be avoided by the bank but can only be managed. There are different types of risk. Among them interest rate risk is one of the common risk the banks facing owing to the volatility of the interest rate in the market.

Another risk banks commonly face is the trading risk or market risk. Banks have to productively manage their excess liquidity by investing in various securities in foreign currencies and in other assets like swaps, options etc.

Credit risk is another significant risk which the banks particularly in the under developed country like Nepal because our financial system is mostly dependent on banks. Hence, it is crucial that the bankers should manage such risks prudently since it not only hampers the particular banks in concern but also badly affects the growth prospects of the entire economy. Credit risks are of two types: diversifiable risk and un-diversifiable risk.

Off- bank risk, owing to the creation of contingent liabilities should be managed by a prudent analysis of bank officials materializing such contingent contacts. Similarly, technological changes are frequently faced by banks. Therefore, for the smooth operation banks should adopt technological up-gradation from time to time.

Maintaining proper liquidity is the most difficult problem as the demand of cash is uncertain. To avoid such risk, the central bank has initiated the regulation, whereby the banks need to maintain reserve in their vault and a certain specified percentage of the total deposit with the central bank.

He concludes that risk management of the banks is not only crucial for optimum trade-off between risk and probability but is also one of the deciding factors for overall business investment leading to growth of economy. Managing risk not only needs sheer professionalism at the organizational level but appropriate environments also need to develop. Some of the major environmental problems of Nepalese banking sector are under government intervention, relatively weak regulatory frame, if we consider the international standard, meager corporate governance and the biggest of all is the lack of professionalism, the only solution to mitigate the banking risk is to develop the badly needed commitment eradication of corrupt environment particularly in the disbursement of lending, and formulate prudent and conducive regulatory framework.

#### **2.4 Review of Previous Thesis**

**Shrestha, Natasha (2008)** conducted her thesis on “ *Portfolio Analysis of Common stock of Commercial Banks in Nepal*” with the general objective to find out the level of portfolio risk and return on stock of commercial bank investment. The specific objectives were;

- To find out the trend of NEPSE index,
- To analyze the risk and return of common stock of reviewed banks, and
- To find out the best portfolio from NEPSE.

The study was focused on portfolio analysis of commercial banks. She found out that;

- The expected return of HBL stock was the highest (53.68%) and that of NABIL the lowest (32.72%) among the banks under the study.
- The risk of NBBL was the highest (93%) and SCBL had the lowest risk (55.42%).
- The correlation of stock, return and market that all of the banks stocks were highly positive correlated with the market.
- The correlation values of common stock of all banks with the markets were nearly equal to +1.

- The stock price of all four listed commercial banks were higher than NEPSE average price of stock. Likewise, the stock prices of these banks were in fluctuating trend than NEPSE index.

She concluded that the investment on common stocks is risky job. It does not guarantee both return and principal, so the investors should be well acquainted with the associated risk and work out their attitude towards the riskiness of various investment strategies.

**Shrestha, Khem Raj (2009)** performed a research work “*A Study on Investment Portfolio of Commercial Banks in Nepal*” with the general objective of identifying the current situation of investment portfolio of commercial banks in Nepal. The main objectives were

- To analyze the investment portfolio of commercial banks;
- To analyze the risk and return of the selected five commercial banks on investment using portfolio concept and
- To forecast/examine the trend of investment for providing complementary measures.

His major findings from the analysis of risk and return were;

- SCBL has more return from investment on government securities. Hence, it effectively mobilized its total deposits on them.
- EBL and SBIN mostly mobilized their depositor’s fund in loan and advances.
- The return on share and debenture displayed a wide fluctuation particularly due to the volatility of share prices in the market as well as changes in dividends.
- The portfolio risk on investment in government securities is lower than that in loan and advance or share and debenture.

He concluded that the investment on government securities is quite safe. Hence, commercial banks should also mobilize depositor’s fund on them.

**Pandey, Pratima (2010)** has conducted a research work on “ *Risk and Return Analysis of Common Stock Investment*” the primary objective of her study was to analyze the risk and return and other relevant variables that help in making decisions about the stock and investment in Insurance Companies. The secondary objectives of her study were;

- To understand and identify the problems encountered by individual investors and Insurance Companies
- To calculate risk and return of common stocks and their portfolio and
- To analyze the volatility of different stocks and their companies and other relevant variables that should be considered during deciding investments in stocks.

On the market capitalization based analysis she observed that the size of Nepal Insurance Company (NIC) is the highest one. Expected return on the common stock of National Life and General Insurance Company Ltd (NLGI) is maximum(65.39%) and that of Himalayan General Insurance Company (HGI) is the lowest with the negative value. In overall industry sector, the expected return of Finance and Insurance is the highest. The overall market expected return is over 50%. National Life and General Insurance Company Ltd’s expected return is the highest which is ultimate the standard deviation (risk) to be the highest and Everest Insurance Company’s risk and return is the lowest one. The stock of National Life and General Insurance Company is highly sensitive with the market owing to its degree of beta coefficient .Furthermore, the stock of United Insurance Company (UIC) moves opposite with the market due to its negative coefficient. She also observed lack of significant difference between the portfolio return of Insurance companie’s stock and overall market portfolio.

Hence she concluded that poor education and inadequate information source are the major constraints for developing stock market in Nepal. On comparison of the risk and return of different industries the Finance Companies and Insurance companies are the best owing to their highest expected return with higher degree of risk. However, most of trading industries have minimum return and maximum

level of risk. Market sensitivity is calculated by beta coefficient, which cannot be reduced by diversification. Due to lack of specific knowledge of stock market general public invest their funds in different securities on the basis of expectation and assumption rather than proper analysis. Thus, the proper selection of portfolio approach is the suitable way to achieve success in the stock market.

**Joshi, Payal (2011)** conduct a study on “*Portfolio Analysis on Investment with special reference to Nepalese Commercial Bank*” the general objective of the study is to identify the current situation of investment portfolio of commercial banks in Nepal. The specific objectives are;

- To analyze the current situation of the portfolio management of commercial banks.
- To evaluate the financial performance of commercial bank investment strategies.
- To see the trend of investment in different portfolios.
- To analyze the way commercial bank management of risk and return on investment through portfolio concept.

Her major findings were;

- Return on the government securities is low but it has lower risk .In the similar manner, the loan and advances give more return than the government securities, but it has also higher risk than government securities.
- The total investment to total deposit ratio of SCBL is found to be the highest in comparison to the other four sample commercial banks. It absorbed a major portion of its investment on government securities.
- The analysis indicates that commercial banks invested very nominal percentage of total outside investment on share and debenture of the other companies.
- Investment on various assets, like government securities, loan and advances and share and debenture are in increasing trend.

Based on her findings she recommended the following points.

- During the study period, all selected sample banks invested a very low proportion of their total outside investment on share and debenture of the other companies. Therefore all selected sample banks are suggested to accord more priority to investment on share and debenture.
- All sample banks have ineffectively utilized portfolio management concept. The investment of these banks is strongly dominated by loan and advances. They generate inadequate return for the banks. Hence they should have a compendium of optimum portfolios of different securities.
- The sample commercial banks are inefficiently utilizing resources particularly in the productive sectors. Hence, they should identify new investment sectors through efficient investment programs in retail banking such as education loan, housing loan, automobile loan, small-medium enterprise loan, youth self-employment loan, green energy sector oriented consortium loan etc.
- The total investment fund with respect to total deposit of EBL is pretty low. Hence, it calls for identifying the new investment sectors, and efficient as well as effective investment in those sectors.
- The profitability position of NABIL is near to satisfaction. However, its investment on various assets is less stable. Hence the bank should upgrade its stability status and decrease the variability of investment.

## **2.5 Research Gap**

Portfolio investment refers to an investment that combines several assets. Commercial Banks can not utilize entire fund raised through deposit and borrowing into loan and advances to fulfill the gap between borrowing and lending banks rather prefer investment. On the basis of the review of the previous thesis, it is observed that the previous researchers had focus in other aspects of investment rather than analysis the financial performance of commercial banks in terms of investment strategies

Few research works exists in this topic. In-depth specific researches have yet to continue .All previous researches on portfolio management have focused on the risk

and return analysis of investment by commercial banks particularly in common stock. However, there is void (insufficiency/gap) in research program concentrating on investment in the government securities, loan and advances, share and debentures etc. Over the time period, several new options for investment have been introduced. Furthermore, the previous research has been outdated. Hence, the research has endeavored to analyze the present portfolio management situation, risk and return status on investment portfolio of EBL, within the frame work of available recent data.

## **CHAPTER - THREE**

### **RESEARCH METHODOLOGY**

Research methodology is the way in which the data are collected for a research project. It refers to various sequential steps to be adopted by a researcher in studying a problem with a certain objective on view. It describes the method and process of getting to the solution process applied in the entire subject of the study. It is a way to systematically solve a research problem (Kothari; 1990:39). It embraces different dependent and independent variables, types of research design, research questions and hypothesis, sample, data collection activities, technique of analysis etc. Thus, research methodology is the process of arriving at the solution of the problem through planned and systematic dealing with the collection, analysis and interpretation of facts and figures.

#### **3.1 Research Design**

Research design is a plan, structure and strategy of investigations conceived so as to obtain answer to research questions and to control variance (Wolff; 1975:51). It is the arrangement of conditions for collection and analysis of data in a manner aiming at combining relevance to the research purpose with economy in procedure. Considering this study objectives, the analysis is based on certain research design. In order to achieve the objectives, descriptive and analytical research design has been adopted .Descriptive research design describes the general pattern of investors, business environment, problem of portfolio management etc. The analytical research design carries out the analysis of

information and data. Most of the data and information of the study were related with the past phenomenon. On this background it can be considered as a historical research.

The study covers the data from the FY 2063/064 to FY2067/068. It deals with the study of portfolio analysis of EBL. As the title of the study itself indicates that it is more analytical and empirical and less descriptive.

### **3.2 Sources of Data**

The study is mainly based on secondary data. Data are collected from concern bank Nepal Rastra Bank, NEPSE, SEBO and various libraries. Likewise, the micro-level data have been derived the different libraries, such as Shanker Dev campus, Nepal commerce campus, TU central library etc. Furthermore, several data and information were gathered from periodicals, economic journals and the other published and unpublished reports. Informal interview with the authorities of related institutions are also the other sources of data.

### **3.3 Method of Data Collection**

It indicates the sources of data and how they collected. In this study data are collected through published sources. They were collected from the correspondent offices and their respective websites.

The annual reports of EBL for the period of five years are obtained from the website of selected banks. The data regarding the profile of EBL and other related documents were collected from internet websites. Unpublished master's thesis, books, research papers, articles, journals have been collected mainly form Centre Library of Tribhuvan University, library of Shankar Dev Campus and NRB Magazines and newspapers are from concerned authorities.

After collecting data, as necessarily required, they are separated and analyzed presentation and analysis of the collected data is the main theme of the research work. Collected raw data were first presented in systematic manner in tabular forms and then analyzed by applying different financial and statistical tools to

achieve the research objectives. Besides these, some graph, charts and tables have been presented to analyze and interpret the finding of the study.

### **3.4 Population & Sample**

The term population of data denotes for the data of each organization which is within the boundary of specific organization whereas sample data are the data of those organization which has been selected from that whole population for study. Random selected method is to be used while selecting sample organizations for this study. The population data for this study comprises all commercial banks, which are currently operating in Nepal. The sample consists of one selected bank. The selected sample bank for the analysis is EBL.

### **3.5 Data Analysis Tools**

A host of analytical tools can be applied to perform investment analysis of a firm. Following the nature of the study, a set of appropriate tools, particularly financial and statistical may be used for effective and significant analysis to meet the research objectively.

#### **3.5.1 Financial Tools**

On the study of portfolio investment analysis financial tools are more applicable. Financial tools are particularly are used for the analysis as well as the interpretation of financial data. These tools can be engaged to procure the precise knowledge of a business, which are fruitful for analyzing the strength and weakness of the investment policies and strategies. Thus, following financial tools are used to achieve the study goal.

##### **3.5.1.1 Risk and Return on Individual Investment Assets and Investment Portfolio**

1. **Return on Government Securities:-** The return on Government Securities is obtained by dividing interest income from government by total investment on government securities expressed as;

Return on Government Securities (Rg)

$$= \frac{\text{Interest Income From Government Securities}}{\text{Total Investment on Government Securities}}$$

2. **Return on Share and Debentures:-** The return on share and debenture considers dividend yield and capital gain yield (change in market price). The dividend yield is merely a partial indication of the return. Hence, the return on share and debenture depends on the change in the share price (Pandey;1997:332). It is calculated as;

$$\text{Return on Share and Debenture (Rs)} = \frac{P_1 - P_0 + D_1}{P_0} \times 100$$

Where,

$P_1$  = Ending Value of Share

$P_0$  = Beginning Value of Share

$D_1$  = Dividend per Share

3. **Return on Loan and Advances:-** This ratio displays the bank efficiency of employing its resources in various sectors like agriculture, industry and commercial sectors to earn a good return from loan and advances. The return on loan and advances is computed by dividing total interest earned from loan and advances to total amount of loan and advances. Thus,

Return on Loan and Advances (R)

$$= \frac{\text{Interest Income From Loan \& Advances}}{\text{Total Loan \& Advances}}$$

4. **Return on Portfolio:-** The return on portfolio is simply the weighted average of the expected returns of the individual assets in the portfolio. The weights are the proportions of the investor's wealth in each asset.

$$\text{Portfolio return (R}_P\text{)} = W_A \bar{R}_A + W_B \bar{R}_B + \dots + W_N \bar{R}_N$$

Where,

$R_P$  = Return on Portfolio

$W_A$  = Weight or Proportion of Assets 'A'

$W_B$  = Weight or Proportion of Assets 'B'

$\bar{R}_A$  = Expected Return of Assets 'A'

$\bar{R}_B$  = Expected Return of Assets 'B'

- 5. Risk on Individual Assets:-** The riskiness of assets is dependent on the variability of rates of return. This variability of rate of return is defined as the extent of the deviation of individual rates of return from the average rate of return. Risk on individual assets is calculated as;

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{\sum(R_A - \bar{R}_A)^2}{n-1}}$$

Where,

$R_A$  = Rate of return of individual assets

$\bar{R}_A$  = Expected Return of Assets 'A'

$\sigma$  = Standard deviation or risk

$n$  = no. of years

- 6. Portfolio Risk:-** The portfolio risk is a function of the proportions invested in the components, the riskiness of the components and the correlation of returns on the component securities. It is measured by either variance or standard deviation. Lower the standard deviation and variance lower the riskiness and vice versa. It can be computed by using the following formula.

**For two assets case;**

$$\delta_P = \sqrt{W_A^2 \delta_A^2 + W_B^2 \delta_B^2 + 2COV_{AB} W_A W_B}$$

Where,

$\delta_P$  = Portfolio Risk

$W_A$  = Weight or Proportion of Assets 'A'

$W_B$  = Weight or Proportion of Assets 'B'

$\delta_A$  = Risk on Assets 'A'

$\delta_B$  = Risk on Assets 'B'

$COV_{AB}$  = Covariance between Assets 'A' and Assets 'B'

$$COV_{AB} = \frac{\sum[(R_A - \bar{R}_A)(R_B - \bar{R}_B)]}{n-1}$$

**For three assets case;**

$$\delta_P = \sqrt{W_A^2 \delta_A^2 + W_B^2 \delta_B^2 + W_C^2 \delta_C^2 + 2COV_{AB} W_A W_B + 2COV_{BC} W_B W_C + 2COV_{AC} W_A W_C}$$

Where,

$\delta_P$  = Portfolio Risk

$W_A$  = Weight or Proportion of Assets 'A'

$W_B$  = Weight or Proportion of Assets 'B'

$W_C$  = Weight or Proportion of Assets 'C'

$\delta_A$  = Risk on Assets 'A'

$\delta_B$  = Risk on Assets 'B'

$\delta_C$  = Risk on Assets 'C'

$COV_{AB}$  = Covariance between Assets 'A' and Assets 'B'

$COV_{AC}$  = Covariance between Assets 'A' and Assets 'C'

$COV_{BC}$  = Covariance between Assets 'B' and Assets 'C'

**7. Correlation Coefficient:** - Correlation coefficient defines the degree of relationship between two assets whether they are going in same direction or opposite direction. It always ranges from +1 to -1. It can be calculated by using following formula.

$$\text{Correlation between Assets A \& B } (r_{AB}) = \frac{COV_{AB}}{\delta_A \delta_B}$$

Where,

$\delta_A$  = Risk on Assets 'A'

$\delta_B$  = Risk on Assets 'B'

$COV_{AB}$  = Covariance between Assets 'A' and Assets 'B'

- If  $r_{AB} = +1$ , Correlation between two assets is perfectly positive in this condition a single unit of risk cannot be minimized.
  - If  $r_{AB} = -1$ , Correlation between two assets is perfectly Negative in this condition all the risk can be minimized.
  - If  $r_{AB} = 0$ , There is no correlation between two assets in this condition a little bit of risk can be minimized.
8. **Covariance:** - It defines the combined risk or accumulated risk between two assets. Covariance and correlation are closely related, covariance between two assets can be calculated by using following formula.

Covariance between Assets 'A' and Assets 'B'

$$(COV_{AB}) = \frac{\sum[(R_A - \bar{R}_A)(R_B - \bar{R}_B)]}{n-1}$$

Where,

$R_A$  = Rate of return of individual assets 'A'

$\bar{R}_A$  = Expected Return of Assets 'A'

$R_B$  = Rate of return of individual assets 'B'

$\bar{R}_B$  = Expected Return of Assets 'B'

**3.5.1.2 Financial Ratios:-** A numerical or quantitative relationship between two items or variables of the financial statement is known as ratio analysis. In other words, two accounting figures expressed mathematically is termed as financial ratio. Ratio analysis is used to compare a firm's financial and status of that of other firms or to itself on time (Gitman;1988 :275).Since this study is particularly focused on portfolio analysis of commercial banks, only few ratios related to the investment of commercial banks are adapted in the study.

1. **Total Investment to Total Deposit Ratio:-** Investment is one of the major credits generated to earn income. It implies the utilization of firm's deposit on investment in government securities. This ratio is obtained by dividing total investment by total deposit as expressed below.

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

2. **Investment on Government Securities to Total outside Investment Ratio:-** This ratio indicates the banks investment on government securities among the total outside investment. It is computed by dividing investment on government securities by total outside investment.

Investment on Government Securities to Total outside Investment Ratio

$$= \frac{\text{Investment on Government securities}}{\text{Total outside Investment}}$$

3. **Investment on Share and Debenture to Total outside Investment Ratio:-** This ratio portrays the bank investment on share and debentures of the other companies. It is computed by dividing investment on share and debentures by total outside investment.

Investment on Share and Debenture to Total Outside Investment Ratio

$$= \frac{\text{Investment on Share \& Debenture}}{\text{Total outside Investment}}$$

4. **Return (Net Profit) on Total Assets Ratio:-** This ratio measures the profitability of funds invested in the bank's assets. It is calculated by dividing net profit after tax (NPAT) by total assets, as stated below.

$$\text{Return on Total Assets} = \frac{\text{Net Profit After tax}}{\text{Total Assets}}$$

### 3.5.2 Statistical Tools

Statistical tools are used to analyzed the relationship between two or more variables and to find how these variables are related. In this study, following statistical tools are used.

1. **Arithmetic Mean or Average:**-The mean or average value is a single value within the range of the data that is used to represent all the values in the series. Since an average is somewhere within the range of the data, it is also called a measure of central value. It is calculated by;

$$\text{Mean } (\bar{X}) = \frac{\sum X}{N}$$

Where,

$$\bar{X} = \text{Arithmetic Mean}$$

$$\sum X = \text{Sum of values of all items, and,}$$

$$N = \text{Number of items}$$

2. **Standard Deviation:**- The standard deviation is the measure that is most often used to describe variability in data distributions. It can be thought of as a rough measure of the average amount by which observations deviate on either side of the mean. Denoted by Greek letter's (read as sigma), standard deviation is extremely useful for judging the representatives of the mean. Standard deviation is calculated as;

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{\sum(X-\bar{x})^2}{N-1}}$$

Where,

$$\sigma = \text{Standard deviation}$$

$$\sum(X - \bar{x})^2 = \text{Sum of squares of the deviations measured from arithmetic average.}$$

$$N = \text{Number of items}$$

## **CHAPTER - FOUR**

### **PRESENTATION AND ANALYSIS of DATA**

The chapter is devoted to the presentation, analysis, interpretation and scoring the empirical finding of the study through a defined research methodology. Getting at the study objectives, a set of financial and statistical tools has been applied. Data collected from several sources have been inserted in the tabular form in terms of homogeneity of data. Tables compiled for the analysis have been presented in Annexes. Necessary graphs and diagrams have been included to clarify the actual status of the banks. This section analyzes the investment portfolio of commercial banks through the following tools.

- Risk and Return analysis of individual assets and investment portfolio
- Analysis of ratio

#### **4.1 Portfolio Investment, Risk and Return Analysis of EBL**

Bank is a vital element in the investment analyzing process hence calls for adequate attention. Investment involving greater risk expects higher return than the investment with lower risk. The relationship between risk and return is perceived by individuals based on their attitude for compensation. The main aim of risk and return is to appraise investment performance to explore combination of investments maximizing returns and minimizing risk or accomplishing both. Risk, however enjoys a pivotal role in the investment analysis. Commercial banks or investors generally avoid invest their money in one risky asset only. Nevertheless, they tend to hold portfolio of several assets to diversify the investment risk. On the portfolio context, the contribution of each asset to the portfolio risk is the portion of relevant risk of the asset. The measurement of return in rupees or percentage is a simple statistical process, while the measure of risk involves a complex process. Risk can be measured in many ways using statistical techniques, such as range, semi-inter quartile range, mean deviation, standard deviation and coefficient of variance etc. Among them, standard deviation is commonly used for measuring risk on investment. In this section, standard deviation and

coefficient of variation are adapted as the measuring tools for risk and return. Then it has been endeavored to explore the effects of portfolio diversification.

#### 4.1.1 Investment Portfolio of EBL

Investment usually means the sacrifice of the current money for future money. The sacrifice takes place in the present and the reward comes later and the magnitude is generally uncertain. Portfolio theory deals with the selection of optimal portfolio i.e. the portfolio that provides the highest possible return for any specified degree of risk or the lowest possible risk for any specified rate of return. Portfolio theory has been developed for the financial assets. Thus making investment from the selected optimal portfolio i.e. the portfolio that provides the highest rate of return with least possible amount of risk is the real investment portfolio.

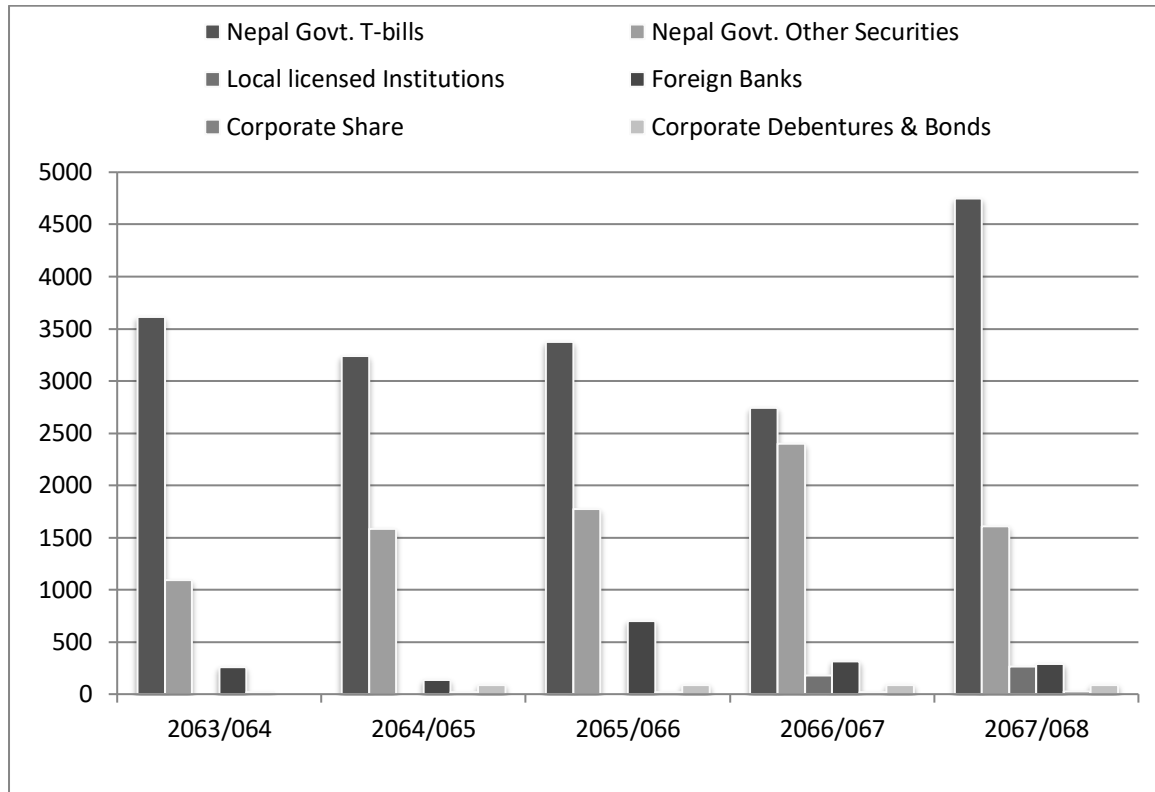
**Table: 4.1**  
**Investment Portfolio of EBL (Rs. In Millions)**

Sector	2063/064	2064/065	2065/066	2066/067	2067/068
Nepal Govt. T-bills	3614.54	3237.98	3371.43	2745.28	4745.49
Nepal Govt. Saving Bonds	-	-	-	-	-
Nepal Govt. Other Securities	1090.09	1583.63	1774.62	2399.52	1609.07
Local licensed Institutions	-	-	-	177.87	261.8
Foreign Banks	260.6	138.4	702.00	313.06	291.72
Corporate Share	19.89	16.23	17.12	17.11	24.65
Corporate Debentures & Bonds	-	84.93	84.93	84.93	84.93
<b>Total Investment</b>	<b>4985.12</b>	<b>5061.16</b>	<b>5950.08</b>	<b>5009.91</b>	<b>7745.53</b>
Less: Provisions	0.8	1.6	1.6	1.6	1.6
<b>Net Investments</b>	<b>4984.31</b>	<b>5059.56</b>	<b>5948.48</b>	<b>5008.31</b>	<b>7743.93</b>

*Source: Annual Reports of EBL from 2063/064 to 2067/068*

**Figure: 4.1**

**Investment Pattern of EBL**



Above table 4.1 and figure 4.1, shows the investment portfolio of EBL, the major sectors of investment are Nepal Govt. T-bills, Nepal Govt. Other Securities, Local licensed Institutions, Foreign Banks, Corporate Share, and Corporate Debentures & Bonds. The EBL invest the high amount in the Nepal govt. treasury bills in each year, it is risk free assets for investment. The investment trend in treasury bills is in fluctuating trend over the study period, the amount of investment in each year is Rs. 3614.54, 3237.98, 3371.43, 2745.28 and 4745.49 millions respectively in each year respectively.

**4.1.2 Return on Government Securities**

Government securities are the fixed income securities issued by the government. These securities are the ones among the safest of all investments, as government is quite unlikely to default on interest or principal repayments. The return on government securities, such as Treasury Bills, Development Bonds and National Saving Bonds etc is obtained by dividing interest income from government by total investment on government securities.

**Table: 4.2**

**Return on Government Securities of EBL**

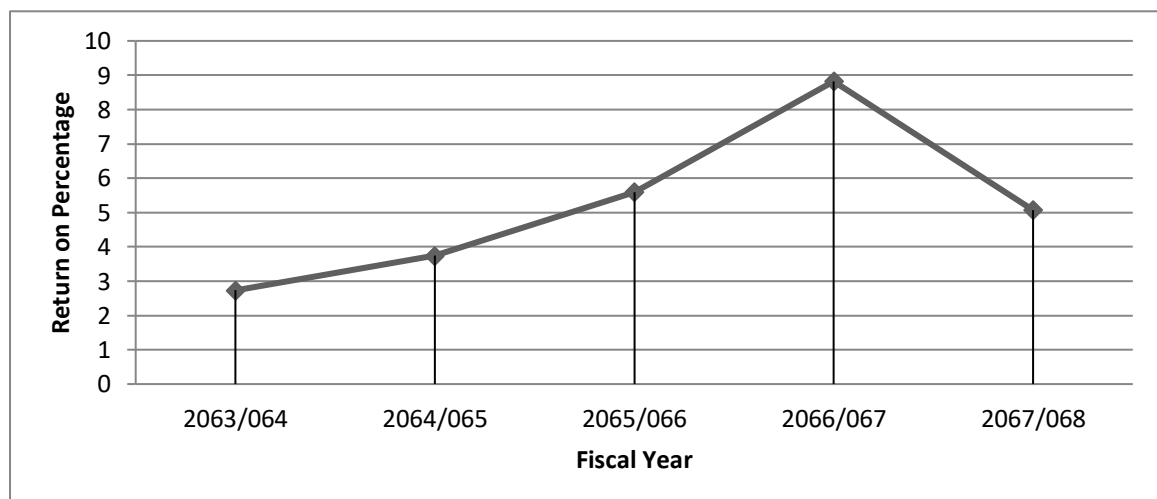
Year	Interest on Govt. Securities (Rs. In million)	Investment on Govt. Securities (Rs. In Million)	Return on Govt. Securities ( $R_g$ In %)
<b>2063/064</b>	128.56	4704.63	2.73
<b>2064/065</b>	180.22	4821.61	3.74
<b>2065/066</b>	289.76	5146.05	5.6
<b>2066/067</b>	383.99	4354.35	8.82
<b>2067/068</b>	362.26	7145.01	5.07
<b>Total</b>	1344.79	26171.65	25.96
Average			5.20

*Source: Annual Report of EBL from 2063/064 to 2067/068 & Appendix I*

The table no 4.2 shows that in an average EBL generate 5.20% return on the investment made in government securities. However, it demonstrates inconsistent trend of EBL in the return on government securities. During the study period the greatest return is 8.82% in FY 2066/067 and the lowest is 2.73% in FY 2063/064. The trend of interest and investment are increasing every year but in the FY 2066/067 the investment amount is decrease than the previous year. It is show in the following figure.

**Figure: 4.2**

**Trend of Return on Government Securities of EBL**



### 4.1.3 Return on Loan and Advances

Loan and advances are the major source income for commercial banks. The facility of granting loan and advances is one of the important services which customers of commercial banks can enjoy. Hence to realize their objectives, the commercial banks invest in several sectors like agriculture, industry and commercial sectors to earn a good return from loan and advances. The return on loan and advances is computed by dividing total interest earned from loan and advances to total amount of loan and advances.

**Table: 4.3**

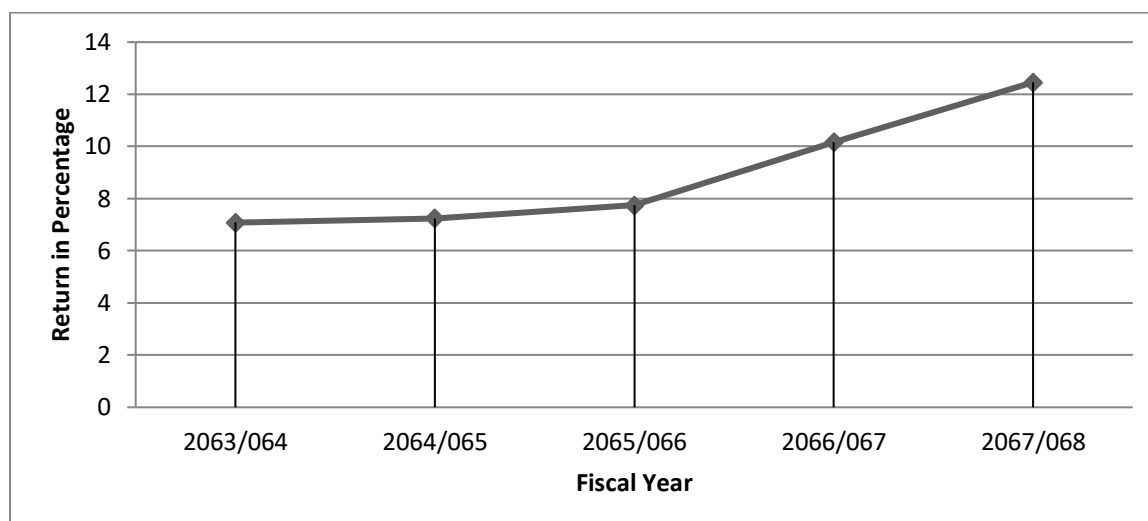
#### **Return on Loan & Advances of EBL**

<b>Year</b>	<b>Interest on Loan &amp; Advances (Rs. In million)</b>	<b>Investment on Loan &amp; Advances (Rs. In million)</b>	<b>Return on Loan &amp; Advances (<math>R_l</math> In %)</b>
<b>2063/064</b>	967.18	13664.08	7.08
<b>2064/065</b>	1329.69	18339.08	7.25
<b>2065/066</b>	1852.13	23884.67	7.75
<b>2066/067</b>	2801.33	27556.36	10.17
<b>2067/068</b>	3869.81	31057.69	12.46
<b>Total</b>	10820.14	114501.88	44.71
Average			8.94

*Source: Annual Report of EBL from 2063/064 to 2067/068 & Appendix II*

The table no 4.3 shows that in an average EBL generate 8.94% return on the investment made in loan & advances. However, it demonstrates increasing trend of EBL in the return on loan & advances. During the study period the greatest return is 12.46% in FY 2067/068 and the lowest is 7.08% in FY 2063/064.

**Figure: 4.3**  
**Trend of Return on Loan & Advances of EBL**



#### 4.1.4 Return on Share and Debenture

The return on share and debenture comprise dividend yield and capital gain yield (change in market price). In other words, return is the combination of capital gain yield and dividend yield. Capital gain yield can be calculated by the difference the current year price and the last year price with respect to the last year price. However, dividend yield is calculated by dividend per share divided by market price per share.

**Table: 4.4**  
**Return on Share & debenture of EBL**

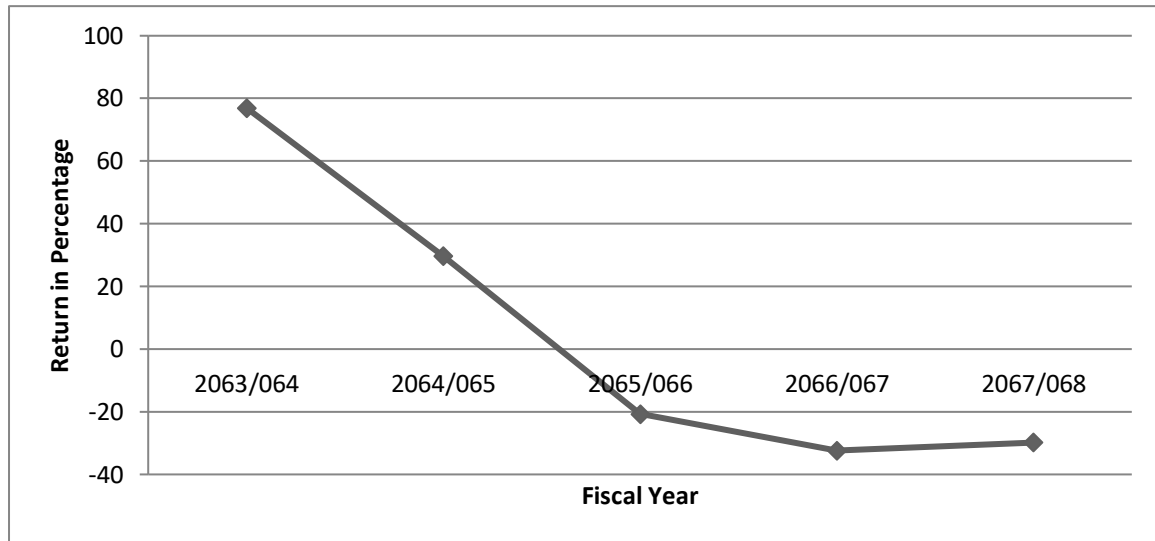
Year	Market Value Per Share (Rs. In Million)	Dividend Per Share (Rs. In Million)	Return on Share (R <sub>s</sub> In %)
2062/063	1379	25	-
2063/064	2430	10	76.94
2064/065	3132	20	29.71
2065/066	2455	30	-20.66
2066/067	1630	30	-32.38
2067/068	1094	50	-29.82
<b>Total</b>	12120	165	23.79
Average			4.76

*Source: Annual Report of EBL from 2063/064 to 2067/068 & Appendix III*

The above table shows that in an average EBL generate 4.76% return on the investment made in share & debenture. However, it demonstrates decreasing trend of EBL in the return on share & debenture. During the study period the greatest return is 76.94% in FY 2063/064 and the lowest is -32.38% in FY 2066/067.

**Figure: 4.4**

**Trend of Return on Share & Debenture of EBL**



## 4.2 Risk on Individual Investment

Risk is the variability of return. It is the deviation between actual and expected return. If there is certainty of return there is no risk at all. Risk is measured by its variation and standard deviation.

### 4.2.1 Risk on Government Securities

In this study government security includes the investment in treasure bills and Nepal government saving bonds. Risk in government securities is less than the other securities. The risk on government security is computed as follows.

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{\sum (R_g - \bar{R}_g)^2}{n-1}}$$

**Table: 4.5**

**Calculation of Risk on Government Securities of EBL**

(Figure In %)

Year	Return on Govt. Securities( $R_g$ )	$(R_g - \bar{R}_g)$	$(R_g - \bar{R}_g)^2$
2063/064	2.73	-2.46	6.06
2064/065	3.74	-1.45	2.11
2065/066	5.6	0.41	0.17
2066/067	8.82	3.63	13.16
2067/068	5.07	-0.12	0.01
<b>Total</b>	<b>25.96</b>	<b>-</b>	<b>21.51</b>
<b>Average</b>	<b>5.20</b>	<b>SD</b>	<b>2.318</b>

*Source: Annual Report of EBL from 2063/064 to 2067/068 & Appendix IV*

The table 4.5 shows that the average return on government securities of EBL is 5.20% and the standard deviation which represents risk is 2.318. It reveals that the risk on investment on government securities of EBL is 2.318 which indicates the riskiness on government securities. The standard deviation clearly indicates that there is some minimal risk associated with government securities despite general assumption of no-risk on such type of securities.

#### **4.2.2 Risk on Loan and Advances**

Loan and advance is the amount which is lending to the different persons or institutions for different purpose. It is the high risk assets for banking business. The risk on loan & advance is computed as follows.

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{\sum(R_1 - \bar{R}_1)^2}{n-1}}$$

**Table: 4.6**

**Calculation of Risk on Loan & Advances of EBL**

**(Figure In %)**

Year	Return on Loan & advance( $R_l$ )	$(R_l - \bar{R}_l)$	$(R_l - \bar{R}_l)^2$
2063/064	7.08	-1.86	3.4596
2064/065	7.25	-1.69	2.8561
2065/066	7.75	-1.19	1.4161
2066/067	10.17	1.23	1.5129
2067/068	12.46	3.52	12.3904
<b>Total</b>	<b>44.71</b>	<b>-</b>	<b>21.6351</b>
<b>Average</b>	<b>8.94</b>	<b>SD</b>	<b>2.236</b>

*Source: Annual Report of EBL from 2063/064 to 2067/068 & Appendix V*

The above table 4.6 shows that the average return on loan and advances of EBL is 8.94% and the standard deviation which represents risk is 2.236. It reveals that the risk in investment on loan and advances of EBL is 2.236 which indicates the riskiness on loan and advances.

### **4.2.3 Risk on Share & Debenture**

Risk on share and debenture is calculated as follows.

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{\sum(R_s - \bar{R}_s)^2}{n-1}}$$

**Table: 4.7**

**Calculation of Risk on Share & Debenture of EBL**

**(Figure In %)**

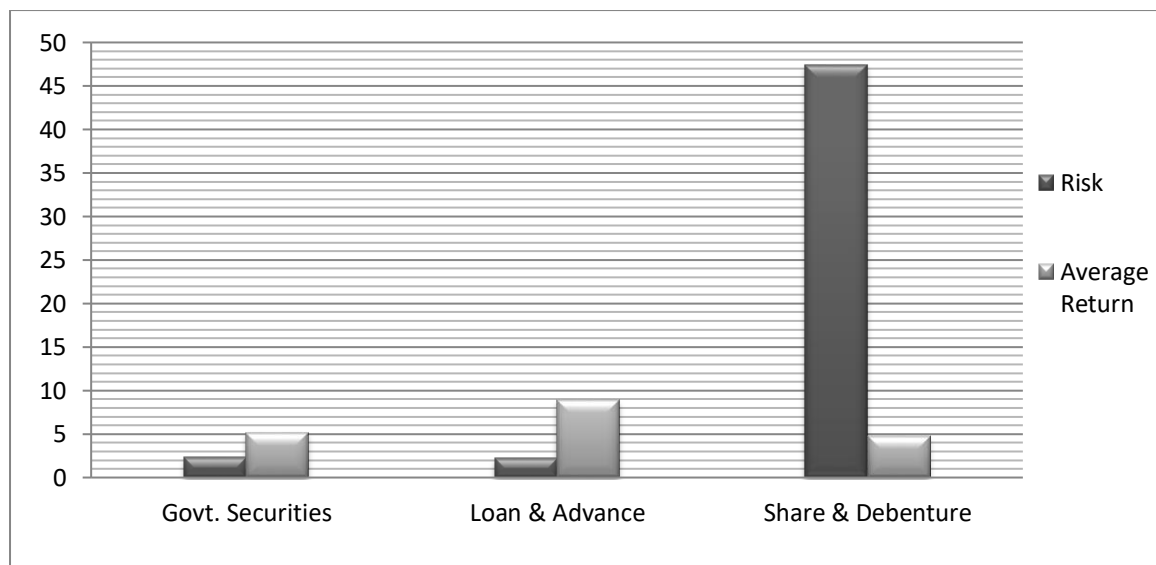
Year	Return on Share & Debenture( $R_s$ )	$(R_s - \bar{R}_s)$	$(R_s - \bar{R}_s)^2$
<b>2063/064</b>	76.94	72.18	5209.952
<b>2064/065</b>	29.71	24.95	622.5025
<b>2065/066</b>	-20.66	-25.42	646.1764
<b>2066/067</b>	-32.38	-37.14	1379.38
<b>2067/068</b>	-29.82	-34.58	1195.776
<b>Total</b>	<b>23.79</b>	<b>-</b>	<b>9053.7869</b>
<b>Average</b>	<b>4.76</b>	<b>SD</b>	<b>47.407</b>

*Source: Annual Report of EBL from 2063/064 to 2067/068 & Appendix VI*

The table 4.7 listed above reveals the risk (Standard Deviation) of return on Share and Debenture of EBL. The Standard deviation of return on Share and Debenture of EBL is 47.407. The Standard deviation portrays more risk in share and debenture than investment on loan and advances and government securities. Thus it is clear that investment on share and debenture is more risky. It is shown in the following figure.

**Figure: 4.5**

**Risk and Return Position of EBL**



Above figure shows that the high return in government securities and loan & advance than the risk and low return in the share & debenture than risk so investment in loan & advance and government securities is better than the investment in share & debenture.

### 4.3 Return on Investment Portfolio

The return on portfolio is the weighted average of the expected returns of the individual stock in the portfolio, with the weights being the proportion of the investment on each security in the portfolio equation. Commercial banks invest their funds in government securities, share and debenture and loan and advances. The weight of investment on various assets and their portfolio of returns can be calculated as below.

$$\text{Portfolio return } (R_p) = W_g \bar{R}_g + W_l \bar{R}_l + W_s \bar{R}_s$$

**Table 4.8**

#### **Portfolio Return on Investment of EBL**

<b>S.N</b>	<b>Assets</b>	<b>Average Rate of Return(<math>\bar{R}</math>)</b>	<b>Weight/Proportion (W)</b>
1	Return on Govt. Securities ( $R_g$ )	5.20	0.185
2	Return on Lon & Advance ( $R_l$ )	8.94	0.811
3	Return on Share & Debenture ( $R_s$ )	4.76	0.003
4	Portfolio Return ( $R_p$ )	8.227	

*Source: Appendix I, II & III*

From the above table 4.8 the expected return on portfolio of EBL is 8.227 which is more than that of mean rate of return on investment on government securities i.e  $5.20 < 8.227$ , return on share and debenture i.e  $4.76 < 8.227$  and less than the return on loan & advance i.e.  $8.94 > 8.227$ .

### 4.4 Risk on Investment Portfolio

Expected risk on a portfolio is the function of the proportions invested in the components, the riskiness of the components and correlation of returns on the component securities. It is measured by standard deviation. However the standard

deviation of portfolio is not simply the weighted average of standard deviation of individual securities. The portfolio risk is affected by the association of movement of returns of two securities. The degree to which the assets return move together is measured by the covariance. Hence, by combining the measures of individual assets risk, relative asset weights and the co-movement of asset returns (covariance) the risk of the portfolio can be estimated. Thus prior to the calculation of portfolio risk on investment, covariance between two assets return should be calculated.

#### 4.4.1 Covariance

It defines the combined risk or accumulated risk between two assets. Covariance and correlation are closely related. Covariance between two assets can be calculated by using following formula.

Covariance between Government Securities & Loan and Advance ( $COV_{gl}$ )

$$\begin{aligned}
 &= \frac{\sum[(R_g - \bar{R}_g)(R_l - \bar{R}_l)]}{n-1} \\
 &= \frac{10.5807}{5-1} \\
 &= 2.645
 \end{aligned}$$

Covariance between Government Securities & Share & Debenture ( $COV_{gs}$ )

$$\begin{aligned}
 &= \frac{\sum[(R_g - \bar{R}_g)(R_s - \bar{R}_s)]}{n-1} \\
 &= \frac{-354.831}{5-1} \\
 &= -88.708
 \end{aligned}$$

Covariance between Loan & Advance & Share & Debenture ( $COV_{ls}$ )

$$= \frac{\sum[(R_l - \bar{R}_l)(R_s - \bar{R}_s)]}{n-1}$$

$$= \frac{-313.574}{5-1}$$

$$= -78.394$$

#### 4.4.2 Portfolio Risk

Portfolio risk means combined risk between different investments. Portfolio risk is measured by its standard deviation and lower the standard deviation lowers the risk and vice versa. It can be computed by using the following formula.

Portfolio Standard Deviation between government securities, loan & Advance and share & debenture ( $\delta_p$ )

$$\delta_p = \sqrt{W_g^2 \delta_g^2 + W_l^2 \delta_l^2 + W_s^2 \delta_s^2 + 2COV_{gl} W_g W_l + 2COV_{gs} W_g W_s + 2COV_{ls} W_l W_s}$$

$$= \sqrt{5.862 + 0.974 - 0.098 - 4.225}$$

$$= \sqrt{2.477} = 1.574$$

#### 4.4.3 Correlation Analysis

Correlation coefficient defines the degree of relationship between two assets whether they are going in same direction or opposite direction. It always range from +1 to -1, it can be calculated by using the following formula.

$$\text{Correlation between Government Securities and Loan \& Advance } (r_{gl}) = \frac{COV_{gl}}{\delta_g \delta_l}$$

$$= \frac{2.645}{2.318 \times 2.236} = 0.51$$

$$\text{Correlation between Government Securities and Share \& Debenture } (r_{gs}) = \frac{COV_{gs}}{\delta_g \delta_s}$$

$$= \frac{-88.708}{2.318 \times 47.407} = -0.807$$

$$\text{Correlation between Loan \& Advance and Share \& Debenture } (r_{ls}) = \frac{COV_{ls}}{\delta_l \delta_s}$$

$$= \frac{-78.394}{2.236 \times 47.407} = -0.74$$

All of the above calculation are shown in the following table and described.

**Table: 4.9**

**Portfolio Risk, Covariance & Correlation between Different Variables**

Particular	Covariance	Correlation
$r_{gl} \text{ \& } COV_{gl}$	2.645	0.51
$r_{gs} \text{ \& } COV_{gs}$	-88.708	-0.807
$r_{ls} \text{ \& } COV_{ls}$	-73.394	-0.74
$\delta_p$	1.574	

*Source: Appendix VII, VIII, IX & X*

From the above table 4.9, the expected risk of portfolio (standard deviation) of EBL is -1.576% which is considerably less than the expected portfolio return of EBL. It means investment in combined three assets is less risky. The covariance and correlation between government securities and loan and advance is 2.645 & 0.51 respectively it means there is moderate degree of positive relationship between government securities and loan and advance in this condition a little bit of risk can be minimized by changing the proportion of investment made between two assets.

The covariance and correlation between government securities and share and debenture is -88.708 & -0.807 it means there is high degree of negative correlation between government securities and share and debenture in this condition maximum unit of risk can be minimized. Similarly, the covariance between loan and advance and share and debenture is -73.394 & -0.74 respectively it means there is high degree of negative correlation in this condition maximum unit of risk can be minimized.

## 4.5 Ratio Analysis

Ratio analysis is the process of establishing the significant relationship between the variables of financial statement to provide a meaningful understanding of the performance and the financial position of a firm. As a tool of financial analysis, ratio can be expressed in percentage. With the help of ratio analysis, the quantitative judgment can be obtained very easily and timely with respect to financial performance of the firm. In this section, major ratios related to the investment mechanism of commercial banks are calculated and analyzed.

### 4.5.1 Total Investment to Total Deposit Ratio

The ratio is used to measure the ability of banks to successfully mobilize the total deposits of investment. This ratio is obtained by dividing total investment by total deposit. In general, the high ratio is the indicator of high success to mobilize the banking funds as investment and vice-versa.(Total investment not include the amount of loan & advance)

**Table: 4.10**

#### **Computation of Total Investment to Total Deposit Ratio**

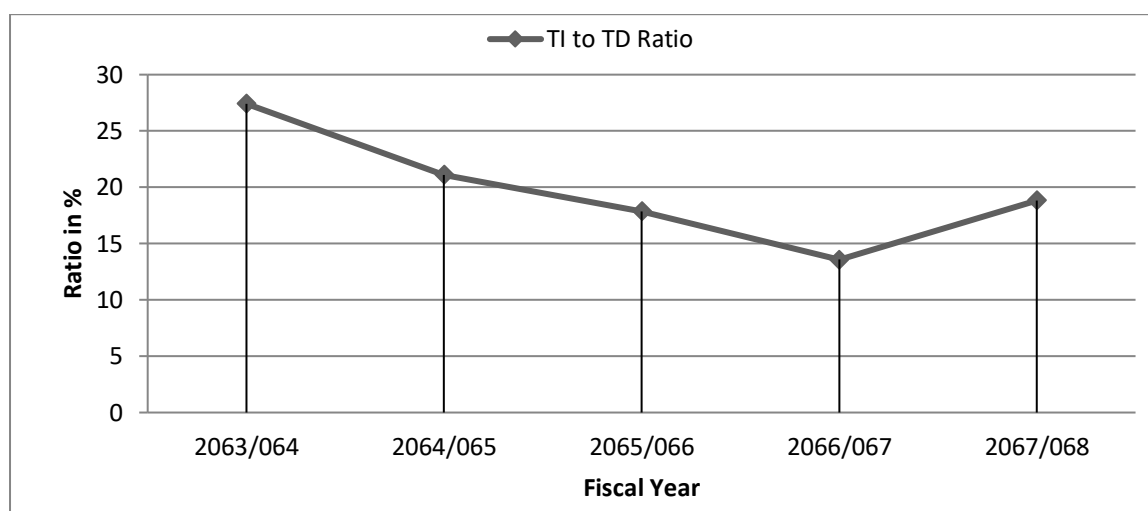
<b>Year</b>	<b>Total Investment (TI) (Rs. In Million)</b>	<b>Total Deposit (TD) (Rs. In Million)</b>	<b>TI to TD Ratio (In %)</b>
<b>2063/064</b>	4985.12	18186.25	27.41
<b>2064/065</b>	5061.16	23976.29	21.11
<b>2065/066</b>	5950.08	33322.95	17.86
<b>2066/067</b>	5009.91	36932.31	13.57
<b>2067/068</b>	7745.53	41127.91	18.83
<b>Mean</b>			19.75
<b>SD</b>			5.08

*Source: Appendix XI*

The above table 4.10 and figure 4.6 shows that the average investment to deposit ratio is 19.75 and the highest ratio is 27.41% in the FY 2063/064 and the lowest ratio is 13.57 in 2066/067.the overall trend of TI to TD ratio is fluctuating over the study period.

**Figure: 4.6**

**Trend of Total Investment to Total Deposit Ratio**



**4.5.2 Investment on Government Securities to Total Investment Ratio**

This ratio is very useful for understanding to what extent the bank is successful to mobilize their total outside investment on different types of government securities to maximize the income. The ratio is computed by dividing investment on government securities by total outside investment. A high ratio indicates the efficiency of firms in overall investment on government securities and vice –versa.

**Table: 4.11**

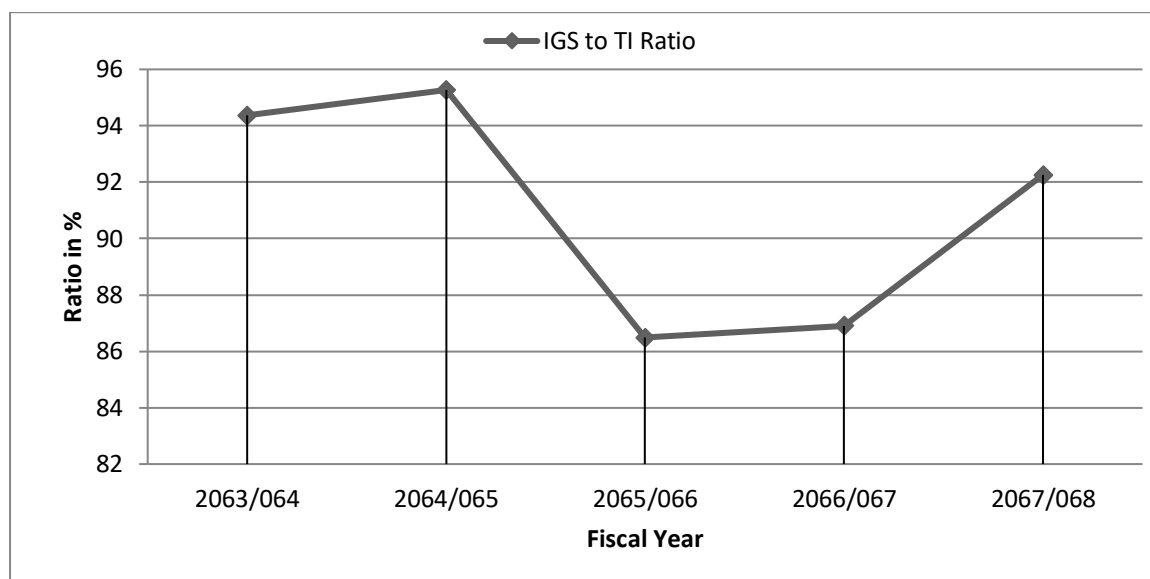
**Computation of Investment in Govt. Securities to Total Investment Ratio**

Year	Total Investment (TI) (Rs. In Million)	Investment in Govt. Securities (IGS) (Rs. In Million)	IGS to TI Ratio (In %)
<b>2063/064</b>	4985.12	4704.63	94.37
<b>2064/065</b>	5061.16	4821.61	95.27
<b>2065/066</b>	5950.08	5146.05	86.49
<b>2066/067</b>	5009.91	4354.35	86.91
<b>2067/068</b>	7745.53	7145.01	92.25
<b>Mean</b>			91.06
<b>SD</b>			4.13

*Source: Appendix XII*

**Figure: 4.7**

**Trend of Investment in Govt. Securities to Total Investment Ratio**



The above table 4.11 and figure 4.7 shows the percentage of investment made to government securities out of total investment the average IGS to TI ratio is 91.06 it means the high amount investment made in government securities out of total investment. The highest ratio is 95.27 in FY 2064/065 and the lowest ratio is 86.49 in the FY 2065/066. The overall trend of IGS to TI ratio is fluctuating over the study period.

**4.5.3 Investment on Share and Debenture to Total outside Investment Ratio**

This ratio reflects the extent to which banks are successful to mobilize their total outside investment on purchase of share and debentures. It is computed by dividing investment on share and debentures by total outside investment. A higher ratio indicates more portions of share and debenture out of total outside investment and vice –versa.

**Table: 4.12**

**Computation of Investment on Share & Debenture to Total Investment Ratio**

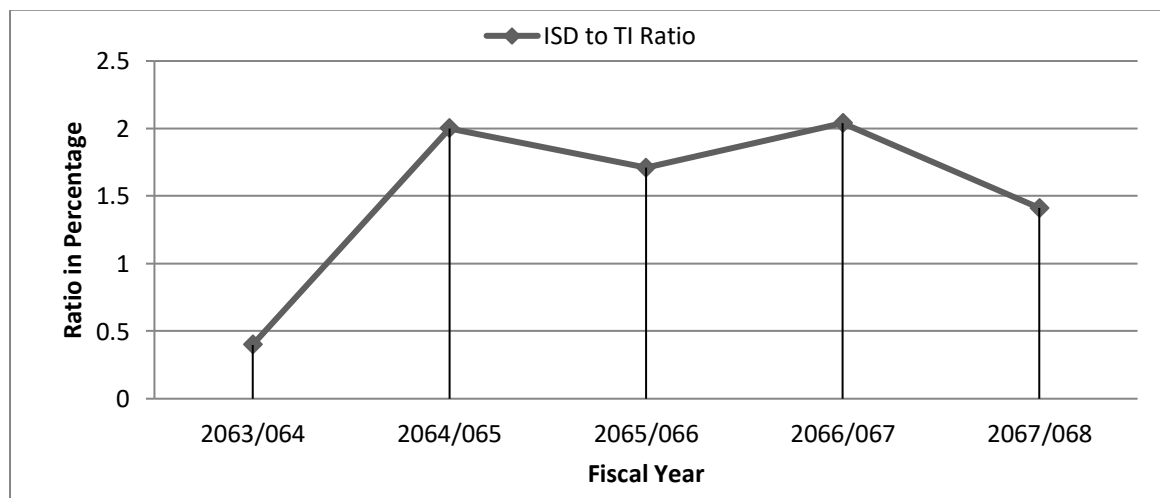
Year	Total Investment (TI) (Rs. In Million)	Investment in Share & Deb. (ISD) (Rs. In Million)	ISD to TI Ratio (In %)
2063/064	4985.12	19.89	0.40
2064/065	5061.16	101.16	2.00
2065/066	5950.08	102.03	1.71
2066/067	5009.91	102.04	2.04
2067/068	7745.53	109.58	1.41
<b>Mean</b>			1.51
<b>SD</b>			0.67

*Source: Appendix XIII*

The above table 4.12 shows the percentage of investment made to securities out of total investment the average ISD to TI ratio is 1.51 it means the very low amount of investment made in securities out of total investment. The highest ratio is 2.04 in FY 2066/067 and the lowest ratio is 0.40 in the FY 2063/064. The overall trend of ISD to TI ratio is fluctuating over the study period. It is shows in the following figure.

**Figure: 4.8**

**Trend of Investment on Share & Debenture to Total Investment Ratio**



#### 4.5.4 Return to Total Assets Ratio

This ratio measures the profitability of banks in terms of total assets. The ratio is vital for measuring financial performance of the firms or the effective utilization of resources in different sectors and yields a higher return for banks. This ratio is calculated by dividing net profit after tax (NPAT) by total assets.

**Table: 4.13**

**Computation of Return to Total Assets Ratio**

Year	Net Profit After Tax (NPAT In Million)	Total Assets (TA In Million)	ROTA (NPAT/TA In %)
2063/064	296.40	18186.25	1.63
2064/065	451.22	23976.29	1.88
2065/066	638.73	33322.95	1.92
2066/067	831.76	36932.31	2.25
2067/068	931.30	41127.91	2.26
<b>Mean</b>			1.99
<b>SD</b>			0.27

Source: Appendix XIV

**Figure: 4.9**

**Trend of Return to Total Assets Ratio**

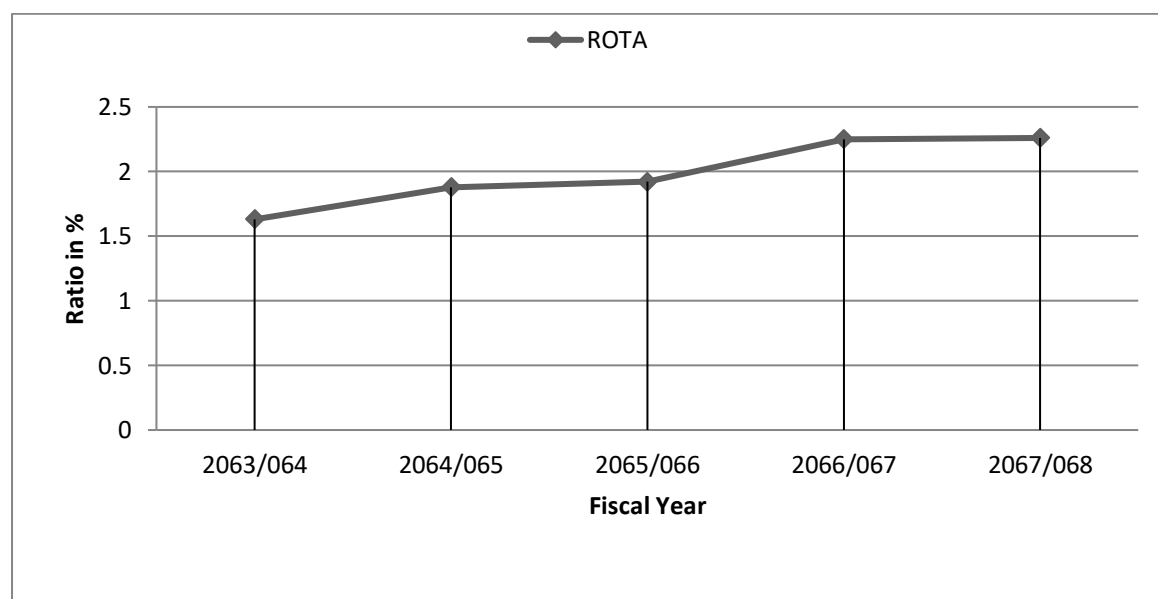


Table 4.13 and figure 4.9 shows the percentage of profit made in term of total assets. This ratio measure the how effectively utilized the total assets by the bank. The average ROTA ratio is 1.99 the highest ratio is 2.26 in FY 2067/068 and the lowest ratio is 1.63 in the FY 2063/064. The overall trend of ROTA ratio is increasing over the study period. It shows the normal position of bank in term of resource utilization.

## 5.6 Major Findings

- In an average EBL generate 5.20% return on the investment made in government securities. However, it demonstrates inconsistent trend of EBL in the return on government securities. During the study period the greatest return is 8.82% in FY 2066/067 and the lowest is 2.73% in FY 2063/064.
- In an average EBL generate 8.94% return on the investment made in loan & advances. However, it demonstrates increasing trend of EBL in the return on loan & advances. During the study period the greatest return is 12.46% in FY 2067/068 and the lowest is 7.08% in FY 2063/064.
- In an average EBL generate 4.76% return on the investment made in share & debenture. However, it demonstrates decreasing trend of EBL in the return on share & debenture. During the study period the greatest return is 76.94% in FY 2063/064 and the lowest is -32.38% in FY 2066/067.
- The standard deviation which represents risk is 2.318. It reveals that the risk on investment on government securities of EBL is 2.318 which indicates the riskiness on government securities.
- The standard deviation which represents risk is 2.236. It reveals that the risk in investment on loan and advances of SCBL is 2.236 which indicates the riskiness on loan and advances.
- The Standard deviation of return on Share and Debenture of EBL is 47.407. The Standard deviation portrays more risk in share and debenture than investment on loan and advances and government securities.
- The expected return on portfolio of SCBL is 8.227 which is more than that of mean rate of return on investment on government securities i.e 5.20 <

8.227, return on share and debenture i.e  $4.76 < 8.227$  and less than the return on loan & advance i.e.  $8.94 > 8.227$ .

- The expected risk of portfolio (standard deviation) of EBL is-1.576% which is considerably less than the expected portfolio return of EBL. It means investment in combined three assets is less risky.
- The covariance and correlation between government securities and loan and advance is 2.645 & 0.51 respectively it means there is moderate degree of positive relationship between government securities and loan and advance.
- The covariance and correlation between government securities and share and debenture is -88.708 & -0.807 it means there is high degree of negative correlation between government securities and share and debenture.
- The covariance between loan and advance and share and debenture is -73.394 & -0.74 respectively it means there is high degree of negative correlation.
- The average investment to deposit ratio is 19.75 and the highest ratio is 27.41% in the FY 2063/064 and the lowest ratio is 13.57 in 2066/067.the overall trend of TI to TD ratio is fluctuating over the study period.
- The average IGS to TI ratio is 91.06 it means the high amount investment made in government securities out of total investment. The highest ratio is 95.27 in FY 2064/065 and the lowest ratio is 86.49 in the FY 2065/066. The overall trend of IGS to TI ratio is fluctuating over the study period.
- The percentage of investment made to securities out of total investment the average ISD to TI ratio is 1.51 it means the very low amount of investment made in securities out of total investment. The highest ratio is 2.04 in FY 2066/067 and the lowest ratio is 0.40 in the FY 2063/064. The overall trend of ISD to TI ratio is fluctuating over the study period.
- The average ROTA ratio is 1.99 the highest ratio is 2.26 in FY 2067/068 and the lowest ratio is 1.63 in the FY 2063/064. The overall trend of ROTA ratio is increasing over the study period.

## **CHAPTER - FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATION**

This chapter summarizes the entire study, draws the conclusions from the study and presents the recommendation for further improvement. Summary incorporates a brief description of the whole study. Conclusions are drawn on the analysis of relevant data using various financial and statistical tools that presents strength, weakness, opportunities and threats of the commercial banks. Recommendations are presented in terms of suggestions prepared based on findings and conclusion.

#### **5.1 Summary**

Commercial banks are the major financial institutions which occupy very important place in the framework of every economy. They play a vital role in the capital formation, proper utilization of the collected resources and provide a host of banking services. Commercial banks collect money from the public providing sound interest and subsequently gain profit through lending it in business organization, industry, agriculture sectors etc. Hence it can be stated the main task of commercial banks is to mobilize idle resources in productive areas by collecting it from scattered sources for generation of the profit. Bank plays the intermediary role between saving and investment caters the credit needs of the customers and the investment requirements of the savers. Thus it is evident that the efficient and stable banking systems are essential for an orderly economic growth. Successful formulation and effective implementation of the investment policy is the prime requisite for refined performance of the commercial banks. In the similar manner, a good investment policy has a positive impact on the economic development of the country and vice-versa. Bank should attract its customers through implementing the best or competitive investment policy. It helps increase the quality of the banking service as well as quality deposit and investment in various sectors. Investment management of a bank is guided by the investment policy adopted by the bank. The bank investment policy fosters the investment operation of the bank to be efficient and profitable by minimizing the interest risk. Thus the

commercial bank should mobilize its deposits and the other funds to profitable, secured, stable and marketable sectors to earn a good profit.

Investment portfolio is the collection of securities. It simply represents the practice among investors having their funds on more than one asset. Portfolio theory deals with the selection of optimal portfolio. In other words, portfolio provides the highest possible return for any specified return. The income or profit of the bank entirely depends upon the investment decision. Considering the fact, the bank should never invest its funds in individual security alone, which is subject to massive depreciation and fluctuations. Banks should accept those types of securities which are commercial, marketable, stable, liquid and profitable. A bank should not lay all its eggs in one basket, which means, to minimize risk a bank must diversify its investment on different sectors and different securities, for this purpose the main objective of the study is to identify the current situation of investment portfolio of EBL. Other specific objectives are;

- To analyze the risk and return of Everest Bank Limited on investment using portfolio concept.
- To analyze the investment portfolio of Sample bank.
- To examine the trend of investment and to provide complimentary measures based on analysis.

To achieve the objectives of the study, various analysis, such as risk and return analysis of individual assets as well as investment portfolio, ratio analysis and trend analysis have been launched. During the research work, a brief review of literature has been conducted. In this connection various textbooks and published journals have been reviewed. The required data for the study are collected from the concerned banks, NRB, NEPSE and SEBO. To meet the need and the objectives, the secondary data were complied, processed, and tabulated for the better presentation. With respect to risk and return analysis, return on the government securities is low but it has lower risk. In the similar manner, the loan and advances give more return than the government securities, but it has also higher risk than government securities. Likewise, share and debentures are also high risky

securities which provide higher return. Regarding ratio analysis, different ratios related with investment portfolio have been used.

## **5.2 Conclusion**

The investment plan is the challenging subject on the commercial banks. The success of the commercial banks heavily depends on planning of investment. The successful formulation and effective implementation of investment policy should be developed by adopting portfolio concept. Commercial banks should mobilize their resources on secured, stable, profitable, liquid, and marketable securities for achieving their goal. However, it is not feasible to achieve such goal in absence of the portfolio concept. Investment portfolio is the risk mitigating mechanism, which helps minimize risk and maximize return through diversification.

The general assumption is that there is little risk on government securities. It is proved from the above conducted analysis. The standard deviation of the government securities is the lower than standard deviation of other securities. The risk and return and the standard deviation both are higher than other assets. Hence it is clear from the analysis that the investment on share and debenture is highly risky than the other assets. Portfolio return is slightly lower than the average return from loan and advances, and share and debenture, but higher than that of government securities. Likewise, the risk on investment portfolio is less than that of risk on share and debenture and loan and advances, but is higher than that of risk on government securities. EBL accorded first priority for investing the resources on loan and advances. Likewise, the bank offered second priority to government securities and the least priority to share and debenture. The bank is hesitant to mobilize the resources on share and debenture of the other companies. The bank invest quite a nominal percentage of totals outside investment on share and debenture.

Based on the analysis and findings of the Study, commercial banks are weak to invest their resources in more liquid assets and less risky sectors. Furthermore, the commercial banks are unable to capitalize the opportunities by making suitable

combination of investment portfolio. From risk and return analysis and individual investment assets, it can be inferred that investment on loan and advances is better than investment on share and debenture or investment on government securities, because loan and advances provides fixed interest income. Hence commercial banks are interested to invest their greater chunk of resources on loan and advances in various economic sectors, since return from loan and advances are less volatile than other assets. On the other hand, the return from share and debenture displays wide fluctuation. Owing to the high fluctuation of return from share and debenture, commercial banks invested a very nominal percentage of the total investments into share and debenture. This shows that commercial banks are more interested to invest their funds in the less risky sectors. From the resource utilization point of view, commercial banks mostly mobilize their resources on loan and advances. They provide low priority to mobilize their funds on government securities.

### **5.3 Recommendation**

Based on the analysis, findings and conclusions of the study following recommendations are put forth to counteract the feeble situation.

- During the study period, EBL investe a very low proportion of the total outside investment on share and debenture of the other companies. Therefore, EBL is suggested to accord more priority to investment on share and debenture.
- EBL has ineffectively utilized portfolio management concept. The investment of the bank is strongly dominated by loan and advances. They generate inadequate return for the bank. Hence they should have a compendium of optimum portfolios of different securities.
- EBL is inefficiently utilizing resources particularly in the productive sectors. Hence, it should identify new investment sectors through efficient investment programs in retail banking such as education loan, housing loan, automobile loan, small-medium enterprise loan, youth self-employment loan, green energy sector oriented consortium loan etc.

- The total investment fund with respect to total deposit of EBL is pretty low. Hence, it calls for identifying the new investment sectors, and efficient as well as effective investment in those sectors.
- The profitability position of EBL is near to satisfaction. However, its investment on various assets is less stable. Hence the bank should upgrade its stability status and decrease the variability of investment.
- The profitability position of EBL is the weakest in relation to return on total assets. Hence, the bank should effectively utilize its overall resources to achieve the highest profit margins.

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## Appendix-I

### Return on Government Securities

Year	Interest on Govt. Securities (Rs. In millions)	Investment on Govt. Securities (Rs. In Millions)	Return on Govt. Securities ( $R_g$ In %)
<b>2063/064</b>	128.56	4704.63	2.73
<b>2064/065</b>	180.22	4821.61	3.74
<b>2065/066</b>	289.76	5146.05	5.6
<b>2066/067</b>	383.99	4354.35	8.82
<b>2067/068</b>	362.26	7145.01	5.07
<b>Total</b>	1344.79	26171.65	25.96

$$\text{Return on Government Securities} = \frac{\text{Interest on Govt. Securities}}{\text{Investment on Govt. Securities}} \times 100$$

$$\text{Average} = \frac{25.96}{5} = 5.20$$

## Appendix-II

### Return on Loan & Advances

Year	Interest on Loan & Advances (Rs. In millions)	Investment on Loan & Advances (Rs. In millions)	Return on Loan & Advances ( $R_l$ In %)
<b>2063/064</b>	967.18	13664.08	7.08
<b>2064/065</b>	1329.69	18339.08	7.25
<b>2065/066</b>	1852.13	23884.67	7.75
<b>2066/067</b>	2801.33	27556.36	10.17
<b>2067/068</b>	3869.81	31057.69	12.46
<b>Total</b>	10820.14	114501.88	44.71

$$\text{Return on Loan \& Advances} = \frac{\text{Interest on Loan \& Advances}}{\text{Investment on Loan \& Advances}} \times 100$$

$$\text{Average} = \frac{44.71}{5} = 8.94$$

### Appendix-III

#### Return on Share & debenture of EBL

Year	Market Value Per Share (Rs. In Millions)	Dividend Per Share (Rs. In Millions)	Return on Share (R <sub>s</sub> In %)
2062/063	1379	25	-
2063/064	2430	10	76.94
2064/065	3132	20	29.71
2065/066	2455	30	-20.66
2066/067	1630	30	-32.38
2067/068	1094	50	-29.82
<b>Total</b>	<b>12120</b>	<b>165</b>	<b>23.79</b>

$$\text{Return on Share and Debenture (R}_s) = \frac{P_1 - P_0 + D_1}{P_0} \times 100$$

$$\text{Average} = \frac{23.79}{5} = 4.76$$

### Appendix-IV

#### Calculation of Risk on Government Securities

Year	Return on Govt. Securities (R <sub>g</sub> )	(R <sub>g</sub> - $\bar{R}_g$ )	(R <sub>g</sub> - $\bar{R}_g$ ) <sup>2</sup>
2063/064	2.73	-2.46	6.06
2064/065	3.74	-1.45	2.11
2065/066	5.6	0.41	0.17
2066/067	8.82	3.63	13.16
2067/068	5.07	-0.12	0.01
<b>Total</b>	<b>25.96</b>	<b>-</b>	<b>21.51</b>

$$\text{Average} = \frac{25.96}{5} = 5.20$$

$$\text{Standard deviation } (\delta_g) = \sqrt{\frac{21.51}{5-1}} = 2.318$$

## Appendix-V

### Calculation of Risk on Loan & Advances

(Figure In %)

Year	Return on Loan & advance( $R_l$ )	$(R_l - \bar{R}_l)$	$(R_l - \bar{R}_l)^2$
<b>2063/064</b>	7.08	-1.86	3.4596
<b>2064/065</b>	7.25	-1.69	2.8561
<b>2065/066</b>	7.75	-1.19	1.4161
<b>2066/067</b>	10.17	1.23	1.5129
<b>2067/068</b>	12.46	3.52	12.3904
<b>Total</b>	<b>44.71</b>	-	<b>21.6351</b>

$$\text{Average} = \frac{44.71}{5} = 8.94$$

$$\text{Standard deviation } (\delta_l) = \sqrt{\frac{21.6351}{5-1}} = 2.236$$

## Appendix-VI

### Calculation of Risk on Share & Debenture

(Figure In %)

Year	Return on Share & Debenture( $R_s$ )	$(R_s - \bar{R}_s)$	$(R_s - \bar{R}_s)^2$
<b>2063/064</b>	76.94	72.18	5209.952
<b>2064/065</b>	29.71	24.95	622.5025
<b>2065/066</b>	-20.66	-25.42	646.1764
<b>2066/067</b>	-32.38	-37.14	1379.38
<b>2067/068</b>	-29.82	-34.58	1195.776
<b>Total</b>	<b>23.79</b>	-	<b>9053.7869</b>
<b>Average</b>	<b>4.76</b>	<b>Standard Deviation</b>	<b>47.407</b>

$$\text{Average} = \frac{23.79}{5} = 4.76$$

$$\text{Standard deviation } (\delta_s) = \sqrt{\frac{9053.7869}{5-1}} = 47.407$$

### Appendix-VII

#### Calculation of Covariance between Government Securities & Loan and Advance ( $COV_{gl}$ )

Year	$R_g$	$(R_g - \bar{R}_g)$	$R_l$	$(R_l - \bar{R}_l)$	$(R_g - \bar{R}_g)(R_l - \bar{R}_l)$
2063/064	2.73	-2.46	7.08	-1.86	4.5756
2064/065	3.74	-1.45	7.25	-1.69	2.4505
2065/066	5.6	0.41	7.75	-1.19	-0.4879
2066/067	8.82	3.63	10.17	1.23	4.4649
2067/068	5.07	-0.12	12.46	3.52	-0.4224
<b>Average</b>	<b>5.192</b>	<b>Average</b>	<b>8.942</b>	<b>Total</b>	<b>10.5807</b>

$$(COV_{gl}) = \frac{10.5807}{5-1} = 2.645$$

### Appendix-VIII

#### Calculation of Covariance between Government Securities & Share and Debenture ( $COV_{gs}$ )

Year	$R_g$	$(R_g - \bar{R}_g)$	$R_s$	$(R_s - \bar{R}_s)$	$(R_g - \bar{R}_g)(R_s - \bar{R}_s)$
2063/064	2.73	-2.46	76.94	72.18	-177.563
2064/065	3.74	-1.45	29.71	24.95	-36.1775
2065/066	5.6	0.41	-20.66	-25.42	-10.4222
2066/067	8.82	3.63	-32.38	-37.14	-134.818
2067/068	5.07	-0.12	-29.82	-34.58	4.1496
<b>Average</b>	<b>5.192</b>	<b>Average</b>	<b>4.758</b>	<b>Total</b>	<b>-354.831</b>

$$(COV_{gs}) = \frac{-354.813}{5-1} = -88.706$$

## Appendix-IX

### Calculation of Covariance between Loan & Advance & Share & Debenture ( $COV_{ls}$ )

Year	$R_l$	$(R_l - \bar{R}_l)$	$R_s$	$(R_s - \bar{R}_s)$	$(R_l - \bar{R}_l)(R_s - \bar{R}_s)$
2063/064	7.08	-1.86	76.94	72.18	-134.255
2064/065	7.25	-1.69	29.71	24.95	-42.1655
2065/066	7.75	-1.19	-20.66	-25.42	30.2498
2066/067	10.17	1.23	-32.38	-37.14	-45.6822
2067/068	12.46	3.52	-29.82	-34.58	-121.722
<b>Average</b>	8.942	<b>Average</b>	<b>4.758</b>	<b>Total</b>	-313.574

$$(COV_{ls}) = \frac{-313.574}{5-1} = -78.394$$

## Appendix-X

### Calculation of Portfolio Standard Deviation

$$\begin{aligned} \delta_P &= \sqrt{W_g^2 \delta_g^2 + W_l^2 \delta_l^2 + W_s^2 \delta_s^2 + 2COV_{gl}W_gW_l + 2COV_{gs}W_gW_s + 2COV_{ls}W_lW_s} \\ &= \sqrt{0.185^2 \times 2.318^2 + 0.811^2 \times 2.236^2 + 0.003^2 \times 47.407^2 + 2 \times 2.645 \times 0.185 \times 0.811 + 2(-88.708) \times 0.185 \times 0.003 + 2(-78.394) \times 0.811 \times 0.033} \\ &= \sqrt{5.862 + 0.974 - 0.098 - 4.225} \\ &= \sqrt{2.477} = 1.574 \end{aligned}$$

## Appendix-XI

### Computation of Total Investment to Total Deposit Ratio

Year	Total Investment (TI) (Rs. In Millions)	Total Deposit (TD) (Rs. In Millions)	TI to TD Ratio (In %)
2063/064	4985.12	18186.25	27.41
2064/065	5061.16	23976.29	21.11
2065/066	5950.08	33322.95	17.86
2066/067	5009.91	36932.31	13.57
2067/068	7745.53	41127.91	18.83

$$\text{TI to TD Ratio} = \frac{\text{Total Investment}}{\text{Total Deposit}} \times 100$$

## Appendix-XII

### Computation of Investment in Govt. Securities to Total Investment Ratio

Year	Total Investment (TI) (Rs. In Millions)	Investment in Govt. Securities (IGS) (Rs. In Millions)	IGS to TI Ratio (In %)
2063/064	4985.12	4704.63	94.37
2064/065	5061.16	4821.61	95.27
2065/066	5950.08	5146.05	86.49
2066/067	5009.91	4354.35	86.91
2067/068	7745.53	7145.01	92.25

$$\text{IGS to TI Ratio} = \frac{\text{Investment in Govt. Securities (IGS)}}{\text{Total Investment (TI)}} \times 100$$

### Appendix-XIII

#### Computation of Investment on Share & Debenture to Total Investment Ratio

Year	Total Investment (TI) (Rs. In Millions)	Investment in Share & Deb. (ISD) (Rs. In Millions)	ISD to TI Ratio (In %)
2063/064	4985.12	19.89	0.40
2064/065	5061.16	101.16	2.00
2065/066	5950.08	102.03	1.71
2066/067	5009.91	102.04	2.04
2067/068	7745.53	109.58	1.41

$$\text{IGS to TI Ratio} = \frac{\text{Investment in Share \& Deb. (ISD)}}{\text{Total Investment (TI)}} \times 100$$

### Appendix-XIV

#### Computation of Return to Total Assets Ratio

Year	Net Profit After Tax (NPAT In Millions)	Total Assets (TA In Millions)	ROTA (NPAT/TA In %)
2063/064	296.40	18186.25	1.63
2064/065	451.22	23976.29	1.88
2065/066	638.73	33322.95	1.92
2066/067	831.76	36932.31	2.25
2067/068	931.30	41127.91	2.26

$$\text{ROTA} = \frac{\text{Net Profit After Tax}}{\text{Total Assets}} \times 100$$