CHAPTER- I

INTRODUCTION

1.1 Background

The evolution of the organized financial sector in Nepal has a more recent history compared to that in other developing South Asian countries. Financial institution plays an important role in the economic growth and development of the country. They help to mobilize the frizzed and scattered savings of the people and play an intermediary role to make investment of the collected fund in different productive sectors. They help to fulfill the requirements of trade and industry inn the country and plays greater role in reducing poverty, raising employment opportunities and raising people's life standard.

Banking plays a significant role to the development of country. "It provides a effective payments and credit system, which facilitates the channeling of funds from the surplus spending units (savers) to the deficit spending units (investors) in the economy."[1]

The origin of the word "Bank" linked to:

Latin word "bancus" meaning a bench, Italian word "banca' meaning a bench, and French word "banque" meaning a bench.

Money lenders in the streets of major cities of Europe used benches for acceptance and payment of valuables and coins. When they were unable to meet their liabilities, the depositors used to break their benches. The term "bankruptcy" is derived thereof.

Since there is no unanimity, it is diffucult to say exactly whether the term "bank" has been derived from "bancus", "banca", "banque" or German word "bank" meaning Joint Stock Company.

"Bank of Venice" which was established in Venice, Italy in 1157 was the first modern bank. Commercial banks are restricted to invest their funds in

[1] S.Garwhal, *Commercial Banking and Economic Development*, Pointer Publishers, Jaipur, 1993, p-12.

corporate securities. Their business in confined to financing the short-term needs of trade and industry.

According to the American institute of banking: commercial bank is a corporation which accepts demand deposits subjects to check and make short-term loans to business enterprise regardless of the scope of its other service.

"A bank is an institution whose debts (bank deposits) are widely accepted in settlement of their people's debts to each other."[2]

In the Nepalese context, the Nepal commercial banks act 2031 defines a commercial bank as one, which exchange Money, deposits money, accepts deposits, grants loans and performs commercial banking function.

With the innovation of financial liberalization, deregulation of the interest rates and other reforms there has been a virtual transition from “price-taker” to “price-makers in the loan market. Hence, the evolution of risk and return is of great importance in financial sectors. The riskiness of and investment depends on the volatility of its return. An investment is considered risky if it is accomplished by high volatile returns. Hence a rational investor prefer higher rate of return at the minimum level of risk. Theoretically, an investor who loves risk is a risk seeker and thereby prefers higher return with the higher risk and an investor who does not prefer risk is known as risk averter, and thereby they prefer less risk investment with lower return. The study on risk and return on common stock investment, therefore, occupies an important role in the development to stock market. “To maximize share price, the financial manager must learn to assess two key determinants: risk and return. Each financial decision presents certain risk and return characteristics, and the unique combination of the characteristics has an impact on share price. Risk can be viewed as it relates either to single assets or to portfolio- a collection or group of assets.”[3]

“The study of finance is not complete without analyzing risk and returns. Hence, the study is concerned with risk and return associated with common stock investment. However, there are various types of financial assets to be invested.”[4]

In Nepal, the buying and selling activities of financial securities (mainly stock) is conducted in Nepal stock Exchange (NEPSE). The development of

[2] R.S Sayers, *Modern Banking*, Oxford Clearendon Press, India, 1967, p- 3.
[3] L.J.Gitman, *Principles Of Management Finance*, Harper and Row Publishers, New York, 2001, pp-236-237.
[4] G.V. Henderson, G.L. Trennephol, J.E. Wert, *An Introduction To Financial Management*, Addison-Wesely Publishing Company, New York, 1984, p-2.

stock market in Nepal started with the establishment of commercial banks in the country besides the informal sectors, the listing of shares in the stock exchange center (SEC) and their trading in the stock market is a recent phenomena."[5] Formally stock market development started only after the establishment of securities exchange center in 1984, which was later renamed as Nepal Stock Exchange (NEPSE) in 1990.

Many people visit NEPSE with an objective to test their fate. While doing so, many investors are deceived by the broker and loose their hard earned money. In general most of the investors are risk averter. They always expect higher return for taking more risk as a premium. Thus, investors want to know why stock should be purchased. What is the reasonable price to purchase it? What will be the expected return at the same time? This study is devoted to conduct portfolio analysis of selected listed commercial banks which help to answer such and other type of questions. This study is an attempt to analyze the risk and return of stock, how they are calculated, why they are important and the methods to minimize risk.

1.2 Origin Of the Bank in Nepal

"Like other countries goldsmiths, merchants and moneylenders were the ancient bankers of Nepal. Tejarath Adda established during the tenure of the then Prime Minister Ranoddip Singh (B.S. 1993) was the first step towards the institutional development of banking in Nepal. Tejarath Adda did not collect deposits from the public but gave loans to employees and public against the bullion.

Banking in modern sense started with the inception of Nepal Bank Limited (NBL) on B.S. 1994.07.30. The authorized capital was contributed by the government (51%) and remaining by public (49%). Nepal Bank Limited had a Herculean responsibility of attracting people toward banking sector from pre-dominant moneylender's net and of expanding baking services. Being a commercial bank, it was natural that NBL paid more attention to profit generating business and preferred opening branches at urban centers.

Government however had onus of stretching banking services to the nook and corner of the country and also managing financial system in a proper way. Thus, Nepal Rastra Bank (NRB) was set up on B.S. 2013.01.14 as a central bank

[5] R.S. Pradhan, *Stock Market Behaviour In A Small Capital Market: A Case Study Of Nepal, The Nepalese Management Review*, 1993, Vol.9.No.1.

under Nepal Rastra Bank Act 2012 B.S. Since then, it has been functioning as the government's bank and has contributed to the growth of financial sector. The major challenge before Nepal Rastra Bank today is to ensure the robust health of financial institution. Accordingly, NRB has been trying to change themselves and has introduced a host of prudential measures to safeguard the interest of the public. NRB is yet to do a lot to prove themselves as efficient supervisors. NRB really requires strengthening their policymaking, supervision and inspecting mechanism.

Integrated and speedy development of the country is possible only when competitive banking service reaches nooks and corners of the country. Keeping this in mind, government set up Rastriya Banijya Bank (RBB) in B.S. 2022.10.10 as a fully government owned commercial bank.

As the name suggests, commercial bans are to carry out commercial transaction only. But commercial banks had to carry out the functions of all types of financial institutions. Hence, Industrial Development Centre (IDC) was set up in 2013 for industrial development. In 2016, IDC was converted to Nepal Agriculture Development Bank (ADB) was established in B.S. 2024.10.07 to provide finance for agriculture produces so that agriculture productivity could be enhance by introducing modern agricultural techniques. Moreover, Security Exchange Centre was established in 1976 to enhance capital market activities. Securities Exchange Centre was renamed Nepal Stock Exchange (NEPSE) in 1993. NEPSE opened its trading floor on 13 January 1994. With the establishment of RBB and ADB, banking spread to both the urban and rural areas. NRB also gave incentives to NBL to expand their branches to rural areas. This helped the common people reduce their burden of paying higher rate of interest to moneylenders and absolved them from kowtowing before moneylenders. It is natural expectations of customers keep on increasing. Once they got banking services, they were expecting improvement and efficiency. However, excess political and bureaucratic interference and absence of modern managerial concept in these institutions were hurdle in this regard. Banking service to the satisfaction of customers was a far cry. The inception of Nepal Arab Bank Limited (renamed as NABIL Bank Limited since 1st January 2002) in B.S. 2041.03.29 (12 July 1984) as a first joint venture bank proved to be a milestone in the history of banking NABIL Bank gave a new ray of hope to the sluggish financial sector.

NABIL launched its operation with a market concept, i.e. customer is the King in the market. NABIL started knocking the doors of customers breaking the

trend of knocking the door of a bank by a customer. NABIL seems to have truly followed the definition of customer given by Mahatma Gandhi, " A customer is the most important visitor on our premises. He does not depend on us. We are dependent on him. He is not an interruption on our business. He is purpose of it. He is not an outsider on our business. He is part of it. We are not doing him a favour by serving him. He is doing us a favour by giving us an opportunity to do so."

The very marketing concept of NABIL forced the bank in operation to be more customers oriented and led the influx of commercial banks. Having observed the success of NABIL based on marketing concept and also because of liberal economic policy adopted by the successive governments following commercial banks came into being: Nepal Indosuez Bank Limited (renamed as NIBL on 30 May 2002), Nepal Grindlays Bank Limited (renamed as SCBNL on 13 July 2001), Himalayan Bank Limited, Nepal SBI Bank Limited, Nepal Bangladesh Bank Limited, Bank of Kathmandu, Everest Bank Limited, Nepal Bank of Ceylon Limited (renamed as NCC bank limited on 10 September 2002), Lumbini Bank Limited, NIC Bank Limited, Machhapuchhre Bank Limited, Kumari Bank Limited, Laxmi Bank Limited, Siddhartha Bank Limited.

Because of the higher return on investment and lower capital requirement, entrepreneurs were interested in setting up new banks including branches of foreign banks. However, current political and economic scenario of the country coupled with new prudential norms of Nepal Rastra Bank and stiff competition may make the entrepreneurs give a second thought to the idea of establishing banks."[6]

"Commercial bank is the corporation which accepts demand deposits subject to cheques and makes short term loans to business enterprises regardless of the scope of its other sources."[7]

❑ Brief Profile Of Commercial Banks Taken Under Study

Seven commercial banks as samples are taken under study and it's brief description is given below:

[6] Bhuvan Dahal and Sarita Dahal, *A Hand Book To Banking*, (2nd ed), Ashmita Books and Stationery, Kathmandu, Nepal, 2002, pp-10-13.
[7] American Institution of Banking, *Principle of Banking Operation*, USA, 1972, p. 1.

o Nepal Arab Bank Limited (NABIL)

NABIL Bank Limited, the first foreign joint venture bank of Nepal, started operations in July 1984. NABIL was incorporated with the objective of extending international standard modern banking services to various sectors of the society. Pursuing its objective, NABIL provides a full range of commercial banking services through its 19 points of representation across the kingdom and over 170 reputed correspondent banks across the globe. The bank was incorporated in year 1984 A.D. and it was listed in NEPSE in year 1986.

The following is the capital structure of NABIL.

Authorized capital	Rs.500000000
Issued capital	Rs.491654400
Paid-up capital	Rs.491654400
Par value/ share	Rs.100 & Rs.0
Paid-up value/ share	Rs.100 & Rs.0
Number of share holder/s	5076

NABIL, as a pioneer in introducing many innovative products and marketing concepts in the domestic banking sector, represents a milestone in the banking history of Nepal as it started an era of modern banking with customer satisfaction measured as a focal objective while doing business.

Highly qualified and experienced management team manages operations of the bank including day-to-day operations and risk management. Bank is fully equipped with modern technology, which includes ATMs, credit cards, state-of-art, world-renowned software from Infosys Technologies System, Banglore, India, Internet banking system and Telebanking system.

To achieve this mission NABIL have a core set of Values by which they live. NABIL bank Values are C.R.I.S.P. Customer Focused, Result Oriented, Innovative, Synergistic and Professional. NABIL bank are committed to live their Values everyday in everything they do, for it is these values that make's them uniquely NABIL Bank.

"Today NABIL Bank is a leader in the financial sector in Nepal. With a network that has 19 points of representation spread across the kingdom; complimented by a network of ATMs and now NABIL Net and NABIL Tele the ease of access of accounts and information for our customers has never been more convenient. We are a full service bank providing an entire range of products and services, starting with deposit accounts in local and foreign currency, Visa and MasterCard denominated in rupees and dollars, Visa Electron debit cards, Personal Lending products for Auto, Home and Personal loans, Trade Finance products, Treasury services and Corporate Financing.

"NABIL bank has awarded as the bank of the year 2004. NABIL bank express that their aim is to be able to meet your entire gamut of financial requirements that is why we pride ourselves in being "Your Bank at Your Service."[8]

- **Standard Chartered Bank Nepal Limited (SCBNL)**

Standard Chartered Bank Nepal Limited has been in operation in Nepal since 1987 when it was initially registered as a joint-venture operation. Today the Bank is an integral part of Standard Chartered Group who has 75% ownership in the company with 25% shares owned by the Nepalese public. The Bank enjoys the status the largest international bank currently operating in Nepal. The bank was incorporated in year 1985 A.D. and it was listed in year 1988 A.D.

The following is the capital structure of SCBL.

Authorized capital	Rs.1000000000
Issued capital	Rs.500000000
Paid-up capital	Rs.374640400
Par value/ share	Rs.100 & Rs.0
Paid-up value/ share	Rs.100 & Rs.0
Number of share holder/s	5037

Standard Chartered Group employs 30,000 people in over 500 locations in more than 50 countries in the Asia Pacific Region, South Asia, the Middle East,

[8] Annual Report, *Nepal Arab Bank Limited*.

Africa, the United Kingdom and the Americas. It is one of the world's most international banks, with a management team comprising 79 nationalities. The Bank is trusted across its network for its standard of governance and its commitment to making a difference in the communities in which it operates.

An integral part of the only international banking Group currently operating in Nepal, the Bank enjoys an impeccable reputation of a leading financial institution in the country. With 11 points of representation (7 Branches) and 9 ATMs across the Kingdom and with over 300 local staff, Standard Chartered Bank Nepal Ltd. is in a position to service its customers through a large domestic network. In addition to which the global network of Standard Chartered Group gives the Bank the unique opportunity to provide truly international banking in Nepal.

Standard Chartered Bank Nepal Limited offers a full range of banking products and services in Wholesale and Consumer banking, catering to a wide range of customers from individuals, to mid-market local corporate to multinationals and large public sector companies, as well as embassies, aid agencies, airlines, hotels and government corporations.

The Bank has been the pioneer in introducing 'customer focused' products and services in the country and aspires to continue to be a leader in introducing new products and highest level of service delivery. It is the first Bank in Nepal that has implemented the Anti-Money Laundering policy and applied the 'Know Your Customer' procedure on all the customer accounts.

PRODUCTS & SERVICES offered by the Bank are as follows:

Consumer Bank

- Current, savings, call and term deposit accounts in Local & Foreign currency
- Fund Transfer Services - Local & International - Drafts, SWIFT
- Credit Card Services - Issuance & Acquiring 24 Hour ATM services - SCBNL debit card, VISA and Master Card
- Safe Deposit lockers, Foreign Exchange Services - Issuance/purchase of Travelers Cheques

- Extra Banking - 365 days banking from Kantipath and Lalitpur Branches
- Priority Banking; Home Banking, Auto Loan, Home Loan, Personal Loan, SMS Banking,
- Corporate Employee accounts

Wholesale Bank

- TradeFinance:-Letterof credit: Issuance and acceptance, Guarantees: Issuance and acceptance
- Commercial Lending (Working Capital), Term Lending, Loan Syndication, Forward Exchange Rates, Electronic Banking
- Cash management: quick operating accounts, quick collection and payment services
- Cheque writer

Standard Chartered Bank Nepal is a socially responsible corporate and recognizes its responsibilities to its staff and to the communities in which it operates. The Bank concentrates on projects that assist children, particularly in the areas of health and education and it has taken up various initiatives to benefit the community. 2 major initiatives in the area of health "Living with HIV" and "Seeing is Believing" have been undertaken by the Bank since 2003.

"Awards & Achievements

- July 2004 - Award for the Best Presented Accounts in the Financial Institutions Category in Nepal for the Year 2002-2003 and 2002-2001awarded by "Institute of Chartered Accountants of Nepal (ICAN)".
- December 2003 - The Best Company, Financial Institutions from Top 10 awards for Business Excellence awarded by "The BOSS".
- September 2002 "Bank of the Year 2002 Nepal" by "The Banker' of the Financial Times".
- April 2002 - Commercially Important Person (CIP) awarded by "His Majesty's Government the Ministry of Finance".

- ❖ April 2002- National Excellence Award 2002" for significant achievement in customers satisfaction and relationship" awarded by "Federation of Nepalese Chamber of Commerce & Industry (FNCCI)."[9]

o Everest Bank Limited (EBL)

Everest Bank Limited (EBL) started its operations in 1994 with a view and objective of extending professionalized and efficient banking services to various segments of the society. "EBL joined hands with Punjab National Bank (PNB), India as its joint venture partner in 1997. The bank was incorporated in year 1993 A.D. and it was listed in NEPSE in 1995 A.D."[10]

The following is the capital structure of EBL.

Authorized capital	Rs.750000000
Issued capital	Rs.466800000
Paid-up capital	Rs.455000000
Par value/ share	Rs.100 & Rs.0
Paid-up value/ share	Rs.100 & Rs.0
Number of share holder/s	24222

PNB is the latest nationalized bank in India having 110 years of banking history with more than 4500 offices all over India. Of which 1400 branches are interconnected. PNB has over 1000 ATMs spread across India. As on 31/3/05, PNB had a total business of INK 163000 mores and posted a net profit of INR 1410 crores.

Drawing its strength from its joint venture partner, EBL has been steadily growing in its size and operations. And established itself as a leading Private Sector Bank. EBL is ranked as No. 2 bank by NRB as per CAELS.

Despite fragile law and order situation especially during last 3-4 years, the Bank has recorded spectacular performance. As per audited accounts of FY 2004/2005, the Bank's operating profit was Rs.375.20 million registering a

[9] Annual Report, *Standard Chartered Bank Nepal Limited*.
[10] Annual Report, *Everest Bank Limited*.

growth of 18.90 % over the previous year. The Bank's credit recorded a growth of nearly 30 % over the last year reaching a figure of Rs.7900.09 million. Similarly, the total deposits of the Bank posted a growth of 25.22 % amounting to Rs.10097.69 million over the preceding year. Everest bank has also been awarded as the bank of the year 2006.

This sustained growth of the Bank is attributable to its strong systems and procedures, professional approach, quality lending and highly motivated staff members. The bank is providing its services through a wide network of 18 branches across the nation and over 250 correspondents across the globe. All the major branches of the bank are connected through Anywhere Branch Banking System (ABBS), a facility which enables a customer to do banking transactions from any of the branches irrespective of their having accounts in other branch.

The Bank in association with Smart Choice Technology (SCT) is providing ATM services for its customers. EBL Debit Card can be accessed at more than 50 ATMs and over 250 Point of Sales across the nation. The bank is also managing the SCT ATM at Tribhuvan International Airport for the convenience of the customers and the travelers, the first and the only bank in Nepal to place ATM outlet at the Airport.

EBL is playing a pivotal role in facilitating remittance to and from across globe. Being the first Nepalese bank to open a representative office in Delhi, India, the Nepalese in India can open account in Nepal from the designated branches of Punjab National bank and remit their savings economically through banking channels to Nepal. The bank has a Drafts Drawing Arrangement with 175 branches of PNB all over India. With an aim to help Nepalese citizens working abroad, the bank has entered into arrangements with banks and finance companies in different countries, which enable quick remittance of funds by the Nepalese citizens in countries like UAE, Kuwait, Bahrain, Qatar, Saudi Arabia, Malaysia, Singapore and U K.

The Bank recognizes the value of offering a complete range of services. We have pioneered in extending various customer friendly products such as Home Loan, Education Loan, EBL Flexi Loan, EBL Property Plus (Future Lease Rentals), Home Equity Loan, Car Loan, Loan Against Shares, Loan Against Life Insurance Policies and Loan for Professionals. We at EBL have always endeavored in delivering innovative products suiting the consumer's requirements and needs thus enriching, enabling and beautifying their lives.

o Nepal SBI Bank Limited (NSBI)

Nepal SBI is the fifth joint venture bank of Nepal and it is also one of the top banks of Nepal, which is a joint-venture financial undertaking between Nepalese promoters and State bank of India. It was opened in 7th July 1993 in Katmandu. SBI bank holds 50% of equity in NSBI. The employee's provident fund and the agriculture development bank will be the Nepalese promoter of the bank. The share holding pattern of Nepal SBI ltd. is as follows:

Share holding pattern	Percentage (%)
Promoter	70.84
General public	29.16

Numbers of general share holders around 20500

The bank was incorporated in 1993 A.D. and the bank was listed in NEPSE in 1995 A.D. the bank has currently 15 branches including extension counter in the kingdom of Nepal. The bank has it's head office in Hattisar Kathmandu, main branch in Durbar marga and it's other branches in Newroad, Birgunj, Biratnagar, Bhairawa, Rampur, Birtamod, Sisuwa, and it also has it's extension counter in Indian embassy, Kathmandu, pension camp, Pokhara, pension camp, Dharan etc. The bank has also plan to extend its branches in near future according to its requirement.

"The main objectives of the bank are:

- ❖ To provide the banking services in Nepal and outside the country under the foreign exchange act 2019 and other rules and regulation of Nepal.
- ❖ To provide all the modern days banking facilities according to it's own rules and regulation and government act."[11]

[11] Annual Report, *Nepal SBI Bank Limited*.

The following is the capital structure of NSBI.

Authorized capital	Rs.1000000000
Issued capital	Rs.500000000
Paid-up capital	Rs.426875900
Par value/ share	Rs.100 & Rs.0
Paid-up value/ share	Rs.100 & Rs.0
Number of share holder/s	20589

- **Nepal Investment Bank Limited (NIBL)**

Nepal Investment Bank Ltd. (NIBL), previously Nepal Indosuez Bank Ltd., was established in 1986 as a joint venture between Nepalese and French partners. The French partner (holding 50% of the capital of NIBL) was Credit Agricole Indosuez, a subsidiary of one the largest banking group in the world.

With the decision of Credit Agricole Indosuez to divest, a group of companies comprising of bankers, professionals, industrialists and businessmen, has acquired on April 2002 the 50% shareholding of Credit Agricole Indosuez in Nepal Indosuez bank Ltd. The name of the bank has been changed to Nepal Investment Bank Ltd. upon approval of bank's Annual General Meeting, Nepal Rastra Bank and Company. Registrar's office with the following shareholding structure.

- A group of companies holding 50% of the capital
- Rastriya Banijya Bank holding 15% of the Capital.
- Rastriya Beema Sansthan holding the same percentage.
- The remaining 20% being held by the General Public (which means that NIBL is a Company listed on the Nepal stock exchange).

The bank was incorporated in year 1985 A.D. and it was listed in NEPSE in year 1987 A.D.

The following is the capital structure of NIBL.

Authorized capital	Rs.590000000
Issued capital	Rs.295293000
Paid-up capital	Rs.295293000
Par value/ share	Rs.100 & Rs.0
Paid-up value/ share	Rs.100 & Rs.0
Number of share holder/s	2780

NIBL, which is managed by a team of experienced bankers and professionals having proven track record, can offer you what you're looking for. We are sure that your choice of a bank will be guided among other things by its reliability and professionalism. Nepal Investment Bank has been awarded as the "Bank of the year 2005." Investment bank offers the service of deposits, eBanking, ATM, loans and advances, credit cards, safe deposit locker, 365 days service, debit card, vehicle loans, NTC mobile bill payments, premier banking, Ezee savings etc.

"Nepal Investment Bank Limited (NIBL) has been awarded the prestigious "Bank of the Year 2005" by the London-based Financial Times Group's The Banker - making it the first Nepali Bank to win the award two times in three years. NIBL had also won the "Bank of the Year 2003" award."[12]

Nepal Investment Bank was selected for this honour amongst the Nepali banks by meeting the stringent benchmark criteria set by The Banker. The Award is based on the growth and performance in terms of capital, assets, return on equity and management quality.

The net assets of the Bank have increased from NPR 5 billion to NPR 13 billion since the Nepali-management took over the Bank in July 2002. In the last fiscal year (2003-04), Nepal Investment Bank boosted its net profit about 32% and achieved the return on equity of 21%. The Bank's non-performing asset NPA

[12] Annual Report, *Nepal Investment Bank Limited*.

(1.64%) is one of the lowest (when the national average is over 25%) in the banking industry in Nepal and well within the internationally acceptable standards.

Nepal Investment Bank is the first Bank to introduce Visa Electron Debit Card in Nepal and the first non-government bank to launch "Loan against Gold and Silver." The Bank has issued over 25,000 cards making it the leader in the industry within a span of over one and half years. The Bank has deployed the highest number, 600, of Point of Sales machines in the market. Nepal Investment Bank recently launched the "Premier Banking Cell" that caters to its high net worth clients and renders consultancy services in taxation, legal, insurance and travel and tours. The Bank plans to strengthen its position in products such as remittance and plastic money.

Customer satisfaction is the paramount driver at Nepal Investment Bank. The Bank constantly interacts with existing and potential customers to get feedback and suggestions that in turn help to design products and services to suit the requirements and expectations of customers. The Bank has started a concept of "15 Minute Banking" for the convenience of all its valued customers. Customers entering any of its twelve branches can carry their entire banking transaction within 15 minutes. A survey shows 8 to 10 minutes as the average transaction time per customer to carry their transaction and leave the bank. The Bank is committed to continue striving to improve on all fronts to ensure it can respond to today's challenges in meeting the demands of its customers. NIBL understands that to be successful, we need to know our customers. It is this commitment to understanding our customer's particular needs and applying our expertise accordingly that's led us to being recognized as Nepal's Bank of the Year2005. Top-level managements of NIBL say, "Nepal Investment Bank endeavors to demonstrate that a Nepali bank can constantly provide top quality customer service and be the best in Nepal." So Nepal investment is considered as "Truly a Nepali Bank."

- **Himalayan Bank Limited (HBL)**

Himalayan Bank Limited was incorporated in 1992 by a few distinguished business personalities of Nepal in partnership with Employees Provident Fund and Habib Bank Limited, one of the largest commercial Banks of Pakistan. Banking operation was commenced from January 1993. Himalayan Bank is the first commercial bank of Nepal whose maximum shares are held by the Nepalese private sector. Besides commercial banking services, the Bank also offers

industrial and merchant banking services. The bank was incorporated in 1992 A.D. and the bank was listed in NEPSE in 1993 A.D.

The following is the capital structure of HBL.

Authorized capital	Rs.1000000000
Issued capital	Rs.650000000
Paid-up capital	Rs.536250000
Par value/ share	Rs.100 & Rs.0
Paid-up value/ share	Rs.100 & Rs.0
Number of share holder/s	7210

"Himalayan Bank has a total network of 17 branches across the Country and a counter in the premises of the Royal Palace. There are six branches in Kathmandu Valley at the following locations: Thamel, New Road, Maharajgunj, Pulchowk (Patan), Suryavinayak (moved from Nagarkot) and Card Center in Pulchowk. In addition, the bank also has ten branches outside Kathmandu Valley in Banepa, Tandi, Bharatpur, Birgunj, Hetauda, Bhairahawa, Biratnagar, Pokhara, Dharan and Butwal."[13] The Bank is aggressively opening new branches at different parts of the Kingdom to serve its customers better.

Himalayan Bank is always committed to providing a quality service, with a personal touch, to its valued customers. All customers are regarded as valued clients and treated with utmost courtesy. The Bank, wherever possible, offers tailored facilities to its clients, to meet unique needs and requirements of different clients. To further extend the reliable and efficient services to its valued customers, Himalayan Bank has adopted the latest banking technology and runs the world class banking software Globus on IBM platform. The Bank can now boast of its state-of-the-art IT infrastructure with an identical Disaster Recovery System, offsite. This has not only helped the Bank to constantly improve its service level but has also prepared the Bank for future adaptation to new technology. The Bank already offers unique services such as Himal Remit, SMS Banking, Pre-paid Credit Cards and Internet Banking to customers and will be introducing more services like these in the near future.

[13] Annual Report, *Himalayan Bank Limited*.

Himalayan Bank is committed to be a Bank, which has "The Power to Lead."

o Nepal Bangladesh Bank Limited (NB)

Nepal Bangladesh Bank Ltd. was established in June 1994 with an authorized capital of Rs.240 million and Paid up capital of Rs.60 million as a Joint Venture Bank with IFIC Bank Ltd. of Bangladesh. Its Head Office is situated at New Baneshwor, Bijuli Bazar, Kathmandu. The bank was incorporated in year 1994 A.D. and it was listed in NEPSE in year 1995 A.D.

The following is the capital structure of NBBL.

Authorized capital	Rs.1500000000
Issued capital	Rs.1000000000
Paid-up capital	Rs.359924500
Par value/ share	Rs.100 & Rs.0
Paid-up value/ share	Rs.100 & Rs.0
Number of share holder/s	24598

The prime objective of this Bank is to render banking services to the different sectors like industries, traders, businessmen, priority sector, small entrepreneurs and weaker section of the society and every other people who need Banking Services. During the period of 10 years of its operation, it has accommodated a large number of clients and has been able to provide excellent services to its clients.

With a network of 17 branches and a corporate office, the Bank commands the largest network amongst the joint venture commercial banks in Nepal. The bank has introduced its first ATM facility at Kathmandu Plaza, Putali Sadak Branch to give 24 hours 365 days banking services to their valued costumers.

The Bank has earned the glory of making available the services to almost all the top business houses of the country and it occupies one of the leading positions among the Joint Venture Banks in Nepal. The Bank is still pursuing to accommodate as many clients as far as possible.

Top Exporters and Importers of the country have established banking relationship with the Bank with a substantial volume of foreign business, which has enhanced the Bank's popularity in the International Trade front. Bank has developed Agency and Correspondent relationship with more than 200 prominent Foreign Banks in the world.

With the continuous support of our valued customers the Bank has made all round progress in every sphere of its operation. The Bank has mobilized deposits to the extent of Rs.12118.78 million and advanced loans to the extent of Rs.10785.27 million as on Ashad end 2061 (13 Jan, 2005).

"Nepal Bangladesh Bank Ltd. is providing full-fledged Commercial Banking services to its clients. Besides accepting deposits in various forms, following facilities and services are made available by the Bank: Consortium Finance, demand loan, hire purchase loan, education loan, housing loan, trade finance, letter of credit, bank guarantee, bill purchase, remittance services all over the world, locker facility, Telebanking, ATM (Automated Teller Machine) facility, SMS Banking, Bearer Certificate of Deposit (BCD), Underwriting of shares, working capital, term loan."[14]

1.3 Focus Of the Study

The main focus of this study is about the creation of portfolio by which an investor can safeguard his or her investment. The study is to show how an effected portfolio can reduce the risk. People prefer less risk to more return i.e. they try to ignore risk, which is not possible.

According to this study portfolio refers to investment of funds in two or more than two securities in a way that loss occurred in one security can be covered by another securities. The relationship between risk and return is a topic of major concerned among investor and analyst. The relationship is very critical and difficult to understand. The investor suffers more for not having the sound knowledge about the risk and return. People are more profit motivated but they do not show much concentration in risk automatically more return means more risk. In such a case, creation of portfolio helps in reducing the risk.

The basic principles of portfolio selection boil down to a common sense statement that investor try to increase the expected return on their portfolio and to reduce the standard deviation of that return. A portfolio that gives the highest

[14] Annual Report, *Nepal Bangladesh Bank Limited*.

expected return for a given standard deviation or the lowest standard deviation for a given expected return is known as an efficient portfolio. To work out which portfolios are efficient an investor must be able to state the expected return and standard deviation of each stock and the degree of correlation between each pair of stocks. Investors who are restricted to hold common stock should choose efficient portfolios that suit their attitudes to risk. But investors who can also borrow and lend at the risk-free rate of interest should choose the best common stock portfolio regardless of their attitudes to risk.[15]

Other theory and tools are also used to support the portfolio theory. It is believed that this study will help many investors to know how they should use their money while investing in financial securities.

1.4 Statement Of the Problems

The study of "portfolio management" occupies an important place in the theory of finance. Lack of knowledge about portfolio management is the main cause of manipulation by financial institutions or stockbrokers to the investor's. Investors feel more risk in investment than its real risk. The academicians also cannot analyze risk and return properly while investing. Investors should be informed properly about the corporate, it's financial position and about the stock market because investors are the main bases for any company and stockbrokers. Investors are the primary source of funds or capital for company and also the source of revenue as a customer for the stockbroker and financial intermediaries. But in Nepal, there are no any separate institution providing adequate information to investors about the stock market. It seems necessary to establish separate entity, which provides adequate information about financial markets, which may accelerate the stock investment and market efficiency.

Research studies show that in Nepal most of the investors invest their funds in single security rather they can be benefited by investing in portfolio of securities through diversification of risk. Most of the rational investors hold portfolio of stock and they are more concerned with the risk of portfolio than with the risk of individual securities.[16]

It is not new for Nepalese citizens to listen and read news of people going bankrupt in the world of security market. Therefore, people fears to invest in

[15] Richard A. Brealey and Stewart C. Myers, *Principles Of Corporate Finance*, (6h ed), Tata McGraw Hill Publishing Company, New Delhi, 2001, p-211.
[16] F.J. Weston and E.F. Brigham , *Essentials Of Managerial Finance*, The Dryden Press, New York, 1996, p-215.

capital market. This study is an attempt to lower the unnecessary fear about the security market. This study will help to know how return are calculated and factor affecting return, and expected return, what is portfolio and how they are created, relationship among stock of stock market etc.

This study attempt to answer such questions and also attempt to give suggestions for a rational investment.

1.5 Objective Of the Study

This study deals all about the investment in common stock. The main objectives are as follows:

- ❖ To find the risk and return behavior of stock and other relevant variables which are very important in making decision to invest in the stock.
- ❖ To analyze the sensitivity of the stock of the sample company.
- ❖ To know the required rate of return of a stock.
- ❖ To analyze the significance of beta in CAPM analysis.
- ❖ To know the market price of stock and dividend yield.
- ❖ To compare between the sample companies risk and return and market risk return.
- ❖ To recommend suggestions about portfolio management to concerned authority in making their policy decision relation to risk and return behavior of common stock.

1.6 Significance Of the Study

Every research study or work should be fruitful. The conclusion of this study will also add some literature in the portfolio theory especially in Nepalese context. The performance of the government of public sector is not satisfactory in developing country like Nepal. Even then the study of portfolio management of various companies in developing country like Nepal is very essential. Therefore, the main significance of this study are:

- ❖ This study will be beneficial for all the person who wants to invest in two or more than two companies.
- ❖ The listed company will be beneficial so that they can take necessary steps for a better performance in stock market
- ❖ This study will also help to the governing and monitoring body to make necessary rules and regulations.
- ❖ The management of the company can take crucial decision more effectively on the basis of volatility of returns of their stock
- ❖ The finding of the study will be helpful to related person i.e. analyst, promoters, investors, shareholders, management and policy makers in the field of financial management.
- ❖ The major findings of the study will be important to other institutions involved in similar research work.

1.7 Limitation Of the Study

This study suffers from the following limitations:

- ❖ Only listed companies are taken as population of study, which are listed in Nepal stock exchange (NEPSE).
- ❖ The study has been done covering the six years data only from 1998/99 to 2003/04 as available from website of NEPSE.
- ❖ The risk of the companies is measured by standard deviation of the return of the companies.
- ❖ Some of the data are taken on verbal information of the management of the company. The validity and confidence of the data depends on the faithful and trustworthiness.
- ❖ The reliability of conclusions of this study is based upon the accuracy of secondary data.
- ❖ Time and resources are also the limitation of this study.
- ❖ The unavailability of latest data for study in the website of NEPSE.

- ❖ Only limited financial tools and techniques are used for analysis. So, this study may not be sufficient for depth analysis

1.8 Organization of the Study

This study has been organized into five chapters. The content of each of these chapters are as follows:

Chapter 1: Introduction

Chapter 2: Review of literature

Chapter 3: Research methodology

Chapter 4: Presentation and analysis of data

Chapter 5: Summary, Findings, and Recommendation

- ❖ Chapter 1: Includes the introductory part of this study as already mentioned which describes the background, brief profile on sample of commercial banks, focus of the study, statement of problem, objective of the study, significance of the study, limitation of the study and scheme of the study.

- ❖ Chapter 2: Describes theoretical analysis and brief review of related and pertinent literature available. It includes a discussion on conceptual framework and review of the major studies.

- ❖ Chapter 3: Describes the research methodology enjoyed in this study. This describes the matter and source of data, population and sample, mode of analysis, meaning and definition of statistical tools.

- ❖ Chapter 4: Deals with the presentation and analysis of secondary data by using various analytical tools.

- ❖ Chapter 5: States summary, Conclusions and major findings of this study.

The annex and bibliography are incorporated at the end of this study.

CHPTER- II

REVIEW OF LITERATURE

Introduction

"Literature review is basically a "stock taking of available literature in one's field of research."[17] Theoretical aspect of risk, return and portfolio is explored in this chapter. This chapter reviews some basic academic courses books, journals and other related studies. Nevertheless, this chapter deals with the basic theoretical concept on which this study is based.

2.1 Conceptual framework/ Theoretical framework

Before getting in to the core subject mater of portfolio analysis, various books dealing with risk, return and CAPM are taken into consideration. Following subjection to this section will be explaining the conceptual matters.

2.1.1 Common Stock

The most important form of corporate stock is common stock or ordinary share. The common stock holders are the real owners of a firm. They invest on the firm with the expectation of return in future. The holders of common stock are called stockholders. They receive only the residual left after satisfying the claims of all on firm's asset and income. The investors of such sock create he complete risk of ownership. The business may decline or profit may fall to the unacceptable level. But the risk of common stock ownership is limited. The stockholder is responsible only for the amount of fund invested by him, not more than that. Common stock represents equity or an ownership position in a corporation. It is a residual claim in the sense that creditors are preferred stockholders must be paid as scheduled before common stock holders are in principle entitled to any value remaining after all other claimant have been satisfied (However in practice, courts sometimes violate this principle).

The great advantage of the corporate form of organization is the limited liability of its owners. Common stocks are generally "fully paid and non assessable, meaning that common stock holders may loose their initial

[17] Howard K. Wolff and Prem R. Pant, *Social Science Research and Thesis Writing*, (4th ed), Buddha Academic Enterprises Private Limited, Kathmandu, Nepal, 2005, p-40.

investment, but not more. That is, if the corporation fails to meet its obligations; the stockholders cannot be forced to give the corporation the funds that are needed the pay of the obligations. However, as a result of such failure, it is possible hat the value of corporation's share will be negligible. This will result in the stockholder's having lost an amount equal to the price previously paid to buy the shares."[18]

2.1.2 Stock Certificate

Each share of the stock is represented by stock certificate whish is the unit of ownership in the firm. The exact percentage of the ownership of share holders depend on the number of shares received in total number of shares. Each shares is the claim on the firm's left after payment of all expenditures. "The ownership of a firm's stock has typically been represented by single certificate with the number of shares held by the particular investor noted on it such a stock certificate is usually registered, with the name address and holding of the investor included on the corporation's book. Dividend payment, voting material, annual and quarterly reports and other mailings are then sent directly to the investor, taking into account the size of his or her holdings.

Shares of stock held by an investor may be transferred to a new owner with the assistance of either the issuing corporation or, more commonly its designated transfer agent. The agent will cancel the old stock certificate and issue a new one in its place, made out to he new owner. Frequently a registrar will make sure tat this canceling and issuing of certificates has been done properly. Usually, bank and trust companies act as transfer agent and registrars. Many stockholders have chosen to avoid these rather cumbersome procedures. Instead depository arrangements are used which substitute computerized records of embossed certificates."[19]

2.1.3 Securities

Securities are the legal representation of the right to receive prospective future benefits under stated condition. For example, common stock is a security

[18] William F. Sharpe, Gordon J. Alexander, and Jeffery V. Bailey, *Investment*, Prentice Hall Of India Private Limited, New Delhi, 1999, p-501.
[19] William F. Sharpe, Gordon J. Alexander, and Jeffery V. Bailey, *Investment*, Prentice Hall Of India Private Limited, New Delhi, 1999, p-502.

which represents the right to receive the future dividend, bond which represents the right to receive the stated interest, preferred stock which represent the right to receive stated dividend etc. similarly, T-bill, commercial paper, certificate of deposit etc. all securities. On the basis of return earned securities can be variable income generating securities and fixed income securities.

"There are many motives for investing. Some people invest in order to gain a sense of power or prestige often the control of corporate empires is a driving motive. For most investors, however, their interest in investment is largely pecuniary–to earn a return on their money. However, selecting stocks exclusively on the basis of maximization of return is not enough.

The fact that most investors do not place available funds into the one, two or even three stocks promising the greatest returns suggests that there must be other considerations besides return in the selection process. The investors not only like return, they dislike risk. Their holding of an assortment of securities assets to that fact."[20]

The investment environment encompasses the kinds of marketable securities that exist and where and how they are bought and sold. Securities are normally the shares, debentures, preferred stocks, warrant, convertibles or any other financial certificates issued by the finance companies to the general public. These certificates are issued at a certain price one called par value and are transferable from one person to another. In simple way, we can understand securities as the promissory paper that the company gives to the investors after receiving certain rupees as loan or share.

The first issue of concern is how an individual selects the specific securities to hold during the current period. Assume that our knowledge of the individual's attitudes towards risky investment is that for a given expected return the alternatives with minimum standard deviation will be preferred or for a given standard deviation will be preferred or for a given standard deviation the alternative with maximum expected return will be preferred. The standard deviation is used here for the measurement of risk rather than variance.

Consider the following situations. There are five different securities that have following characteristics to be evaluated."

[20] Donald E. Fisher, Ronald J. Jordan, *Security Analysis And Portfolio Management*, (5th ed), Prentice Hall of India, New Delhi, 1993, p-58.

Table No.1:

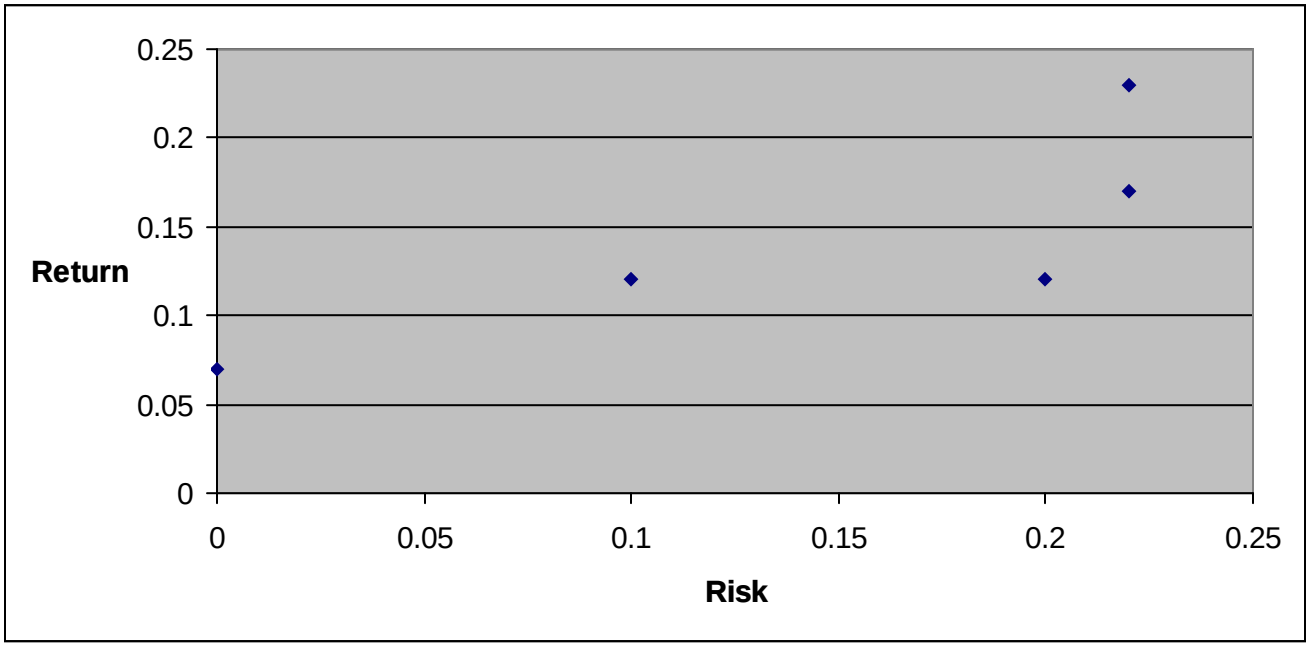
Table presenting the Risk and Return of the securities

Security	**Expected return** $(\overline{X})$	**Standard deviation (±)**
A	0.05	0
B	0.10	0.08
C	0.22	0.20
D	0.10	0.18
E	0.15	0.20

If you were to choose only one of these securities, which would you pick? As an aid in answering that question suppose we plot the securities as in the following graph. By the assumption of attitudes made above, securities D and E are ruled out as choice because B offers less risk for the same return than D and C offers more return than E and has the same risk. We are left with the choice among A, B and C. if there are no alternatives, nothing else could be said without knowing the utility function of the individual faced with these choices. However, people have the option of investing in more than one security and may also be able to borrow to finance additional investment. If so then there are many more alternatives available even in this simple situation."

Graph No. 1:

Graphical presentation of the Risk and Return of the securities



2.1.4 Concept of Return and Return of Common Stock

While selecting an investment alternative the first task of the investor is to identify the amount of rate of return. Every investor wants to have a return from an investment as much as they need. Returns that are sought by the investor during the course of their investment horizon have a very conceptual meaning. "The amount that invested money will earn is called the investment return."[21]

Nevertheless, the meaning of the investment return may have the different concepts to different investors. "The rate of return form a capital investment is a concept that has different meanings to different investors."[22]

The total return on investment is the sum of the income and the capital gain or loss on investment.

[21] John J. Chenny and Edward A. Mosses, *Fundamentals Of Investment*, West Publishing Company, St. Paul New York, 1992, p-28.
[22] John J. Hampton, *Financial Decision Making: Concepts Problems and Cases*, Prentice Hall Of India, New Delhi, 1983, p-397.

Total Return = Dividend Income + Capital Gain

If the stock selling price is more than the purchase price, the investor will receive a capital gain. Generally, the people who buy common stock, they expect to receive capital gains; otherwise they would not prefer to buy the stock. Similarly, if the stock selling price is less than the purchase price, the investor will suffer from a capital loss.

2.1.4.1 Classification of measurement of Return

2.1.4.1.a) On the basis of Form of Return

i) Required Rate of Return

ii) Expected Rate of Return

2.1.4.1.b) On the basis of time Period of Investment

i) Single Period measurement

ii) Measurement of Return over Several periods

2.1.4.1.c) On the basis of Average Return

i) Annualized HPR (AM)

ii) Geometric HPR (GM)

2.1.4.1.a) On the basis of Form of Return

i) Required Rate of Return

Required rate of return is the minimum return that an investor expects at least not to suffer from loss. Thus, when setting the required rate of return an investor must consider following three components:

- Real risk free rate of return: - It denotes the time value of money. This rate is determined by capital market depending upon the demand and supply of capital.

- ❖ Expected inflation: - It denotes the future price appreciation of goods, which the investor has planned to purchase through the return of his investment the retirement of scheme.

- ❖ Risk: - Risk generally denotes uncertainty of getting back interest and principal amount.

ii) Expected Rate of Return

The return that an investor expects from his investment in the forth-coming future is called expected rate of return. Expected rate of return remains unknown to the investors. That is why it is also called ex-ante return of investment.

Probability distributions are used to describe possible outcomes and to assign individual probabilities from zero (on chance of occurring) to one (full certainty that the outcome will happen) to each possible outcome. Expected rate of return will always more than the required rate of return (RRR). It is therefore when an investor has higher or equal expected rate of return in compare to the rate of return (RRR) then only that investment alternative is acceptable.

The expected rate of return can be calculated as:

$$E(HPR) = \sum_{j=1}^{n} P_j \, HPR_j$$

Where,

E (HPR) = Expected rate of return

P_j = Probability associated with return of investment

HPR_j = Holding period return of investment

When future events are not possible to obtain for calculating the expected rate of return, in such a condition, the historical data are used to calculate the rate of return.

$$E(HPR) = \frac{\Sigma \, HPR_s}{n}$$

Where,

E (HPR) = Expected rate of return

n = Total number of years

HPR_s = Sum of the return of n years

2.1.4.1.b) <u>On the basis of Time Period of Investment</u>

i) Single Period measurement

An investment's single period rate of return, denoted 'r', is simply total return an investor would receive during the investment period or holding period stated as a percent of the investment's price at the start of the holding period.

$$\text{Return} = \frac{End\ \ of\ \ period\ wealth - Begining\ \ of\ \ period\ wealth}{Begining\ of\ \ period\ wealth}$$

An investor can obtain two kinds of income from an investment in a share of stock or bond.

- Capital gain or losses: - If ending wealth is more than beginning wealth then it is known as case of capital gains. If ending wealth is less than beginning wealth then it is known as case of capital losses. It is denoted:

$$P_1 - P_0$$

- Cash dividend: - If the cash dividend or coupon interest payment is given in the particular period then it is added to the capital gain or losses to get single period return. The rate of return formula can be restated in a form appropriate for almost any investment.

$$\text{Expected return} = r = \frac{P_1 - P_0 + DIV_1}{P_0}$$

Where,

P_0 = Beginning price of market

P_1 = Ending price of market

DIV_1 = Expected dividend per share

ii) Measurement of Return Over Several Periods

The rate of return of share for more than one year can be calculated. The average rate of return (ARR) is the sum of the one-period rate of return of various period divided by number of period.

$$\overline{R} = \frac{R_1 + R_2 + R_3 ..... R_n}{n}$$

Where,

$\overline{R}$ = Average rate of return (ARR)

n = Total number of periods

R_1, R_2 = Observed rate of return of periods

2.1.4.1.c) <u>On the basis of Average Return</u>

i) Annualized HPR: -

Annualized HPR is simply an arithmetic mean of HPR_s of different years.

$$\overline{HPR} = \frac{HPR_1 + HPR_2 + HPR_3 ..... + HPRn}{n}$$

Where,

HPR_n = Amount of return received during years

n = Number of years of investment horizon

ii) Geometric mean: -

It is another method of calculating the annualized return. Geometric mean can express the true average rate of return over a multi-period and can show accurately the change in the investment value. The geometric mean is defined as the n^{th} root of the product resulting from multiplying series of returns together.

$$GM = [(1+ HPR_1) (1 + HPR_2) (1 + HPR_3)…….(1+HPR_n)]^{1/n} - 1$$

Where,

GM = Geometric mean

2.1.5 Concept of Risk and Risk on Common Stock

The dictionary meaning of risk is the chance if injury, damage or loss. The returns that are realized in the future cannot be forecasted with certainty. Risk is the possibility that the actual return fro an investment will differ from the expected return.

Investment on common stock is a risk investment. So the uncertainties of return on common stock are the facts of life to the common stock holders. Manu investors consider risk as a chance of occurring some unfavorable event of danger of losing some value. In financial management the uncertainty of cash flow is translated into a mathematical value. The uncertainty is translated into a mathematical value y calculating the expected value of all possible uncertain outcomes.

"Risk can be defined as a financial loss or more formally, the variability of returns associated with a given asset."[23] An investment risk is associated with the probability of earning a return less than expected return-the greater the chance of low or negative returns, the riskier the investment.

2.1.5.1 Measurement of Risk

2.1.5.1.a) Standard deviation (±)

[23] L.J. Gitman, *Principles Of Management Finance*, Harper and Row Publishers, New York, 2001, p-211.

2.1.5.1.b) Beta ( )

2.1.5.1.c) Range

2.1.5.1.a) Standard Deviation

Standard deviation is a statistical measure of the variability of distribution around its mean. The standard deviation is the measurement of risk of the deviation of returns from their mean value. The main advantage of standard deviation is that the uncertainties of the return can be summarized into a single, easily calculated number. On the other hand, the main disadvantage of standard deviation is that it considers possible return above the expected value to be as risky as returns below the expected value. Greater the Standard deviation greater the risk of investment. Standard deviation measures the degree of risk of common stock. The risk or standard deviation is denoted by (σ) which is given by:

$$\text{Standard deviation } (\sigma) = \sqrt{\sum_{j=1}^{n} (R_j - \overline{R_j})\, P_j}$$

Where,

$\overline{R}$ = Expected rate of return

P_j = Probability of occurrence of expected return

σ = Standard deviation of returns

R_j = Return for J^{th} possibility

For the historical return the standard deviation is calculated by simply taking the deviation of returns from the return of the expected returns as:

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{\sum_{j=1}^{n} (R_j - \overline{R_j})^2}{n-1}}$$

Where,

n = Number of historical returns

Standard deviation is used not only for calculating risk but also for comparing risks among securities. But one must be careful in using the standard deviation to compare risk, since it is an absolute measure of dispersion and does not consider the dispersion of outcomes in relationship to an expected value. In comparing of assets with differing expected values, the use of the standard deviation van easily be improved upon by converting the standard deviation into a coefficient of variation. The coefficient of variation (C.V) is calculated by dividing the standard deviation by mean. Mathematically,

$$\text{Coefficient of variation (C.V)} = \frac{\pm}{\bar{R}}$$

Thus, coefficient of variation (C.V) is a measure of relative dispersion (risk) a measure of risk per unit of expected return. The larger the C.V the larger the relative risk of investment.

2.1.5.1.b) **Beta**

Beta is a modern scientific technique of measuring a security's risk. It is an indicator of the relationship between an individual investment's return and the general market return. The beta coefficient is an index of systematic risk. Systematic risk is the risk, which cannot be eliminated. Beta is symbolically denoted by "β". Mathematically,

$$\text{Beta } (\beta) = \frac{Cov\,(j, m)}{\pm_m^2}$$

Where,

Cov (j, m) = Covariance of security 'j' with market 'm'

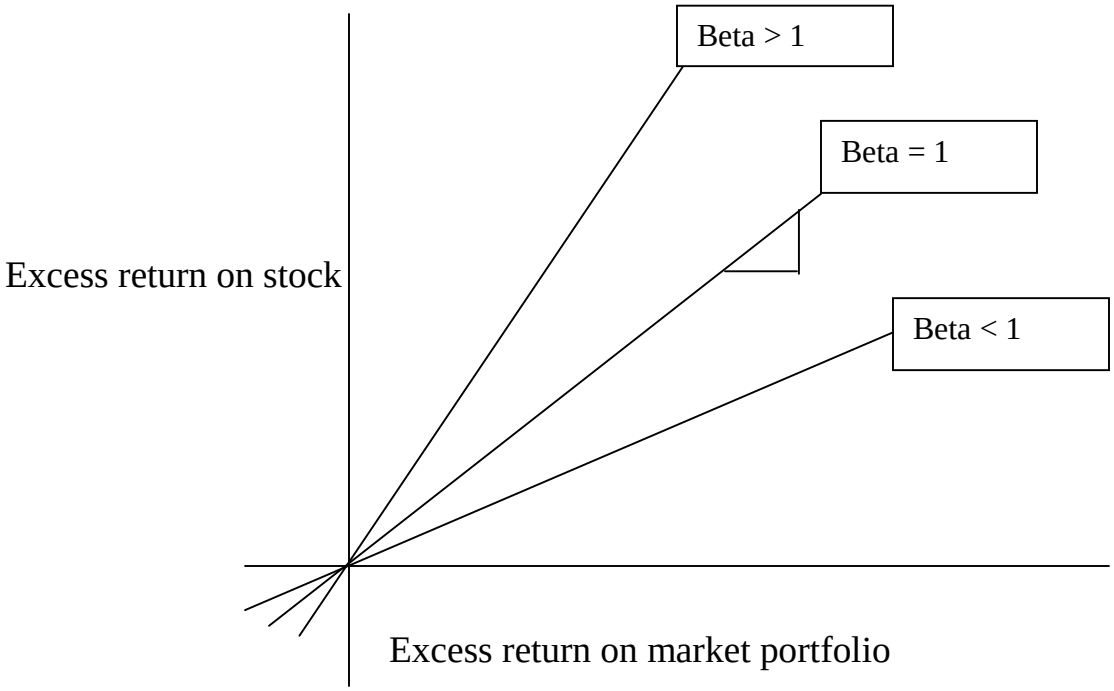
$\pm_m^2$ = Variance of market

Thus, beta is not a measure of the systematic risk of a security or a portfolio; it is more like an index of systematic risk. The beta of a portfolio is simply a weighted average of the individual stock betas in the portfolio.

In the figure no.1 below we can see the three types of characteristics line represents the different types of beta.

Figure No. 1:

Figure showing the different characteristics of beta



Beta is simply the slope i.e. $\frac{\Delta X}{\Delta Y}$ of the characteristics line.

<u>Interpretation of Beta can be done as</u>: -

The beta of the market portfolio is by definition always equal to 1 and Beta's value of asset generally ranges between +0.5 to 2.

β_j = +0.5 to 2.0

β_m = 1

- ❖ **$\beta_j = 1$:** If $\beta_j = 1$ in this type of investment systematic risk is same as indicated in market portfolio. Hence it is called moderate approach.

- ❖ **$\beta_j < 1$:** In this type of investment the proportion of systematic risk is lesser than that of market portfolio. Hence it is called defensive approach.

- ❖ **$\beta_j > 1$:** In this type of investment the proportion of systematic risk is greater than market portfolio. Hence it is called aggressive approach.

2.1.5.1.c) The Range

Range is defined as the maximum value less the minimum value. The risk on return of common stock can be measured by range.

Range = Best possible rate of return – Worst possible rate of return

"The range (maximum return – minimum return) is known as one of the traditional way of measuring risk. It simply shows the difference between the best possible return and the worst possible return but does not provide information about the distribution of the rates of return between the extremes".[24]

2.1.6 Relationship between Risk and Return

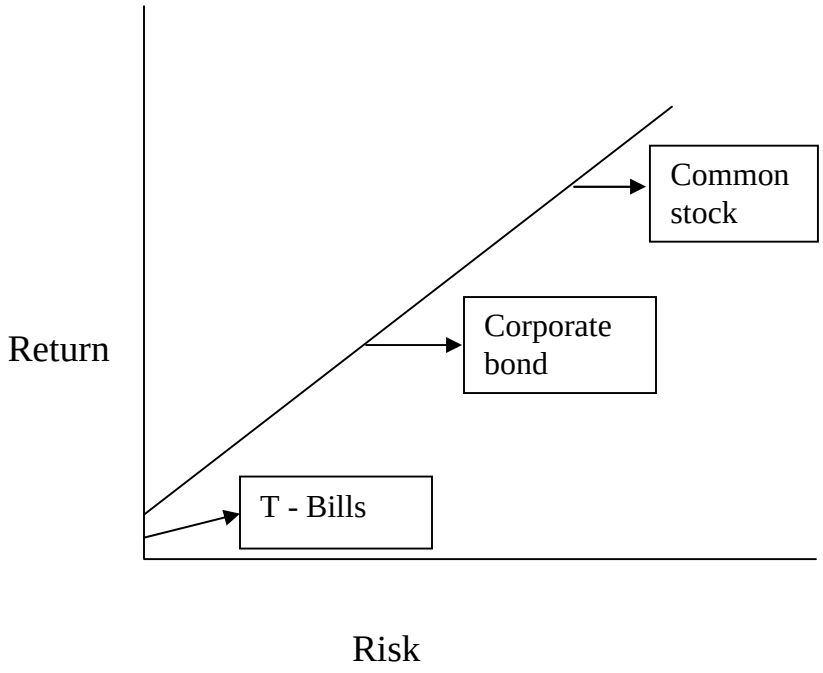
The relationship between risk and return is one of the important topics of financial management. It is very difficult for investor to find the accurate relationship between risk and return. "Higher the risk, higher the return" is the bottom line of finance. However, it is not always true that a riskier asset will pay a higher average holding period return, it is usually true. The main reason is that if the investors are risk taker they like to take risk for more return. If the investor are risk – averter they dislike risk.

[24] John J. Chenny and Edward A. Mosses, *Fundamentals Of Investment*, West Publishing Company, St. Paul New York, 1992, p-41.

Here in the figure no. 2, which is shown below, shows the relationship between risk and return for various investments.

Figure No. 2:

Figure showing the relationship between risk and return.



2.1.7 Concept of Portfolio Management

Portfolio was originally proposed by Harry M.Markowitz an applied economist in this article “portfolio selection”, published in journal of finance in 1952.

The literal meaning of portfolio is that it is the act of investing the funds in two or more tan to securities so that the loss of one security can be covered by the other securities. Portfolio is the best way of investment for rational investors. Portfolio theory gives the concept of investment in very good ways that “never keep all the eggs in a single basket”, i.e. the entire amount should not be invested into a single asset. By investing in a portfolio, diversification of risk is possible.

Portfolio management is related to the formation of efficient portfolio for investment in financial asset. There are basically two objectives of portfolio primary objective and secondary objective.

Primary objective includes minimization of risk and maximization of return. Whereas, the secondary objective includes regular return, stable income and safety investment, tax benefit and appreciation of capital.

Since the utility of the investor is a function of mean return and variance of return, portfolio theory is also referred to as the mean – variance portfolio theory or two – parameter portfolio theory.

"A portfolio is a bundle or combination of individual assets or securities. If the investor holds a well-diversified portfolio, then this concern should be the expected return and risk of the portfolio rather than individual asset or securities. The second assumption of the portfolio is that the returns of securities are normally distributed. This means that the mean (the expected value) and variance (or standard deviation) analysis is the foundation of the portfolio decisions."[25]

Portfolio theory is a normative theory. Normative means "Normal" or "Standard". In economics a normative theory refers to the "normal" way consumers behave. Accordingly, portfolio theory (or Markowitz theory) delineates the decisions that will be made by a population of normal investors – each exercising his or her personal references. Thus, the portfolio theory provides a normative approach to the investor's decision to investment in assets or securities under risk.

Specifically, portfolio theory holds that all investors are risk averse. "The objective of portfolio that has the maximum return at what ever level of risk the investor deems appropriate."[26]

2.1.7.1 Assumption of Portfolio Theory

Portfolio is the combination of two or more than two securities. Portfolio theory is a defensive technique, which helps to minimize the risk. The assumptions of portfolio theory are as follows: -

[25] I.M Pandey, *Financial Management*, (8th ed), Vikas Publising House Private Limited, New Delhi, 1999, p-338.
[26] J.C. Francis, *Investment Analysis and Management*, McGraw Hill International, New York, 1992, p-228.

i) Investors are risk averse which some of them are risk taker

"Alternatively, an individual is said to be risk averse if the utility of expected wealth is greater than the expected utility of wealth i.e., if

$U [E (W)] > E [U (W)] \longrightarrow$ Risk Aversion

If the utility if expected wealth is equal to expected utility of wealth then investor is said to be risk neutral, that is

$U [E (W)] < E [U (W)] \longrightarrow$ Risk Neutrality

Finally, an investor is said to be risk seeking if the utility of expected wealth is less than expected utility of wealth i.e.

$U [E (W)] > E [U (W)] \longrightarrow$ Risk Seeking."[27]

ii) Investor adhere to the principle of dominance that means investors prefer the asset which has high return for any given level of risk than the which has low return, they prefer the asset which has low risk for any given level of return that the asset which has high risk.

iii) The risk of returns from an asset or security is the variability of returns from the average value of returns, which is the standard deviation or variance.

iv) The return from an asset or security is the expected return that is the weighted average value returns, weights being the probability distribution returns for some period.

v) An investor makes investment (portfolio) decisions purely on the basis of risk and return of that asset or portfolio. That is, the utility function (or the indifference) of the investor is based on risk and return.

2.1.7.2 Meaning of Expected Return on Portfolio

The expected return of a portfolio is simply a weighted average of the expected returns of the securities comprising that portfolio. The weights are the proportion of total funds invested in each security and the sum of weights equal to 100%. A portfolio weight can be either positive or negative. A positive weight

[27] C. Peteson and C.W. Lewis, *Managerial Economics*, Prentice Hall Of India, New Delhi, 2001, p-470.

means we are buying the security; we also refer to this as taking a long position in the security. The opposite of taking a long position is taking a short position, or selling short. In this case the portfolio is negative because the numerator is negative.

The formula for calculating the portfolio weights is:

$$W_A = \frac{Dollar\ amount\ of\ \text{sec}urity\ 'A'\ bought}{Your\ total\ equity\ investment\ in\ the\ portfolio}$$

The formula for calculating the return on portfolio consisting of two securities is:

$$E[R_p] = W[E(R_X) + (1 - W_X) E(R_Y)$$

Where,

$E[R_p]$ = Expected return on portfolio

$E[R_x]$ = Expected return on security 'X'

$E[R_Y]$ = Expected return on security 'Y'

W_X = Weight of security 'X'

$1\text{-}W_X$ = Weight of security 'Y'

The formula for calculating the return on portfolio consisting more than two securities is:

$$E(R_p) = \sum_{i=1}^{n} W_j\ E(R_j)$$

Where,

W_j = Proportion invested in security 'j'

$E(R_j)$ = Expected return for security 'j'

n = Total number of different securities in the portfolio

By investing in a portfolio the investor can earn the average return of the securities comprising that portfolio and he also assumes the minimum risk on such portfolio.

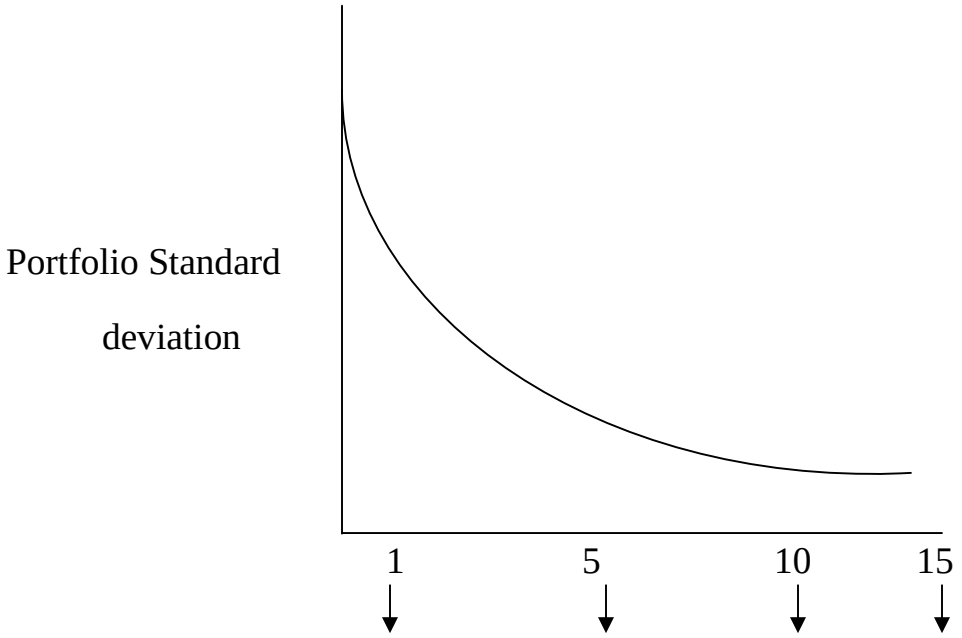
I.M. Pandey wrote about the expected return on a portfolio is "the weighted expected return on each security in the portfolio with weights being equal to the proportion of investment in each security."[28]

" The bottom line of portfolio is that the diversification reduces risk (standard deviation).

This concept in presented figure below:

Figure No.3:

Graphical presentation showing the diversification that reduces risk



[28] I.M. Pandey, *Financial Management*, Vikas Publising House Private Limited, New Delhi, 1992, p-383.

Figure showing that diversification reduces risk (standard deviation) rapidly at first, then more slowly."[29]

2.1.7.3 Risk on Portfolio

It is not easy to calculate portfolio risk. The reason is Co-variability between returns of securities combined in the portfolio. Risk of a portfolio is not the weighted average of the standard deviation of specific securities comprising that portfolio. It rather depends upon the co-movement (interactive risk) among the security as well.

2.1.7.3.a) Meaning of Covariance in Context of Portfolio Risk

The interactive risk is measured by covariance, which is absolute measurement, and by correlation, which is relative measurement. The correlation is the statistical measure of the degree to which two variables such as securities returns move together.

"The covariance is a useful means of measuring how two random variables react to events."[30]

If X and Y are two securities, then the covariance can be calculated as:

If probability is given:

$$\text{Cov (x,y)} = \sum_{i=1}^{n} [R_x - E(R_x)]\ [R_y - E(R_y)]\ P_i$$

In case of historical return:

$$\text{Cov (x, y)} = \frac{\sum_{i=1}^{n} [R_x - E(R_x)]\ [R_y - E(R_y)]}{n-1}$$

[29] Richard A. Brealey and Stewart C. Myers, *Principles Of Corporate Finance*, (6th ed), Tata McGraw Hill Publishing Company, New Delhi, 2005, p-167.

[30] Jr. H. Bierman and S. Smidt, *Financial Management For Decision Making*, Mc Millian Publishing Company, New York, 1986, p-75.

Where,

Cov (x,y) = Covariance of returns of securities ‘X’ and ‘Y’

R_x, R_y = Return of securities ‘x’ and ‘y’

E (R_x), E (R_y) = Expected return of ‘x’ and ‘y’

P_i = Probability of occurrence of the state of economy

Thus, the covariance can also be calculated as:

$$\text{Cov}(x, y) = \sigma_x \sigma_y \rho_{xy}$$

Where,

ρ_{xy} = Correlation coefficient between security ‘x’ and ‘y’

σ_x = Standard deviation of security ‘x’

σ_y = Standard deviation of security ‘y’

2.1.7.4 Meaning of Correlation in Context of Portfolio

The correlation coefficient is standardized statistical measure of the linear relationship between two variables. It ranges from –1 to +1 i.e. perfect negative correlation and perfect positive correlation. The risk can be eliminated if the correlation between securities is negative.

Correlation can be mathematically calculated as:

$$\rho_{xy} = \frac{\text{Cov}(x, y)}{\pm_x \pm_y}$$

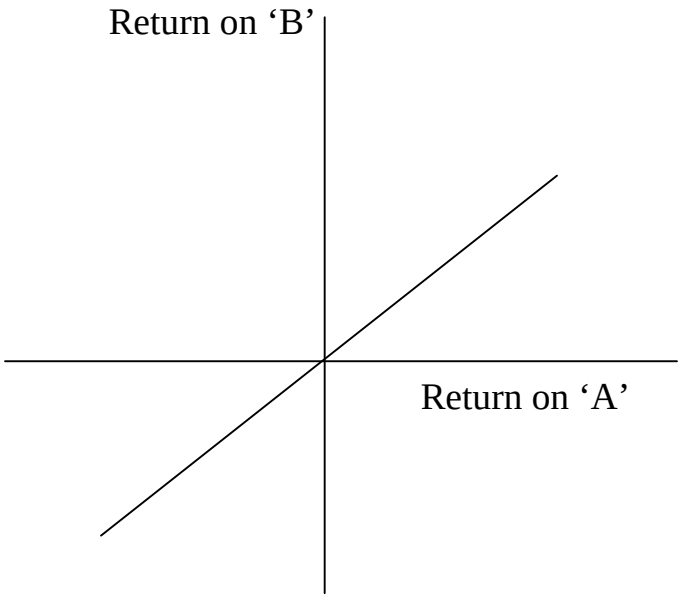
- **Various Correlation and Risk Condition**

  - **Case 1- Perfect Positive Correlation ($\rho_{xy} = +1$)**

    Return on two perfectly positively correlated stocks would move up and down together and a portfolio consisting of two such stocks would be exactly as risky as the individual stocks. Thus, diversification does nothing to reduce risk if the portfolio consists of perfectly positively correlated stock. It is presented in the figure below:

Figure No. 4:

Figure presenting the Perfectly positively correlated return.

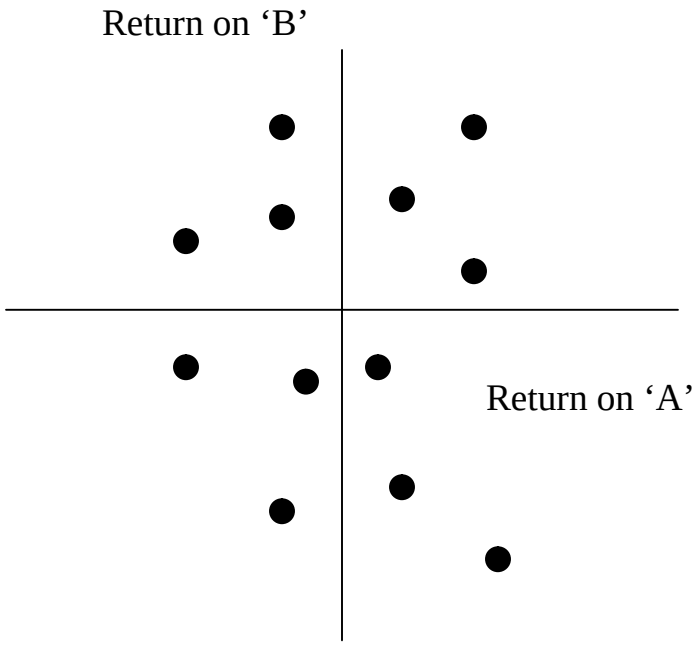


❖ **Case 2- No relationship between returns ($\rho_{xy} = 0$)**

No relationship between return is also known as Uncorrelated or Zero correlation. An Uncorrelated or Zero correlation indicates that there is not relationship between the return of two securities i.e. they are independent variables. In this case some risk can be reduced. Which is shown in figure below:

Figure No. 5:

Figure presenting the Uncorrelated returns.

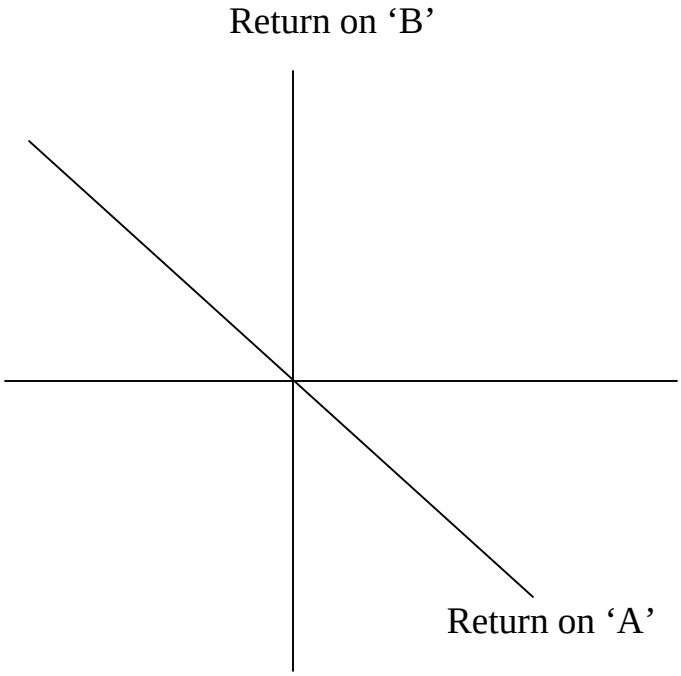


❖ **Case 3- Perfect Negative Correlation ($\rho_{xy} = -1$)**

A perfect negative correlation indicates that the return on the two securities moves to opposite direction. In this case risk can be completely eliminated. Perfectly negative correlation almost never found in the real world. Which is presented in figure below:

Figure No. 6:

Figure presenting the Perfectly negative correlation.



❖ **Case 4- Intermediate Risk (ρ_{xy} = +0.5)**

Most of the stocks are positively correlated, but not perfectly. On average the returns on two stocks would lie on the range of +0.4 and +0.75 under this condition combining stocks into portfolios reduces risk but does not eliminated at completely.

After explaining covariance and correlation, now it is turn to get introduced with the root of portfolio risk.

The standard deviation of portfolio return for two-asset case can be found by using the formula given below:

$$\sigma_P = \sqrt{W_x^2 \sigma_x^2 + (1-W_x)^2 \sigma_y^2 + 2\ W_x\ (1-W_x)\ Cov(x,y)}$$

Where,

W_x^2 = Proportion of portfolio invested in security 'X'

1-W_x = Proportion of portfolio invested in security 'Y'

σ_P = standard deviation of portfolio

σ_x^2 = Variance of return of security 'X'

σ_y^2 = Variance of return of security 'Y'

Cov (x, y) = Covariance of return between security 'X' and 'Y'

Here showing the relationship of covariance with standard deviation and correlation

$$Cov\ (x, y) = \sigma_x \sigma_y \rho_{xy}$$

The standard deviation portfolio can also be calculated as:

$$\sigma_P = \sqrt{W_x^2 \pm_x^2 + (1-W_x)^2 \pm_y^2 + 2\ W_x\ (1-W_x) \pm_x \pm_y \circ_{xy}}$$

Where,

ρ_{xy} = Correlation coefficient between security 'X' and 'Y'

If we have to construct the standard deviation portfolio between risky and risk-free asset then:

$$\sigma_p = W_m \pm_m$$

Where,

σ_m = standard deviation of market

W_m = proportion of portfolio invested in market

The standard deviation of portfolio is the square root of variance. Where,

$$\sigma_P = \sqrt{Variance\ portfolio}$$

- **<u>Minimum Variance Portfolio</u>:**

It shows the best combination of 'X' and 'Y' security so that portfolio variance is minimum. A portfolio that has the lowest level of variance (risk) is

referred to the optimal portfolio. A risk-averse investor will have trade-off between risk and return.

Formula for estimating the optimal weights of security 'X' and 'Y' is mentioned below:

$$W_x = \frac{\pm_x^2 - Cov_{xy}}{\pm_x^2 + \pm_y^2 - 2\,COV_{xy}}$$

To summarize, the riskiness of a portfolio is a function of

i) The riskiness of the components

ii) The correlation of return on the component securities and,

iii) The proportion invested in the components

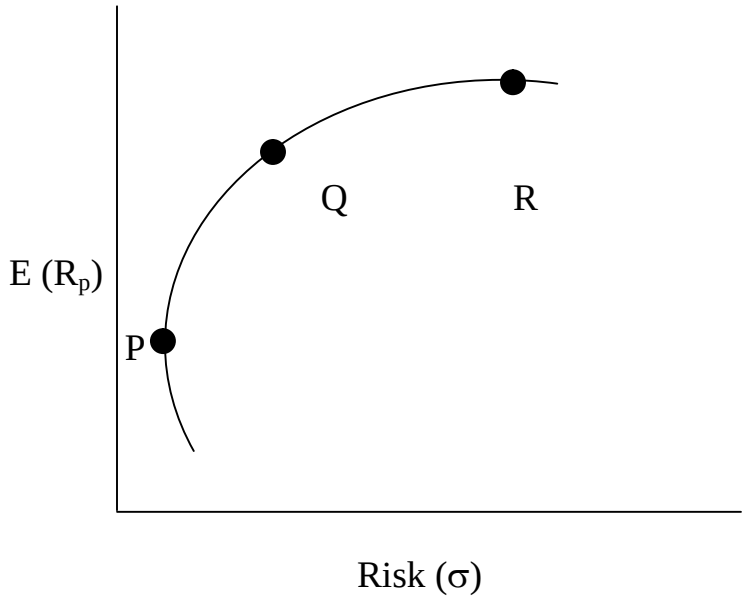
2.1.8 Markowitz Efficient Frontier

Efficient frontier is the combination of all possible portfolios called the attainable set of investment opportunities. It is he locus of investment graphed in risk return space which has the maximum expected rate of return in their class or the minimum risk at whatever rate of return is selected. According to Markowitz, an investor should seek a portfolio of securities that lies on the efficient frontier set.

The set of possibilities can be thought of in general terms, assuming many securities.

Figure No. 7:

Figure presenting the Efficient frontier



Suppose that the expected return and standard deviation of all possible portfolios were plotted as in figure no.7. We may observe that portfolio 'P' has the minimum risk and low return than portfolio 'Q' that has high risk and high return. Portfolio 'R' has high risk and low return as compare to portfolio 'Q'. Thus portfolio 'Q' dominates portfolio 'R'. A risk averse investor will prefer a portfolio with the highest expected return for a given level of risk or prefer portfolio with the lowest level of risk for a given level of expected return. In the portfolio theory this is referred to as the principle of dominance, and the portfolio that has the highest expected returns for a given level of risk is called an efficient portfolio. In figure no.7 the line 'PR' is the efficient frontier and represents the locus of all portfolios, which have the highest return for a given level of risk. All other portfolio that lies outside the efficient frontier is an inefficient portfolio.

Thus, efficient frontier is a curve in which the efficient portfolios lie. It indicates that the portfolio, which lies in the efficient frontier curve, is more efficient than portfolio, which lies below the curve. Because of lack of perfectly positive correlation the efficient frontier is concave.

2.1.9 Systematic and Unsystematic Risk

Any type of business, whether it is large or small, suffers risk because investment is a part of economics and the economical cycle changes frequently. When the market is bullish there is low risk and when it starts declining i.e. bearish there may be high risk. The total risk associated with the investment can be classified as systematic risk and unsystematic risk.

Systematic Risk

Systematic risk is that type of risk, which affects the overall market. Non diversifiable risk also referred to as systematic risk or market risk of a security stems from the influence of certain economy wide factor like money supply, inflation, level of government spending and industrial policy which have a bearing on the fortune of almost every firm. Since these factors affect returns on all firms, investors cannot avoid the risk arising from them, however diversified portfolio may be put differently such risk cannot be diversified away. Hence is referred to as non-diversifiable or market risk.

Unsystematic Risk

Unsystematic risk is also called diversifiable or avoidable risk because is an efficient portfolio is formed; the unsystematic risk can totally be diversified. Such types of risk arises due to various unsystematic factors such as loss on big contract, strike and lockup by labours, entry of strong competitor in the market etc. this risk is independent of economic, political and other factors that affect the securities in a systematic manner. These types of risks are normally minor and so can be handled by the management.

Investors can expect to be compensated for bearing the systematic risk. They should not expect the market to provide any extra compensation for bearing avoidable risk or unsystematic risk. The relationship among systematic and unsystematic risk is:

$$\text{Total risk } (\sigma_j) = \text{Systematic risk} + \text{Unsystematic risk}$$

Where,

Systematic risk = $\sigma_j \ \rho_{jm}$

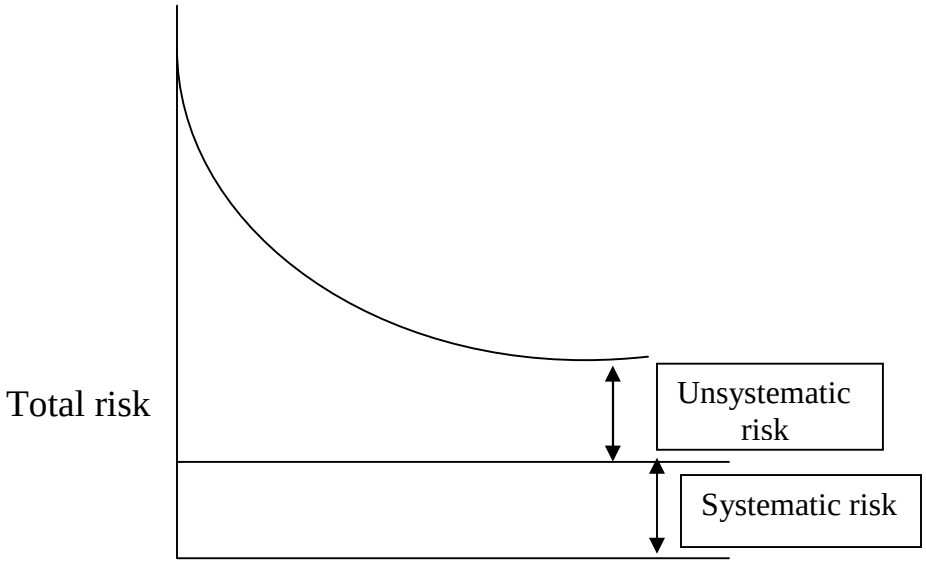
And, Unsystematic risk = $\sigma_j (1- \rho_{jm})$

So, $\sigma_j = \sigma_j \ \rho_{jm} + \ \sigma_j \ (1- \rho_{jm})$

The occurrence of systematic and unsystematic risk is shown in figure below:

Figure No. 8:

Figure presenting the Systematic and Unsystematic risk



2.1.10 Capital asset pricing model (CAPM)

Harry M. Markowitz laid down the foundation of modern portfolio theory in 1952. The CAPM was developed 12 years later by William Sharpe, John Lintner and Jan Mossin.

Capital assets are the long term financial as well as real assets and CAPM is based on the pricing of these assets. Modern portfolio theory of Markowitz suggests that the investment decision should be based on the total risk and the price of asset should also be determined on the basis of the total risk. But the CAPM suggests that, any investor can create a portfolio of assets that will eliminate virtually all-diversifiable risk, the only relevant risk is non-diversifiable risk, therefore, the investment decision and the pricing of capital assets should be based on the undiversifiable risk. This is the primary importance of selecting assets with the most desired risk return characteristics. The CAPM further suggests that the price of capital assets should be determined in ways that compensate the systematic risk. The major implication of the model is that the expected return on asset will be related to measure of risk for that asset known as Beta. The exact manner in which expected return and beta are related is specified by CAPM.

Much time and effort has been expanded on developing a measure of risk and a system for using this measure in assessing returns. The two key components of that have emerged from this theoretical effort are beta, which is statistical measure of risk and the CAPM, which links risk (beta) to the level of required return.

It is a very simple model and extremely important analytical too in both managerial finance and investment analysis. "In fact, the Nobel prize was awarded to the developers of CAPM, professors Harry Markowitz and William F. Sharpe in part because of their work in this area."[31] The CAPM is an attempt to provide both a theoretical understanding and a practical measure of the cross-section of one period expected return rates a currently marketed portfolio of risky assets during a particular period of time.

[31] F.J. Weston and E.F. Brigham, *Essentials Of Managerial Finance*, The Dryden Press, New York, 1996, p-193.

The CAPM is a “one factor” pricing model in the sense hat it postulates that only one factor namely, the expected return rate on the market portfolio M- suffices to explain the cross section of portfolio return rates.

The major implication of the model is that the expected return of an asset will be related to a measure of risk for that asset known as beta. The model provides the intellectual basis for a number of the current practices in the investment industry. CAPM suggests that in equilibrium market, every security available in the market is priced and they provide risk-adjusted rate of return.

The significant contribution of the CAPM is that it provides a measure of the risk of an individual security, which is consistent with portfolio theory. It enables us to estimate the undiversifiable risk of a single asset is comparing it with the undiversifiable risk of a well-diversified portfolio. Originally developed by Sharpe, Treynor, Mossin and Lintner the CAPM equation or security market line (SML), is presented as:

$$E(R_j) = R_f + [E(R_m) - R_f]\,\beta_j$$

Where,

$E(R_J)$ = Expected return of security ‘J’

R_F = Rate of return of risk free asset

$E(R_M)$ = Expected return of the market portfolio

β_J = A measure of the undiversifiable risk of the J^{th} security

Whereas, Beta can be mathematically presented as:

$$\beta_j = \frac{COV(j,m)}{Variance\ (R_m)}$$

'OR'

$$\beta_j = \frac{COV(j,m)}{\pm\ {}^{2}_{m}}$$

2.1.10.1 Use of CAPM

Even though the assumption, which the CAPM is based limit the generality of the model but it is still widely used Bierman and Smidt has identified the following uses of CAPM:

"Uses of CAPM:

i) To estimate the cost of equity capital using

$$\bar{r}_i = r_f + (\bar{r}_m - r_f)\,\beta_i$$

These estimates are used both for public utility regulatory proceedings and determining the require return to be earned by operating divisions of corporations.

ii) To form portfolios of securities (the weighted average of the betas of all the securities is one relevant risk measure if the investor is imperfectly diversified).

iii) To evaluate securities- if the expected return is larger than

$$\bar{r}_i = r_f + (\bar{r}_m - r_f)\,\beta_i$$

The security is a "Bargain". If a security has a larger expected return than the return indicated by the CAPM all investors (with homogeneous expectations) will buy it until its expected return is lowered to be equal to

$$\bar{r}_i = r_f + (\bar{r}_m - r_f)\,\beta_i$$

In like manner if a security 'i' is expected to earn less than the $\bar{r}_i = r_f + (\bar{r}_m - r_f)\,\beta_i$ no one will buy (some will sell it short), its price will decrease and its expected return will increase.

All securities are contained in the market portfolio in proportion to their market value. The beta of market portfolio is 1."[32]

2.1.10.2 Assumption of CAPM

The capital asset pricing model (CAPM) is a major contribution to modern business finance theory and practice. CAPM model provides the intellectual basis for a number of the current practices in the investment industry.

Sharpe, Alexander and Bailey have mentioned the following assumption about the CAPM.

"Assumptions of the CAPM:

i) Investors evaluate portfolios by looking at the expected return and standard deviation of the portfolios over a one period horizon.

ii) Investors are never satiated, so when given a choice between two otherwise identical portfolios, they will choose the one with the higher expected return.

iii) Investors are risk – averse, so when given a choice between two otherwise identical portfolios, they will choose the one with the lower standard deviation.

iv) Individual assets are infinitely divisible, meaning that an investor can buy a fraction of a share if he or she so desires.

v) There is a risk free rate at which an investor may either lend (that is, invest) money or borrow money.

vi) Taxes and transaction cost are irrelevant

[32] Jr. H. Bierman and S. Smidt, *Financial Management For Decision Making*, Mc Millian Publishing Company, New York, 1986, p-115.

To these assumptions the following ones are added:

vii) All investors have the same one-period horizon.

viii) The risk free rate is the same for all investors

ix) Information is freely and instantly available to all investors.

x) Investors have homogenous expectations, meaning that they have the same perceptions in regard to the expected returns, standard deviation and covariance of securities."[33]

2.1.11 Security Market Line (SML)

Security market line is the graphical representation of the CAPM. It shows the relationship between risk and required rate of return with the help of SML the overpriced and under priced stock can be located.

"SML is the line that shows the relationship between risk as measured by beta and the required rate of return for individual securities."[34]

The SML shows that if risk increases the return should also increase proportionally. The risk affecting the return is the market risk. The SML describes that the investor cannot get the compensation for unsystematic risk, the systematic risk is only compensated representing by beta of the security. If the stocks are under priced, they lie above the SML and if they are overpriced, they lie below the SML. If the expected rate of return is more than required rate of return, the stock is called under priced and if the expected rate of return is less than the required rate of return, the stock is called overpriced.

- **Over-priced and Under-priced**

The primary concern of portfolio management is to identify the under-priced securities. Over-priced and under priced securities are identified either by a comparison of their value with market price or a comparison of the required

[33] William F. Sharpe, Gordon J. Alexander, and Jeffery V. Bailey: *Investment*, Prentice Hall Of India Private Limited, New Delhi, 2000, p-262.

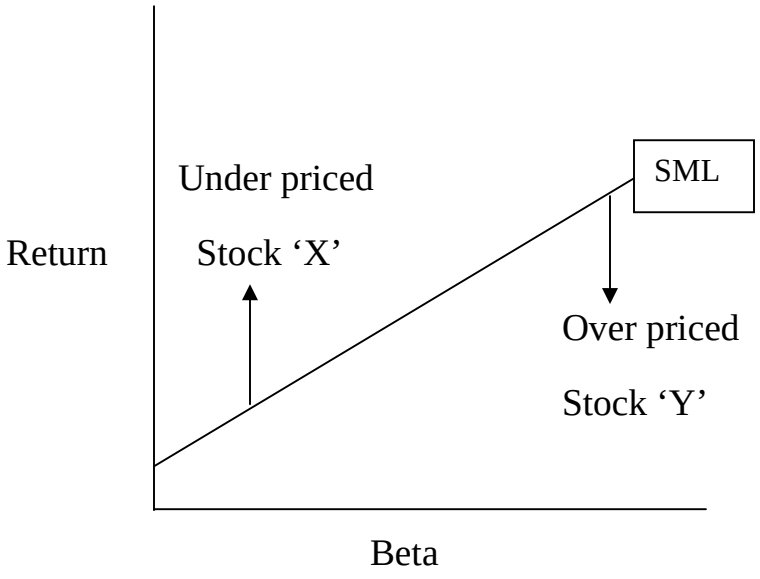
[34] F.J. Weston and E.F. Brigham , *Essentials Of Managerial Finance*, The Dryden Press, New York,1996, p-208.

rate of return (return calculated by using CAPM equation) and expected return. If,

S.No	Condition	Pricing
1	Required rate of return > Expected return	Over-priced
2	Required rate of return < Expected return	Under-priced
3	Required rate of return = Expected return	Exactly priced

Figure No. 9:

Figure presenting the SML



In the above figure no.9 stock 'X' is under priced and stock 'Y' is expected to provide a lower return tan that required compensating for its systematic risk. Investor seeing he opportunity for the superior return by investing in stock 'X', will rush to buy. These actions will derive the price up and the expected return comes down. How ling would this continue? The answer becomes that it will

continue until the market price was seen that the expected return would now lie on the SML. In vase of stock 'Y', investors holding this stock would start to sell.

2.1.12 Capital Market Line (CML)

The CML may e used or determining the required return only for those efficient portfolios that are perfectly correlated with the market portfolio because they fall on the CML.

"The capital market line represents the equilibrium relationship between the expected return and standard deviation for efficient portfolios. Individual risky securities will always lot below the line because a single risky security when held by itself is an inefficient portfolio."[35]

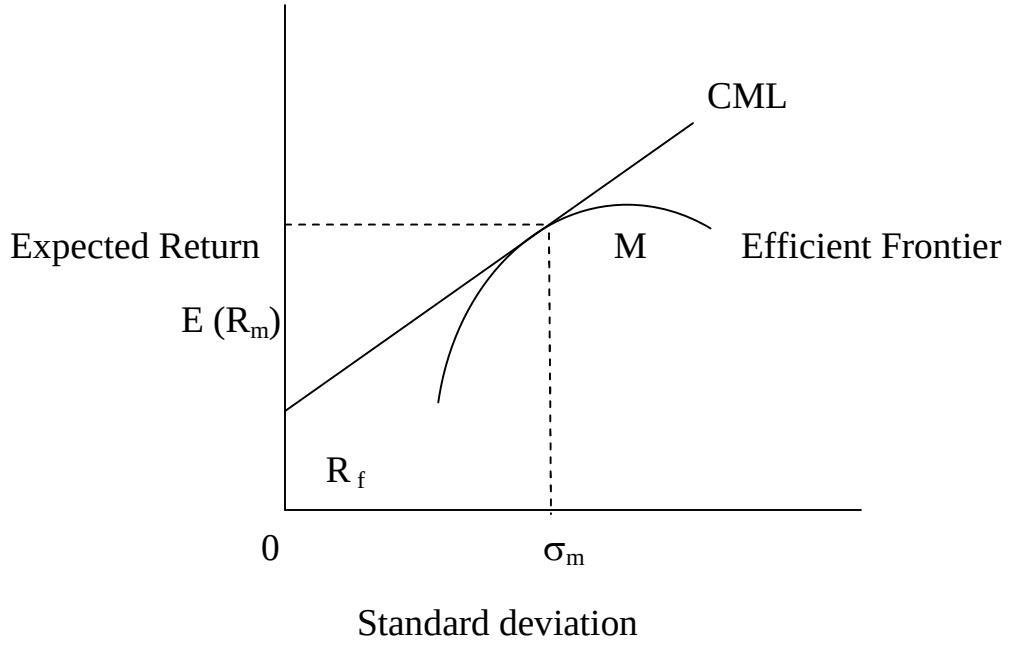
The CML express the current "trading terms" for risk and return for efficient combinations, the combinations will actually hold. It reflects current expectation regarding the distributions of future outcomes from investments. Realized rate or return will generally differ from the expected values. Also there is no reason to believe that the trading terms for risk and return will remain constant overtime.

Presenting the concept of CML in figure:

[35] William F. Sharpe, Gordon J. Alexander, and Jeffery V. Bailey, *Investment*, Prentice Hall Of India Private Limited, New Delhi, 2000, p-268.

Figure No. 10:

Figure presenting the concept of CML



Mathematically the formula of CML can be presented as

$$E(R_J) = R_f + \frac{E(R_m) - R_f}{\pm_m} \pm_J$$

Where,

$E(R_m)$ = Market portfolio return

R_f = Risk free rate

σ_m = Standard deviation of portfolio return

Here, $\frac{E(R_m) - R_f}{\pm_m}$ is the slope of CML which is represented by the λ. So the formula of CML can also be expressed as:

$$E(R_j) = R_f + \sigma_j \lambda$$

Where,

λ = Slope of CML

2.2 Review Of Related Studies

This topic is again sub-divided into two parts, review from books and master degree thesis to this topic portfolio management.

2.2.1 Review From Books

There are some empirical studies beds on the theoretical studies based on the theoretical beliefs of portfolio management. Donald E. Fisher, Ronald J. Gordon has mentioned, "traditional security analysis recognizes the key importance of risk and return to the investor. However, direct recognition of risk and return in portfolio analysis seems very much a "seat-of-the pants" process in the traditional approaches, which rely heavily upon intuition and insight. The results of these rather subjective approaches to portfolio analysis have, no doubt been highly successful in many instances."[36]

Another statement of portfolio diversification reduces the risk is also tested by Wagner and Lau. They divided a sample of 200 NYSE stock into six subgroups based on S & P's quality rating as of Jung 1960. The result as he number of securities in the portfolio increases, the standard deviation of portfolio returns decreases, but at a decreasing rate, with further reductions in risk being relatively small after about 10 securities are included in the portfolio. The base of Markowitz's portfolio theory is that the risk, higher the return and a well-diversified portfolio can significantly reduces the risk of portfolio.

As mentioned by the William F. Sharpe, Gordon J. Alexander and Jeffery V. Bailey about the CAPM is that "the major implication of the model is that the

[36] Donald E. Fisher and Ronald J. Jordan, *Security Analysis and Portfolio Management*, (5th ed), Prentice Hall Of India Private Limited, New Delhi, 1993, p-637.

expected return of an asset will be related to a measure of risk for that asset known as beta. The exact number in which expected return and beta are related is specified by capital pricing model (CAPM). This model provides basis for a number of the current practices in the investment industry."[37]

As mentioned by the James C. Vanhorne, John M. Wachowicz, Jr, about the portfolio return is that "the expected return of portfolio is a simply weighted average of the expected returns of the securities comprising that portfolio. The weights are equal to the proportion of total funds investment in each security."[38]

2.2.2 Review from Related Dissertations

There are very few topics regarding the analysis of portfolio management in Nepal. A master degree thesis of "Risk and return analysis of common stock investment" written by Durga Hari Bhattarai is reviewed here. Which shows that there exists a positive relationship between risk and return.

Master degree thesis of "Beta analysis of Nepalese companies" written by Salilesh Poudel is also reviewed here which gives the ore knowledge about the risk of the Nepalese companies through the analysis of Beta. Which shows that the Beta is the index of systematic risk and systematic risk is the risk, which cannot be eliminated.

Similarly the master degree thesis written by Prakash Ghimire about "Portfolio management of Nepalese listed companies" is also reviewed here. Here fine and crucial idea is given about the portfolio management. Here the thesis prepared by the Prakash Ghimire shows that the portfolio is the act of investing the funds in different securities so that the loss occurred in one securities can be covered by other, and the portfolio comprises of two or more than two securities.

Some of his findings are:

i) Investor should always try to minimize risk and every effort should be made to do so.

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[37] William F. Sharpe, Gordon J. Alexander, and Jeffery V. Bailey, *Investment*, (3rd ed), Prentice Hall Of India Private Limited, New Delhi, 2005, p-227.

[38] James C. Vanhorne, Jr.John M. Wachowicz, *Fundamentals Of Financial Management*, (10th ed), Prentice Hall Of India Private Limited, New Delhi, 2000, p-95.

ii) To create a portfolio of stocks, it is always better to diversity a cross industries.

iii) Investors should select negatively correlated stock, while they create portfolio investment.

iv) Highly positive co-varied stock should be avoided to create a portfolio.

v) Any investment in stock market should be done only after careful examinations of each stock's price, the trend effect of dividend, bonus share and prospectus of he company.

2.2.3 Review of Study about Nepal Stock Exchange

However this study has the vital relationship with stock market of Nepal, also in this section the background and some of studies about Nepal sock market is dealt.

The concept of stock market in Nepal is quite new. It is still in infancy stage though the history of securities began with the flotation of shares by Nepal bank limited (NBL) and Biratnagar Jute mill (BJM) in 1937 under the company act, 1936. At that time the participation on the owner structure of the corporate sector was restricted mostly to the Rana Family. Consequently, the expansion of capital market to the desired level had been restricted. No significant attempts had been made in four years plan to perform the capital market. The establishment of securities exchange center (SEC) in 1976 was the first and most important attempts made by the government to develop the stock market. Initially, the securities limited its function or trading government bonds and national saving certificates only. Then it acted as an issue manager for corporate securities and stated to list and provides market for corporate stocks from fiscal year 1884/85 under the securities exchange act, 1983.

Thus the SEC served to promote the primary as well as secondary market for government and corporate securities from fiscal year 1984/85. Although, the growth of stock market is high relative to the growth of economy, the share of corporate sector in the national economy is still very low due to the negligible size of the corporate sector. The incorporation of the Securities Exchange Board Of Nepal (SEBON) under the securities exchange act, 1983 and conversation of

the securities into Nepal Stock Exchange (NEPSE) in 1993. Nepal stock exchange opened its trading floor in 13th January 1994 from newly appointed brokers and market makers. The government policy on capital market reform has greatly contributed to the development of primary as well as secondary market for the corporate securities. The rise in stock price and market liquidity for corporate securities was observed immediately after the incorporation of the SEBON and the NEPSE for one year only. This has positive and immediate impact on the primary market. But after a year, again downward in the primary as well as secondary market is observed and this phenomenon has been continuing till now.

- **Organization of the NEPSE**

"The Securities Exchange Center was established width an objective of facilitating and promoting the growth of capital markets. Before its conversion into stock exchange, it was only a capital market institution undertaking the job of brokering, underwriting, managing public issued market making for government bonks and other financial services. In 1993, the center was converted into Nepal Stock Exchange (NEPSE) with the basic objective of imparting free marketability and providing liquidity to the government and corporate securities by facilitating transactions in its trading floor through market intermediaries, such as brokers, market makers etc and it is a non-profit organization, operating under Securities Exchange Act, 1983.

His Majesty's Government, Nepal Rastra bank, Nepal Industrial Development Corporation and Licensed members are shareholders of the NEPSE.

- **Board of Directors**

The board of directors of the NEPSE consists of nine directors in accordance with the Securities Exchange Act, 1983. Six directors are nominated by HMG/N and different institutional investors. Two from the licensed members and the General Manager of the NEPSE is the Ex-Officio Director of the board.

S. No	Name Of Organization	No. Of Directors	Designation
1	Ministry of Finance	1	Chairman
2	Securities Board	2	Director
3	Nepal Rastra Bank	2	Director
4	Nepal Industrial Development Corporation	1	Director
5	Licensed members	2	Director
6	General Manager of NEPSE	1	Director

The authorized and issued capital of the exchange is Rs.50 million. Of this Rs.34.91 million is subscribed by HMG/N, Nepal Rastra Bank, Nepal Industrial Development Corporation and Licensed Members.

S. No	Share holders	Rs. In Million	Percentage (%)
1	HMG/N	20.48	58.67
2	NRB	12.08	34.60
3	NIDC	2.14	6.13
4	Members	0.21	0.60
	Total	**34.91**	**100**

- **Members of NEPSE**

The members of NEPSE are permitted to act, as intermediaries in buying and selling of government bonds are listed corporate securities. At present, there are 27 member brokers operating on he trading floor as per the Securities Exchange Act, 1983, rules and bye-laws of the exchange.

Besides this, the NEPSE has also licensed dealer for primary and secondary market. The primary market dealer operates as a manager to the issue and underwriter whereas the secondary market dealer operates as a portfolio manager.

Presently, the NEPSE has licensed 11 dealers for primary market and 2 dealers for secondary market."[39]

[39] Rabindra Bhattarai, *Investment: Theory and Practice*, (2nd ed), Buddha Academic Publishers and Distributors Private Ltd., Kathmandu, Nepal, 2005, pp-14-15.

CHAPTER- III

RESEARCH METHODOLOGY

3.1 Introduction

In simple word research means to search again. Research in common parlance refers to search for knowledge. Research involves investigation of problems and this process of investigation involves a set of gathering, recoding, analysis, and interpreting the data to find out the output. Thus the entire process by which we attempt to solve problems is called research. The researcher does the act of research work. Thus, the different steps taken by the researcher to solve the problem is known as research methodology.

"Research methodology refers to the various sequential step to be adopted by a researcher is studying a problem with certain objective in view."[40] The main purpose of this is to stress on the different research methods and conditions, which are used in this study.

The purpose of this study is to analyze portfolio management and various aspect of portfolio theory. To achieve these objectives, some methodology have been adopted which includes research design, population and sample, source of data, data collection technique, data analysis tools and so on.

3.2 Research Design

Research design is the arrangement of conditions for collection and analysis of data in a manner that aim to combine relevance to the research purpose with economy in procedure. In other words research design is plan, structure and strategy of investigation conceived so as to obtain answer to research question and to control variance. The plan is overall scheme or program of research. It includes an outline what investigator will do fro writing the hypothesis and their operational implication to the financial analysis of data. The stricture of research is more specific. It is the outline, the scheme, and the

[40] C.R. Kothari, *Research Methodology Methods And Technique*, (2nd ed), Wishwa Prakashan, New Delhi, 1998, p-2.

paradigm of the operation of variables. Strategy as used here is more specific than plan. In other words strategy implies how research objective will be reached and how the problem faced in the research will be tackled.

Basically, the research design has tow purposes. The first one is to answer the research question or test the research hypothesis. The second purpose of research design is to control variance. Research design indicates the way followed by researcher. Research design constitutes the blue print for the collection, measurement, and analysis of data.

3.3 Populations and Sample

The term population refers to the set of data not to the sources of data, form the whole universe. The population consists of the whole set of data or information from the entire universe, which is considered to be the whole source of information. It means that the largest set of data may be called the population. In other words population for research means all members of any well-defined class of people events or objects.

Sample is a small specimen or a separated part of the whole population representing its general qualities as far as possible. It is a small set of values selected from the population reflecting its characteristics. For example if 100 students are drawn from population of 500 students is drawn from population, these 100 students are the sample for study. The method of choosing the sample is known as sampling. In other word sampling refers to the investigation of a part of the whole population or universe. Sampling process is based on the principle that when the set of population is chosen at random from the total population which represents the similar in characteristics. And sampling can be of probability sampling and non-probability sampling.

This study is concerned with the portfolio management of listed companies. So, here the companies listed in the stock market are the population of this study and the companies selected here for the study are taken as samples. It is believed that the sample choose from the population represents similar in characteristics. The method of sampling is simple random sampling. For this only seven listed banks are taken as sample from all listed banks. Seven listed banks, which are taken as sample, are listed below:

i) Nepal Arab Bank Limited (NABIL)

ii) Standard Chartered Bank Limited (SCBNL)

iii) Everest Bank Limited (EBL)

iv) Nepal SBI Bank Limited (NSBI)

v) Nepal Investment Bank Limited (NIBL)

vi) Himalayan Bank Limited (HBL)

vii) Nepal Bangladesh Bank Limited (NB)

For this study, financial data from each of the sample companies were taken for the period of five years from 2001 to 2006.

3.4 Source of Data

Data can be obtained either from the primary sources or secondary sources. The data, which are collected fresh for the first time and thus happen to be original in characteristics, are known as primary data. Primary data have not been previously collected or assembled for any known project. The method of collecting primary data can be classified into observation method, interview method and questionnaires method.

The data, which are already available and collected from published and unpublished sources, are known as secondary data. Present study, which is conducted, is based on the secondary data. All the data are used in this study which are used as secondary data are taken form the official website of Nepal stock exchange (NEPSE) i.e. www.nepalstock.com. However some data are taken from the security exchange board of Nepal (SEBON) and publication of Nepal Rastra bank.

3.5 Data collection techniques

The study is based solely on secondary data. As stated earlier, the computer technology makes data collection technique very simple. One can view, copy, carry and send data from computer. At first, the website of NEPSE is visited (www.nepalstock.com) and then relevant data is collected from financial statement of listed company in the web page. The data are copied for his study.

However, the website is not regularly updated for new information and new data of listed companies. Some published data of Nepal Rastra bank is also used.

3.6 Data analysis tools

Data are collected for analyzed. Collected data are meaning less unless it is analyzed for further meaning. The data can be analyzed by using various statistical and financial tools. In this study, the collected data are analyzed by using both financial and statistical tools.

3.6.1 Statistical tools

3.6.1.1 Arithmetic Mean

Arithmetic mean is the most familiar statistical measure to any investor or individual. Therefore, the word mean will refer to the arithmetic mean unless otherwise specified. We invest today in an expectation of earning in the future. That is, investment decisions, that we make today, are based on expectation of returns n the future. Arithmetic mean of a given set of observation is their sum divided by the number of observations. If X_1, X_2, X_3.....X_n are the given observations, then their arithmetic mean (A.M) usually denoted by X is given by:

$$\overline{X} = \frac{X_1 + X_2 + X_3 \ldots\ldots\ldots\ldots X_n}{n}$$

$$= \frac{\Sigma X}{n}$$

In this study the expected return is found by using this technique.

3.6.1.2 Weighted Arithmetic Mean

Weighted arithmetic mean is used for giving importance for some fact/data. The important fact/data should be weighted. If W_1, W_2, W_3……W_n be the weights attached to variables values X_1, X_2, X_3.....X_n respectively, then the weighted arithmetic mean X_w is:

$$X_w = \frac{W_1X_1 + W_2X_2 + W_3X_3 ..... + W_nX_n}{W_1 + W_2 + W_3 ..... + W_n}$$

$$= \frac{\sum WX}{\Sigma W}$$

In this study, the weighted arithmetic mean is used because of the importance of amount invested in each if stock in a portfolio.

3.6.1.3 Standard Deviation

Karl Pearson propounded the standard deviation concept in 1893. It is one of the most used techniques in the field of studying dispersion. standard deviation is the absolute measure of variability. Standard deviation, usually donated by the letter σ (small sigma) of the Greek alphabet, is defined as the positive square root of the arithmetic mean of the squares of the deviations of the given observations from their arithmetic mean. Thus, if X_1, X_2, X_3.....X_n is a set of 'n' observations then its standard deviation is given by:

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{\Sigma (X - \overline{X})^2}{n-1}}$$

Where,

σ = Sigma, denoted for the standard deviation

$\underline{X}$ = Observation set

X = Arithmetic mean

n = Number of observation

The standard deviation is used in this study to measure the risk of stock's return and the risk of portfolio.

3.6.1.4 Variance

Variance is the mean of the squared deviations about the mean of a series. In other words, variance is the square root of the standard deviation and denoted by σ^2 or VAR.

$$VAR = \sigma^2 = \sqrt{\frac{\Sigma(X - \overline{X})^2}{N - 1}}$$

The variance is used to measure risk of a stock as well as the risk of portfolio.

3.6.1.5 Co-efficient of Variation

C.V is another method of measuring the risk. Covariance is the joint variance of any two securities. It is the standardized measure of the risk per unit of return, calculated as the standard deviation divided by the expected return. The coefficient of variation shows the risk per unit of return and it provides a more meaningful basis for comparison when the expected return on the two alternatives is the same. The standard deviation is only an absolute measure of dispersion depending upon the units of measurement. It is denoted by C.V. The relative measurement of dispersion based on standard deviation is called the coefficient of standard deviation and is given by:

$$\text{Coefficient of Variation (C.V)} = \frac{\pm}{\overline{X}} \text{ x } 100\ \%$$

Where,

σ = Standard deviation

$\overline{X}$ = Mean

3.6.1.6 Correlation

The correlation is a statistical tool, which studies the relationships between two variables. Covariance and correlation are closely related. The correlation measures degree of relationship of movement of securities return. Two variables are said to be correlated if the change in one variable result in a corresponding change in other variable. Correlation is denoted by ρ. ρ is the Greek letter and pronounced as 'rho'. The formula to calculate the coefficient of creation is given by:

$$\rho = \frac{COV(x, y)}{\pm_x \pm_y}$$

Where,

Cov (x,y) = Covariance between 'x' and 'y' variables

σ_x = Standard deviation of variable 'x'

σ_y = Standard deviation of variable 'y'

ρ = Correlation

In this study; the correlation tools are used to find the relationship between the return of two common stocks. The correlation coefficient plays an important role in a portfolio diversification. Because of the correlation effect between and among the assets we are able to minimize the total risk of our investment than in a single assets.

The value of correlation coefficient ranges between -1 and +1. When r= +1, it indicates there is perfect positive relationship between the variables. When r= -1, it means there is negative perfect correlation between the two variables. If r= 0 and +1, two variables are increasing or decreasing to the same direction. But if 'r' ranges 0 to -1, two variables are increasing or decreasing in the opposite direction.

3.6.2 Financial tools

3.6.2.1 Single Period Rate of Return

A single period return is also known as a holding period return. A holding period or single period return is simply the total return an investor would earn during the period of holding the securities. Holding period are often calculated for a period other than one year, for this reason, the length of the holding period must be indicated for a specific single period return. The return on stock simply the sum of expected dividend and expected price of the security in a given time. An adequate measurement of security return consists regular income and income from price changes. In general, if the length of the holding period is not specified, it is assumed to be one year. Symbolically,

$$\text{Single period return} = \frac{P_1 - P_0 + DIV_1}{P_0}$$

Where,

DIV_1 = Expected dividend per year

P_1 = Price of stock at time '1' year

P_0 = Current price of stock

3.6.2.2 Dividend yield

The dividend yield is the rate of yield by a stock in a given year, based on cash dividend i.e.

$$\text{Dividend yield} = \frac{Dividend}{Stock\ price}$$

3.6.2.3 Capital Gain Yield

The price appreciation of a stock is capital gain yield i.e.

$$\text{Capital gain yield} = \frac{P_1 - P_0}{P_0}$$

3.6.2.4 Beta

Beta of a market return equals to 1 and Beta coefficient as an index of systematic risk is used to rank the assets. If beta is larger than 1, then the asset is more volatile than the market and is called as an aggressive beta. If beta is less than 1, the asset is called as defensive beta and its price fluctuation is less volatile than the market. The beta of a security is a measure of the responsiveness is nothing more than the covariance between possible returns for security 'j' and the market portfolio divided by the variance of the probability distribution of possible return for the market portfolio i.e.

$$B_j = \frac{\pm_j \pm_m \circ_{jm}}{\pm_m^2}$$

Where,

$\rho_{jm}\ \sigma_j\ \sigma_m$ = Covariance of returns for security 'j' with those of the market.

ρ_{jm} = Expected correlation between possible returns for security 'j' and the market portfolio

3.6.2.5 Dividend per Share

Dividend per share (DP_s) is dividend for shareholders dividend by number of stock outstanding i.e.

$$DP_s = \frac{Total\ amount\ of\ dividend}{Number\ of\ stock\ outstanding}$$

3.7 Limitation Of Methodology

To understand the research more clearly and to find the objective of the research, there have been applied various financial and statistically tools. However, research, there have been applied various financial and statistically tools. However, these tools have some limitations, which are not unexpected.

The expected return on stock is calculated by using arithmetic mean based on the data of five years. However, it may mislead because five-year data is not sufficient and future s too uncertain to predict. Mathematically, risk is nothing but dispersion of expected return. There are many techniques to measure dispersion but standard deviation is widely used in all books and journals. The relationship between two variables can be measured by various techniques but only correlation technique is used to measure such relationship. As earlier stated to have limitation is common phenomena. But those limitations are not so crucial but it weakens the basic finding of the study. But nevertheless, limitations prevent to explore more in a subject matter.

CHAPTER – IV

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

The purpose of the study is to analyze the risk and return of market of selected banks, and to show the effect of diversification among he samples banks. It also calculates the beta and required rate of return using CAPM from selected samples. After including al the related data this chapter attempts to present, analyze and interpret the data in an order that some conclusion can be drawn for the objective of this study.

Data in details about the NEPSE Index, Treasury bill, Price of stock, Dividend yield, and Capital gain yield are presented in different format of the table in this chapter of this study. Vital and important findings through the calculation of risk-free rate of return, return and market risk, beta of a selected samples, risk and return of selected samples, risk and return portfolio of selected samples are analyzed and presented in the table. Some figures and table, which makes the results more simple and understandable, are also constructed.

4.2 Analysis of Market Risk-Return and Risk-Free Rate of Return

In Nepal the stock market is in gradual developing stage, which is yet to cross, tenth year of it's operation. But, however it regularly publishes the movement and level of index of stock market. Index of a stock market represents the true reflector of market risk and return. The table which is presented below shows the yearly movement of index from the beginning of its establishment to the period of this study. The indices of NEPSE index are taken at the end of fiscal year of 31st Ashad or 17th July is presented in the table and is also presented in the graph below:

Table No. 2:

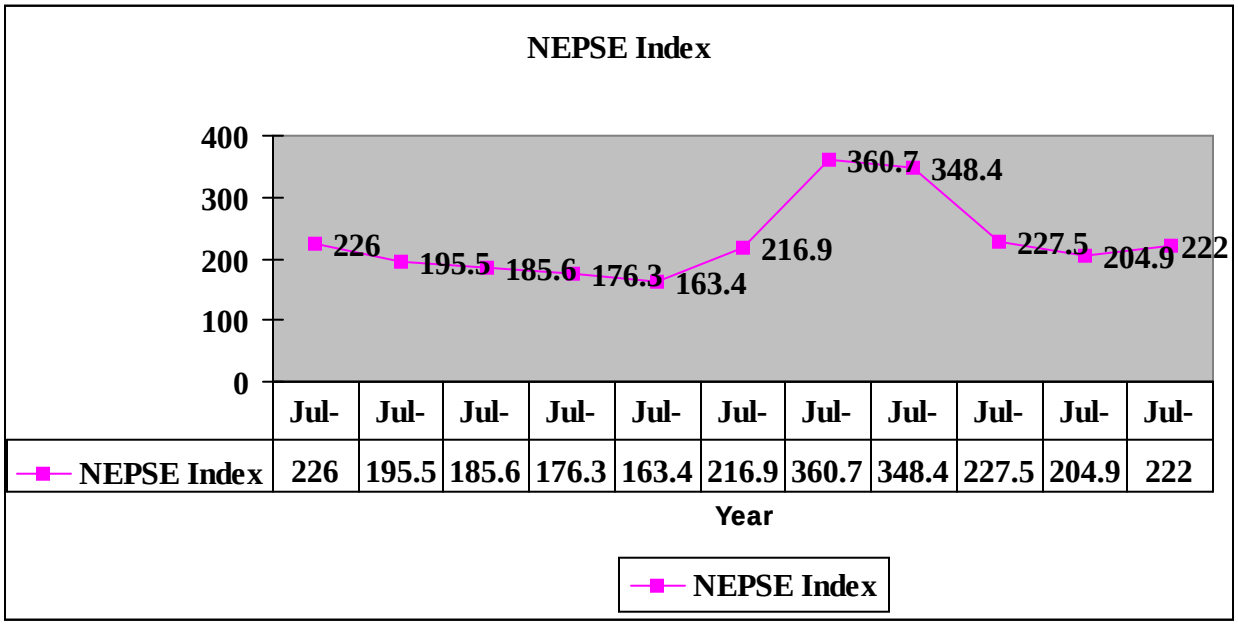
Table showing the NEPSE Index

Year	**NEPSE Index**
July 1996	226
July 1997	195.5
July 1998	185.6
July 1999	176.3
July 2000	163.4
July 2001	216.9
July 2002	360.7
July 2003	348.4
July 2004	227.5
July 2005	204.9
July 2006	222

Source: Quarterly Economic Bulletin, Mid-April 2007, Nepal Rastra Bank

Graph No. 2:

Yearly movement of Index of Nepal Stock Exchange from 1995/96 to 2005/06



Government issues securities to finance their activities. Revenues collected by the government seldom cover expenses, and the differences have been financed primarily by issuing debt instrument. New instruments are issued to repay the old debt. Various types of securities are issued to raise necessary fund, some securities have short term, where as other are long term and T-bill is one of the government debt instrument. The asset, which doesn't possess the risk, is the risk-free assets and does give the risk free rate of return. The risk-free assets cannot be issued by the corporation rather it is generally issued by the government. All corporate securities in principle have some chance of risk. The risk-free return should be free of interest rate risk, default risk, reinvestment risk and marketability risk. A typical short-term security issued by government has almost free of any risk. To calculate the risk-free rate of return for the period of this study, the Treasury bill of 91 days issued by Nepal Rastra Bank on the behalf of government is taken into consideration. Treasury bills are issued on a discount basis and government pays the face value at maturity. T-bills are issued in

discount; however, he difference is treated as interest income for tax purpose. All bills are sold by auction and bids may enter on either a competitive or a non-competitive basis. The total fund to be raised may be splitted into two parts: competitive and non-competitive. Under competitive bid investors must bid the price they are willing to pay by undoing the bank discount computation and under non-competitive bids, the average price in the accepted competitive bids will be charged. A-91 days Treasury bill is free of default risk, reinvestment risk, marketability, interest rate risk and also from inflation risk because of very short period of maturity. The risk-free rate of return is calculated by finding the arithmetic mean of risk-free rate of return of the period of study. The indices of the Treasury bill at the end of fiscal year of 31st Ashad or 17th July is presented in the table and is also presented in the graph below:

Table No. 3:

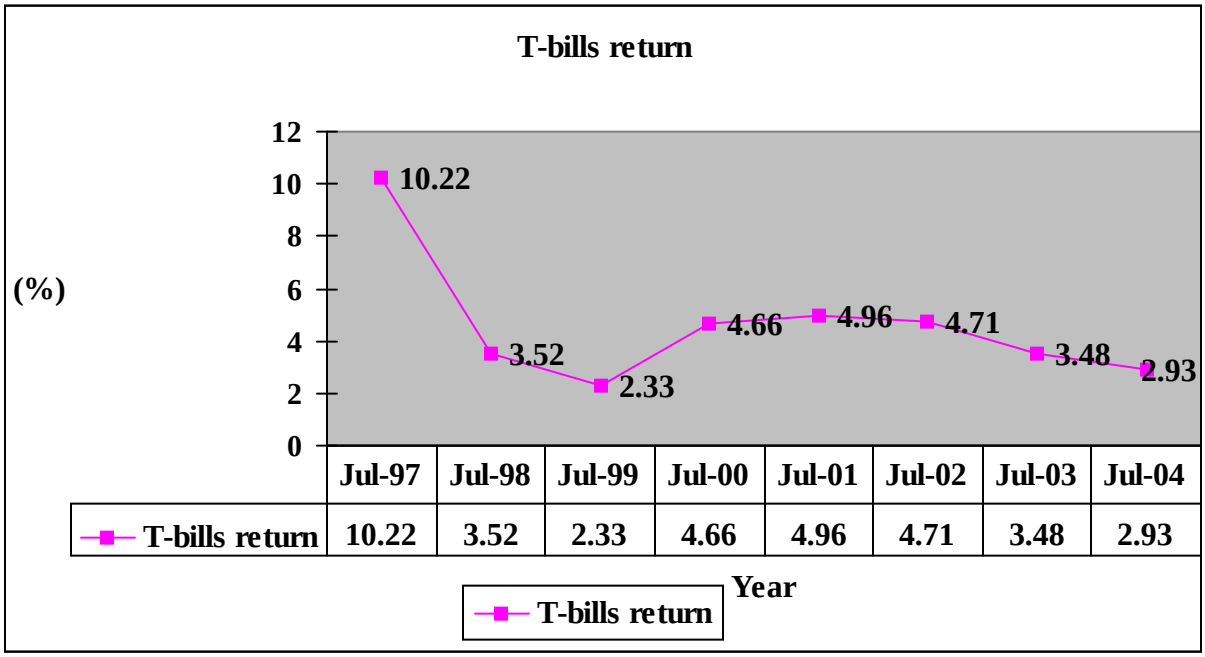
Table showing the T-bill return

Year	**T-bills return**
July 1999	10.22
July 2000	3.52
July 2001	2.33
July 2002	4.66
July 2003	4.96
July 2004	4.71
July 2005	3.48
July 2006	2.93

Source: Quarterly Economic Bulletin, Mid-April 2007, Nepal Rastra Bank.

Graph No. 3:

Annual movement of Rate of return of T-Bills (91 days)



The table presented below shows the NEPSE Index, T-bill rate of return and risk and return of market with risk free rate of return.

Table No. 4:

Table showing the NEPSE Index & T-bill

Year	**NEPSE Index**	**Market return (R_m) %**	**Annual T-bill return %**
July 2001	216.90		
July 2002	360.70	66.30	4.66
July 2003	348.40	-3.41	4.96
July 2004	227.50	-34.70	4.71
July 2005	204.90	-9.93	3.48
July 2006	222	8.34	2.93
Total		**26.60**	**20.74**
Average Return		**5.32**	**4.14**
Standard deviation		**37.54**	**0.88**
Variance		**1409.51**	**0.79**

Source: Quarterly Economic Bulletin, Mid-April 2005, Nepal Rastra Bank.

From the fig and table no.4, it can be observed that in the initial stage the NEPSE Index was in decreasing phase from year 1996 to year 2000. NEPSE Index increases sharply from the year 2001 to the year 2002 and it again decrease till the year 2005. And it increases again in year 2006.It can predicted that the consistency in increasing trend of the NEPSE Index cannot be observed in the coming year due to the political uncertainty of the kingdom of Nepal. The lowest point of NEPSE Index can be observed in year 2000 when the index went down

to 163.40 points and the highest point of NEPSE Index can be observed in year 2002 of 360.70 points.

Based on the calculation of NEPSE Index of table no.4 during these periods, the average market return is found to be 5.32% while the variation in the return (variance) is found to be 1409.51%. The standard deviation is found to be 37.54%. As a whole, low rate of return with high risk.

Inconsistency in increasing and decreasing trend can also be found with the return of T-bill. By observing the table and graph no.3, the T-bill rate of return was 10.22% in July 1999 and decreases to 2.33% in July in 2001. And it increases from year 2002 to year 2003. And again the decline in T-bill can be seen in after year 2003. The lowest annual T-bill return can be observed in year 2001 of 2.33 and the highest annual T-bill can be observed in year 1999 of 10.22.

Based on the calculation during the period of table 4, it can be observed that the return of the T-bill is found to be 4.14%, while the variation in the return (variance) is found to be 0.79%. The standard deviation is found to be 0.88%.

4.3 Analysis of Banking Sector

Banking sector dominates all other sector in the stock market. Investors want to invest more in banking sector rather than the other sector. In the stock market almost 80% of the daily transaction accounts for the banking sector. Their market price is also higher than the other sector. They regularly pay dividend to investors. In Nepal, there are altogether sixteen commercial banks having - two governments, seven joint venture and rest other private banks. People are satisfied with the service and hold the view that the jobs of banking sector are better than other jobs.

If the investment is made in two or more than two banks or assets then it is termed as the case of portfolio investment. However, this study mainly focuses on the return and risk of stock of selected commercial banks, correlation among them, and the risk and return portfolio. It also calculates the risk of stock in terms of market i.e. beta. Finally, the comparison is done between the required rate of return and the expected rate of return.

4.3.1 Nepal Arab Bank limited (NABIL)

Currently National bank ltd, Bangladesh, holds 50% of the equity share. The bank was incorporated in year 1984 A.D and it was listed in year 1986 A.D in NEPSE.

The following table shows the relevant data of MPs, DPs, and calculation of DY, CGY, and return of NABIL bank ltd. during the year 2001 to 2006.

Table No.5:

Table mentions the DPs, MPs, CGY, DY, and Return of stock of NABIL from 2001 to 2006.

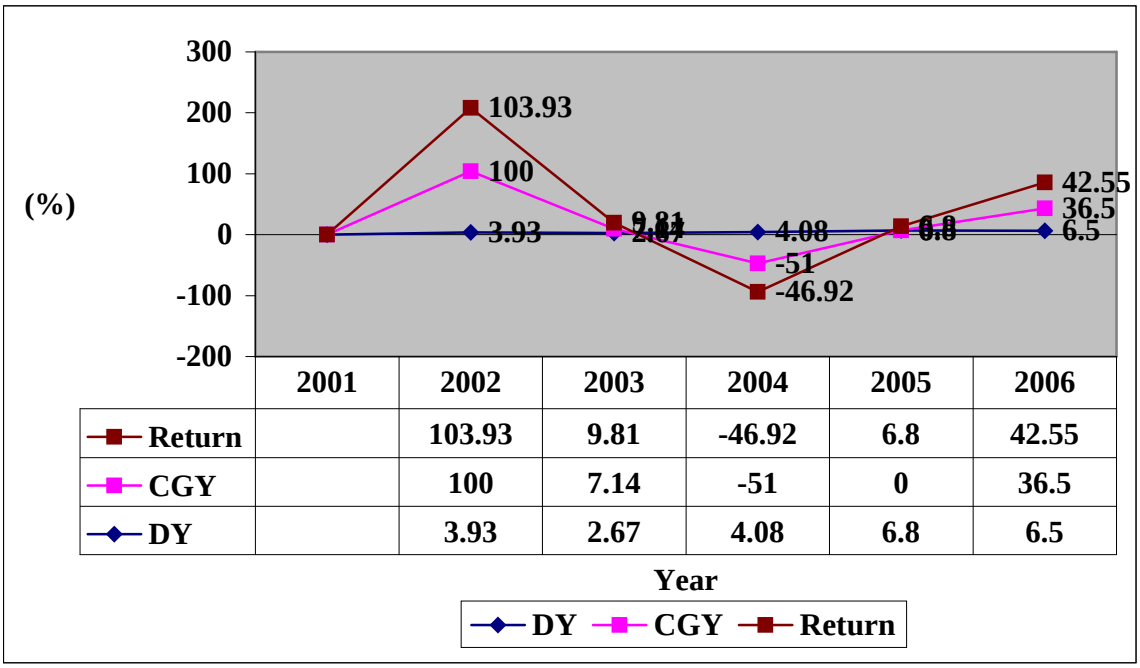
Year	Price (Rs)	DPs (Rs)	DY (%)	CGY (%)	Return (%)
2001	700	50			
2002	1400	55	3.93	100	103.93
2003	1500	40	2.67	7.14	9.81
2004	735	30	4.08	-51	-46.92
2005	735	50	6.80	0	6.80
2006	1000	65	6.50	36.50	42.55
Total					**116.17**
Average Return					**23.24**
Standard deviation					**55.35**
Variance					**3063.62**

Source: www.nepalstock.com/listedcompanies

The graph presented below shows the relationship among CGY, Stock return and DY of NABIL bank ltd as well as the relationship between DPs and MPs.

Graph No. 4:

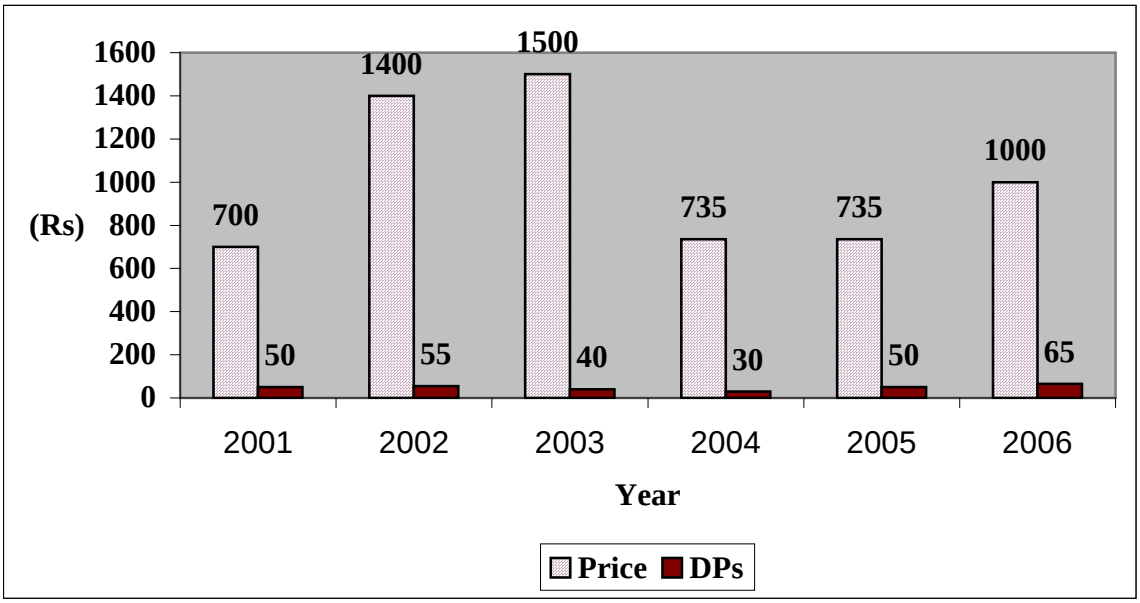
DY, CGY & Return on stock of NABIL bank



	2001	2002	2003	2004	2005	2006
Return		103.93	9.81	-46.92	6.8	42.55
CGY		100	7.14	-51	0	36.5
DY		3.93	2.67	4.08	6.8	6.5

Graph No. 5:

DPs & MPs of NABIL



From the given table and graph it is observed that MP_s of NABIL bank goes on increasing in first three years from Rs.700 to Rs.1500. then it was noted that a decrease in CGY by 51% which shows the decrease in MPs. However MPs remains same for year 2004 & year 2005 i.e. Rs.735 and it again increases to Rs.1000 in year 2006. The highest increase in MPs can be observed in year 2002. Yet another increase in MPs can be seen in year 2006. And increase in MPs remains nil in year 2005.The bank offered dividend of Rs.50, Rs.55, Rs.40, Rs.30, Rs.50, and Rs.65 in the relevant year. The return of NABIL bank remains negative in year 2002 of 46.92%. The highest return on common stock was in year 2002 of 103.93%.

The average return of NABIL bank during relevant period found to be 23.24%. Variance is found to be 3063.62% and the standard deviation is found to be 55.35%. Higher standard deviation and variation can be seen due to high volatility in MPs.

One cannot make decision about the position of bank by seeing risk and return of common stock without comparing with other banks in stock market.

4.3.2 Standard Chartered Bank Nepal Limited (SCBNL)

Initially ANZ Grindlays Bank PLC is the 50% of investment sold to the Standard Chartered bank ltd, England by ANZ. The bank was incorporated in year 1985 A.D. and it was listed in year 1988 A.D.

The following table shows the relevant data of MPs, DPs, and calculation of DY, CGY, and Return of SCBNL during the year 2001 to 2006.

Table No. 6:

Table mentions the DPs, MPs, CGY, DY, and Return of stock of SCBNL from 2001 to 2006

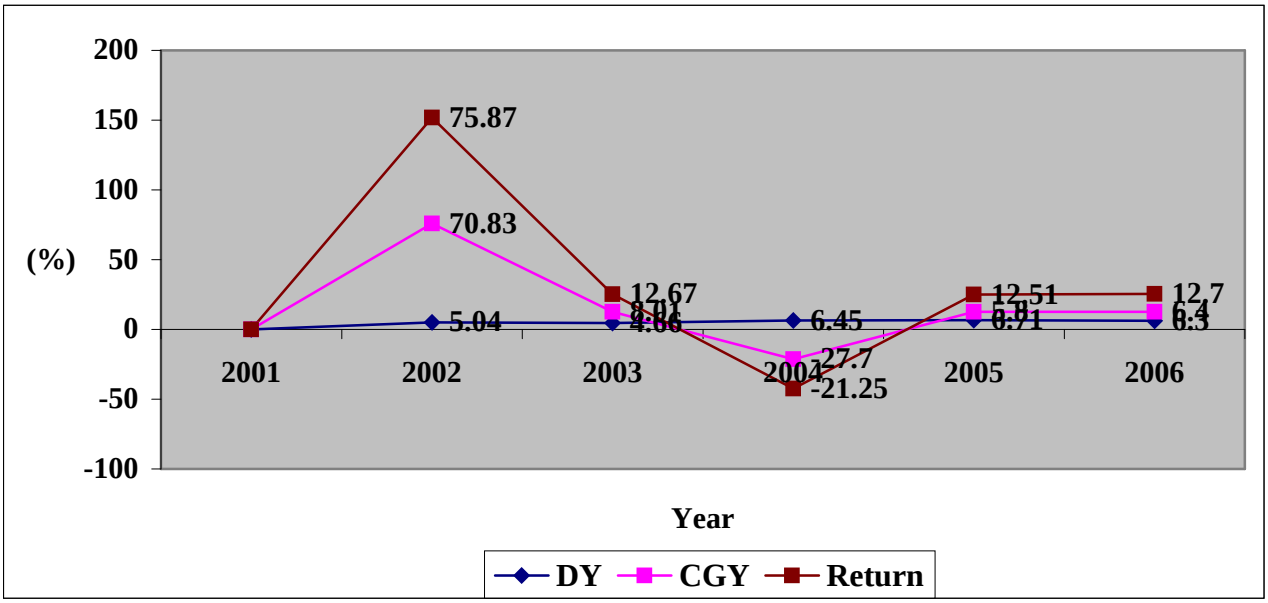
Year	Price (Rs)	DPs (Rs)	DY (%)	CGY (%)	Return (%)
2001	1162	80			
2002	1985	100	5.04	70.83	75.87
2003	2144	100	4.66	8.01	12.67
2004	1550	100	6.45	-27.70	-21.25
2005	1640	110	6.71	5.80	12.51
2006	1745	110	6.30	6.40	12.70
Total					**92.50**
Average Return					**18.50**
Standard deviation					**35.26**
Variance					**4243.25**

Source: www.nepalstock.com/listedcompanies

The graph presented below shows the relationship among CGY, Stock return and DY of SCBNL bank ltd. as well as the relationship between DPs and MPs.

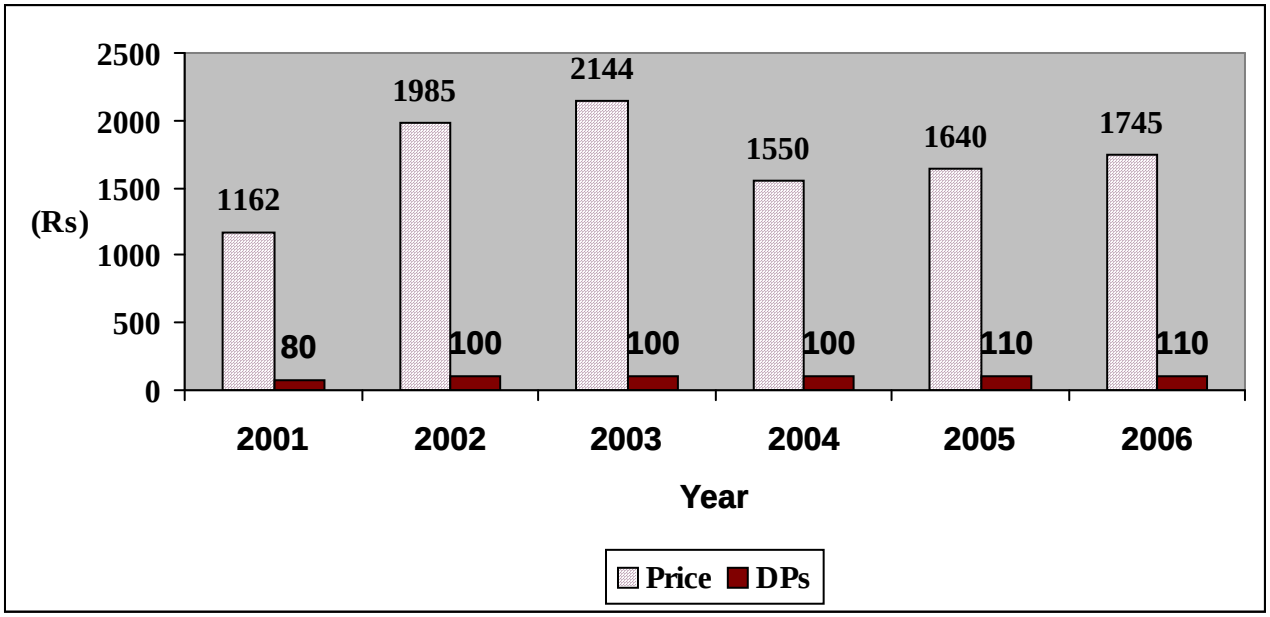
Graph No. 6:

DY, CGY & Return on stock of SCBNL



Graph No. 7:

DPs & MPs of SCBNL



From given table and graph it is observed that MPs of SCBNL goes on increasing in first three years from Rs.1162 to Rs.2144. Then it was noted that a decrease in CGY by 27.7% leads to decrease in MPs in year 2004. After year 2004 MPs again goes on increasing. The highest increase in MPs can be observed in year 2002. Yet another higher increase in MPs can be seen in year 2003.

The SCBNL bank offered dividend of Rs.80, Rs.100, Rs.100, Rs.100, Rs.110, and Rs.110 in the relevant year. The return of SCBNL remains negative in year 2004 of 21.25%. The highest return can observe in year 2002 of 75.87%.

The average return of SCBNL is found to be 18.50%. The variance is found to be 1243.25% and the standard deviation is found to be 35.26%. SCBL has less risk and less return in compare to NABIL. Risk averse investor would like to invest in company like SCBNL because they do not want to take risk.

4.3.3 Everest Bank Limited (EBL)

Punjab National bank holds 20% of equity of EBL. The management of EBL is also managed by Punjab National bank. The bank was incorporated in year 1993 A.D. and it was listed in NEPSE in 1995 A.D.

The following table shows the relevant data of MPs, DPs, and calculation of DY, CGY, and Return of EBL during the year 2001 to 2006.

Table No. 7:

Table mentions the DPs, MPs, CGY, DY, and Return of stock of EBL from 1999 to 2004

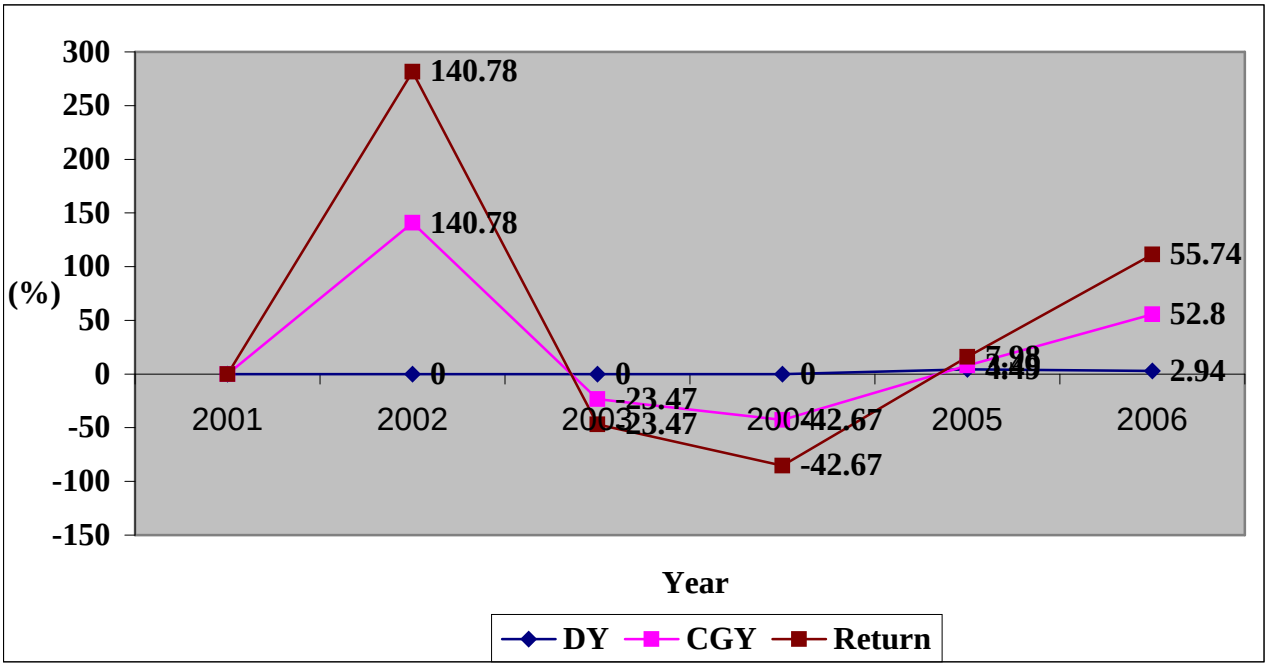
Year	**Price (Rs)**	**DPs (Rs)**	**DY (%)**	**CGY (%)**	**Return (%)**
2001	407	15			
2002	980	0	0	140.78	140.78
2003	750	0	0	-23.47	-23.47
2004	430	0	0	-42.67	-42.67
2005	445	20	4.49	3.49	7.98
2006	680	20	2.94	52.80	55.74
Total					**138.36**
Average Return					**27.67**
Standard deviation					**73.36**
Variance					**5381.68**

Source: www.nepalstock.com/listedcompanies

The graph presented below shows the relationship among CGY, Stock return and DY of EBL bank ltd as well as the relationship between DPs and MPs.

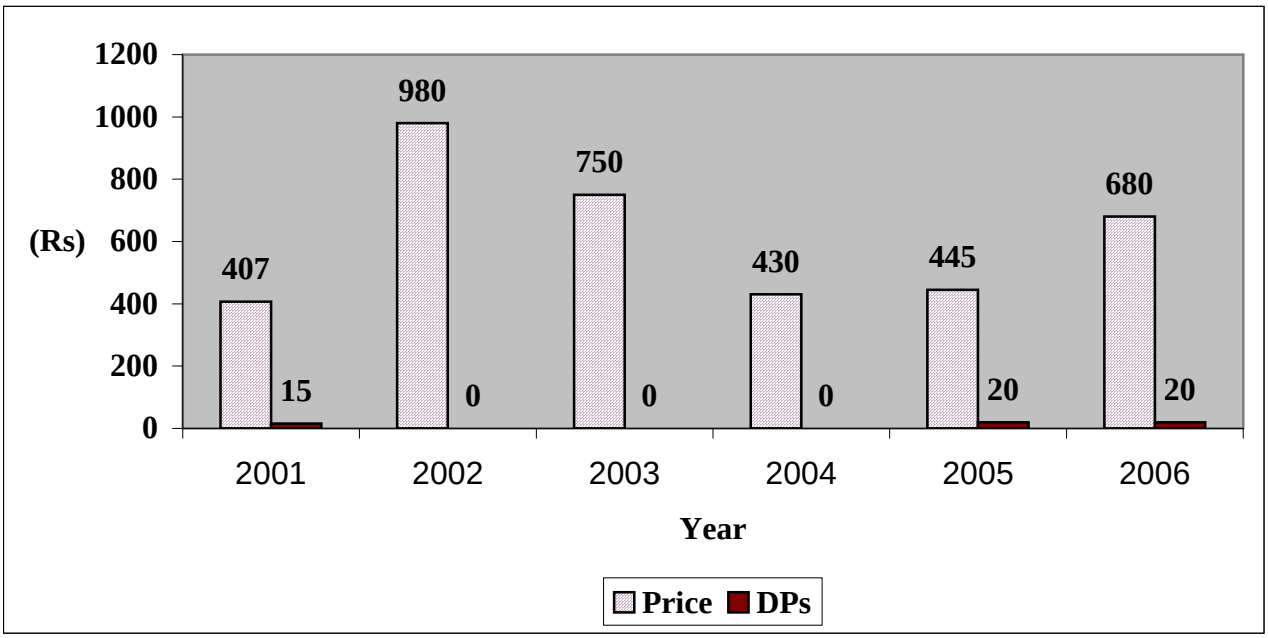
Graph No. 8:

DY, CGY & Return on stock of EBL



Graph No. 9:

DPs & MPs of EBL



From the above given table and graph it can be observed that the MPs increases in year 2002 and MPs decreases in year 2003 and year 2004 due to decrease in CGY. And then increment in MPs can be seen after year 2004. The highest increase in MPs can be seen in year 2002.

The EBL offered divided if Rs.15, Rs.0, Rs.0, Rs.0, Rs.20, and Rs.20 in the relevant year. Dividend was not offered in year 2002, year 2003 and year 2004. The return of EBL remains negative in year 2003 and year 2004. The highest return can be observed in year 2002 of 140.78%. Whereas the lowest return can be observed in year 2004 of 42.67%.

The average return of EBL is found to be 27.67%. The variance and standard deviation, which measures the risk, is found to be 5381.68% and 73.36% respectively. Here it can be observed that more risk and more return in compare to SCBL.

4.3.4 Nepal SBI Bank Limited (NSBI)

NSBI is joint venture entity between Nepalese promoters and the state bank of India. And SBI holds 50% of equity in NSBI. The bank was incorporated in 1993 A.D. and the bank was listed in NEPSE in 1995 A.D.

The following table shows the relevant data of MPs, DPs, and calculation of DY, CGY, and Return of NSBI during the year 2002 to 2006.

Table No. 8:

Table mentions the DPs, MPs, CGY, DY, and Return of stock of NSBI from 2001 to 2006

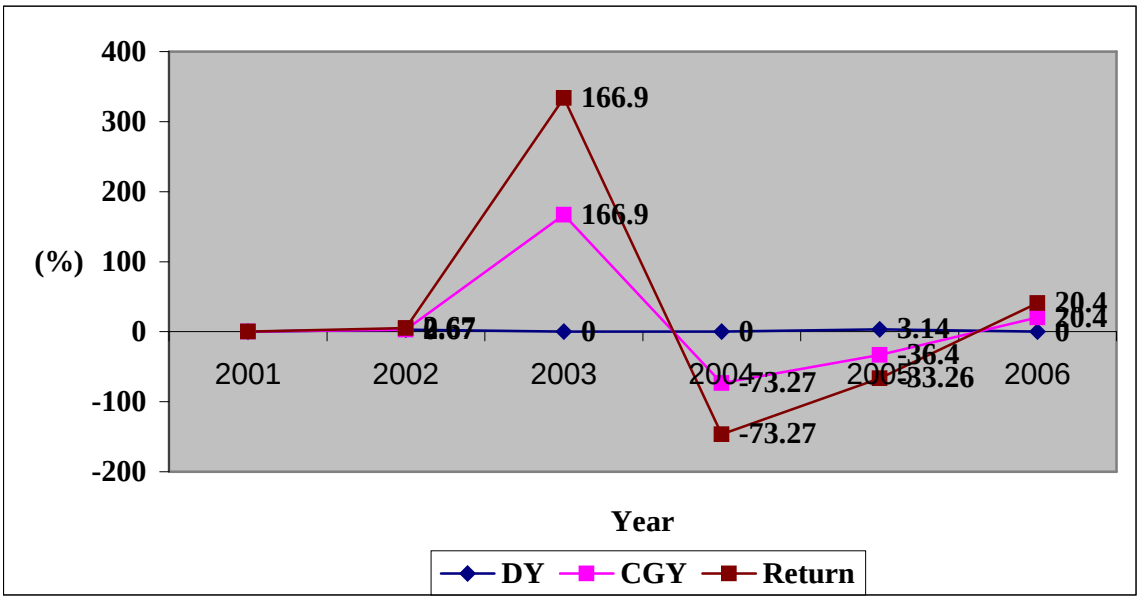
Year	Price (Rs)	DPs (Rs)	DY (%)	CGY (%)	Return (%)
2001	562	10			
2002	562	15.01	2.67	0	2.67
2003	1500	0	0	166.90	166.90
2004	401	0	0	-73.27	-73.27
2005	255	8	3.14	-36.40	-33.26
2006	307	0	0	20.40	20.40
Total					**83.44**
Average Return					**16.69**
Standard deviation					**91.32**
Variance					**8339.34**

Source: www.nepalstock.com/listedcompanies

The graph presented below shows the relationship among CGY, Stock return and DY of NSBI bank ltd. as well as the relationship between DPs and MPs.

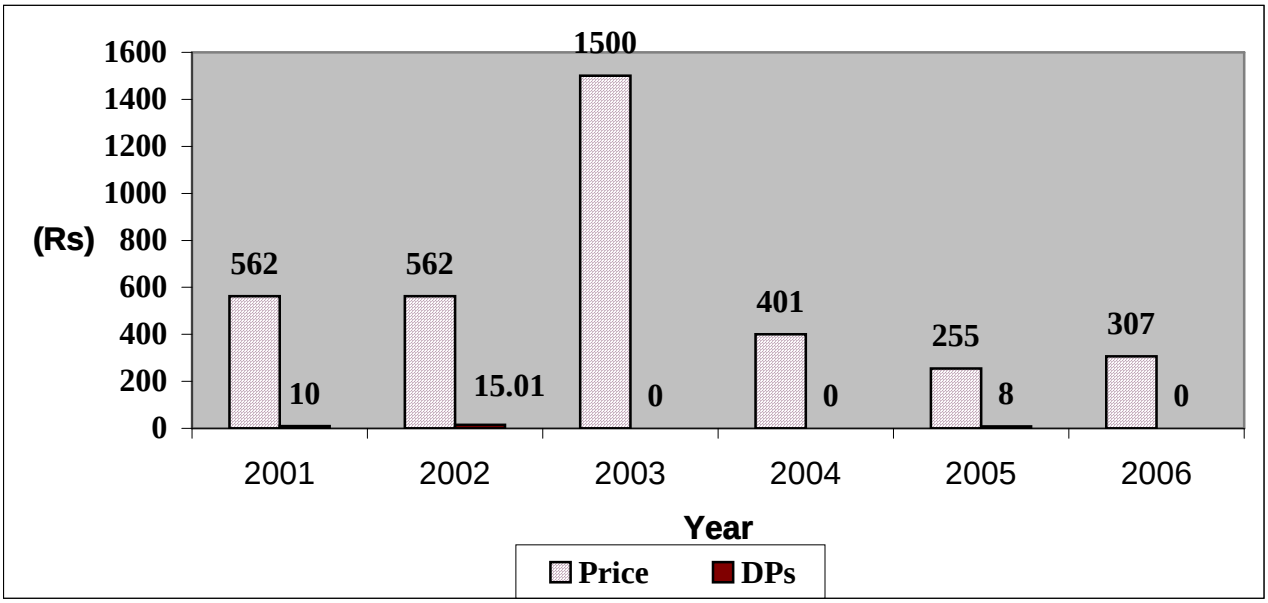
Graph No. 10:

DY, CGY & Return on stock of NSBI



Graph No. 11:

DPs & MPs of NSBI



From the above table and graph it can be observed that the MPs remains same in year 2001 and year 2002 of Rs.562. There was huge increment in MPs in year 2003 and there was again decline in MPs in year 2004 & 2005. And then there was again increase in MPs in year 2006 in compare to year 2005. Constant fluctuation can be seen in MPs. Decline in MPs can be observed due to decrease in CGY. Higher increase in MPs can be observed in year 2003. Yet another higher increase in MPs can be observed in year 2006.

The bank offered dividend of Rs.10, Rs.15.01 and Rs.8 in year 2001, year 2002 and year 2005 respectively. Hence no dividend was given in year 2001, year 2004 & year 2006. The higher dividend was offered in year 2002 of Rs.15.01. The highest return can be observed in year 2001. And the lowest return can be observed in year 2004.

The average return found to be 16.69%. The variance and standard deviation, which shows riskiness of security, is found to be 8339.34% and 91.32%. Higher variance and standard deviation ca be observed due to volatility in MPs. Higher risk and less return in NSBI can be observed in compare to EBL.

4.3.5 Nepal Investment Bank Limited (NIBL)

Nepal Investment Bank Ltd. (NIBL), previously Nepal Indosuez Bank Ltd., was established in 1986 as a joint venture between Nepalese and French partners. The French partner (holding 50% of the capital of NIBL) was Credit Agricole Indosuez, a subsidiary of one the largest banking group in the world. The bank was incorporated in year 1985 A.D. and it was listed in NEPSE in year 1987 A.D.

The following table shows the relevant data of MPs, DPs, and calculation of DY, CGY, and Return of NIBL during the year 2001 to 2006.

Table No. 9:

Table mentions the DPs, MPs, CGY, DY, and Return of stock of NIBL from 2001 to 2006

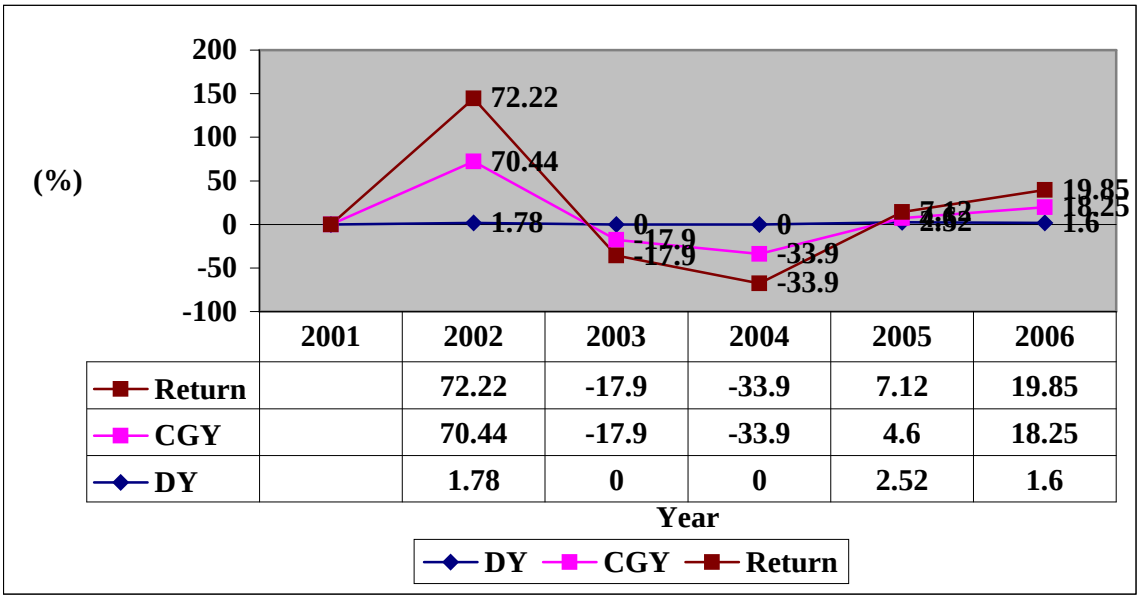
Year	**Price (Rs)**	**DPs (Rs)**	**DY (%)**	**CGY (%)**	**Return (%)**
2001	822	30			
2002	1401	25	1.78	70.44	72.22
2003	1150	0	0	-17.90	-17.90
2004	760	0	0	-33.90	-33.90
2005	795	20	2.52	4.60	7.12
2006	940	15	1.60	18.25	19.85
Total					**47.39**
Average Return					**9.47**
Standard deviation					**40.86**
Variance					**1669.53**

Source: www.nepalstock.com/listedcompanies

The graph presented below shows the relationship among CGY, Stock return and DY of NIBL as well as the relationship between DPS and MPS.

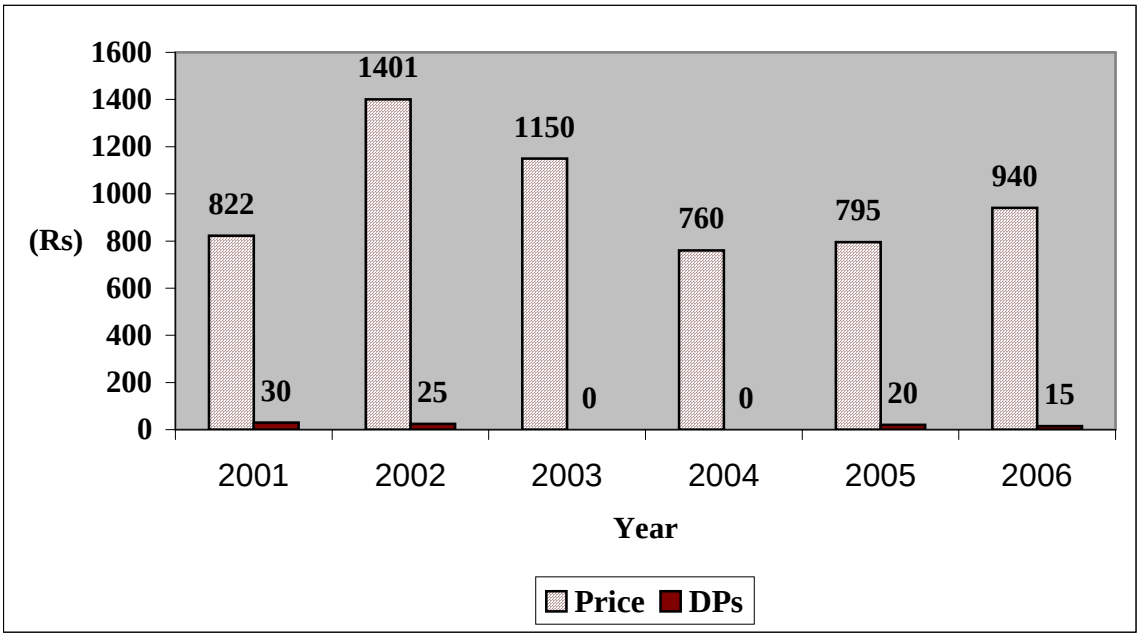
Graph No. 12:

DY, CGY & Return on stock of NIBL



Graph No. 13:

DPs & MPs of NIBL



From the above table and graph it can be observed that MPs increase in year 2000 and then again decrease in year 2003 & year 2004. After the year 2004 the MPs start to increase in coming year. Decline in MPs can be seen due to decrease in CGY. Higher increase in MPs can be seen in year 2000 and higher decline in MPs can be observed in year 2004.

The bank offered dividend of Rs.30, Rs.25, Rs.0, Rs.0, Rs.20 & Rs.15 in year 2001, year 2002, year 2003, year 2004, year 2005 and year 2006 respectively. Highest return can be observed in year 2002. And the lowest return can be observed in year 2004.

The average return is found to be 9.47%. The variance is found to be 1669.53% and the standard deviation, which is the square root of variance, is found to be 40.86%. As a whole less risk and less return of NIBL in compare to NSBI.

4.3.6 Himalayan Bank Limited (HBL)

Himalayan Bank Limited was incorporated in 1992 A.D by a few distinguished business personalities of Nepal in partnership with Employees Provident Fund and Habib Bank Limited, one of the largest commercial Banks of Pakistan. Banking operation was commenced from year 1993 A.D.

The following table shows the relevant data of MPs, DPs, and calculation of DY, CGY, and Return of HBL during the year 2001 to 2006.

Table No. 10:

Table mentions the DPs, MPs, CGY, DY, and Return of stock of HBL from 2001 to 2006

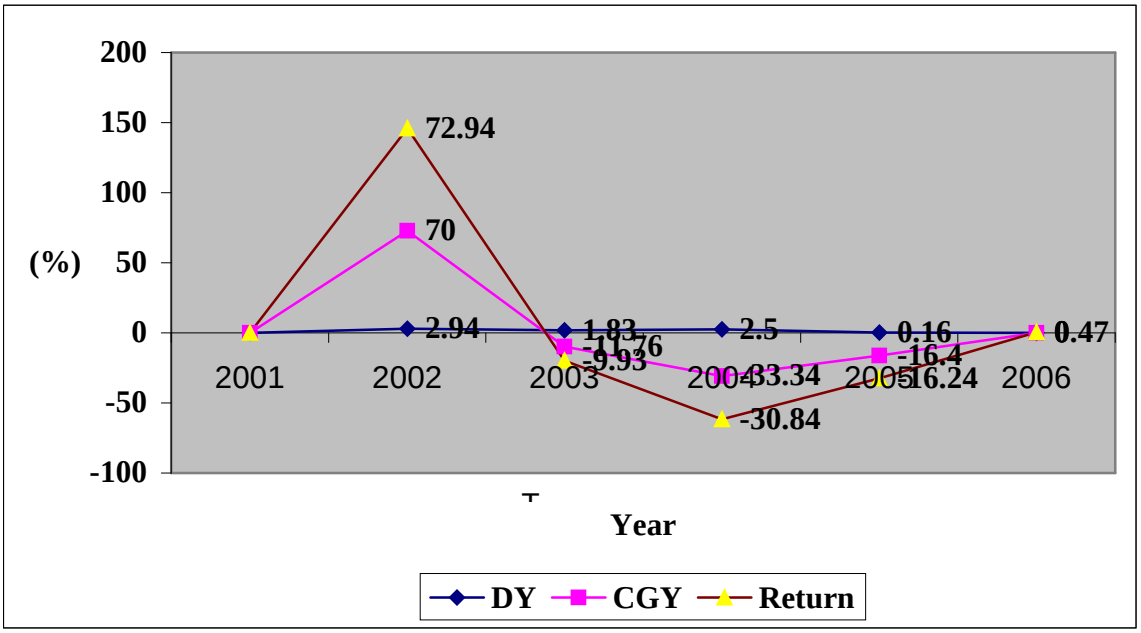
Year	**Price (Rs)**	**DPs (Rs)**	**DY (%)**	**CGY (%)**	**Return (%)**
2001	1000	50			
2002	1700	50	2.94	70	72.94
2003	1500	27.50	1.83	-11.76	-9.93
2004	1000	25	2.50	-33.34	-30.84
2005	836	1.31	0.16	-16.4	-16.24
2006	840	0	0	0.47	0.47
Total					**16.40**
Average Return					**3.28**
Standard deviation					**40.55**
Variance					**1644.30**

Source: www.nepalstock.com/listedcompanies

The graph presented below shows the relationship among CGY, Stock return and DY of HBL as well as the relationship between DPs and MPs.

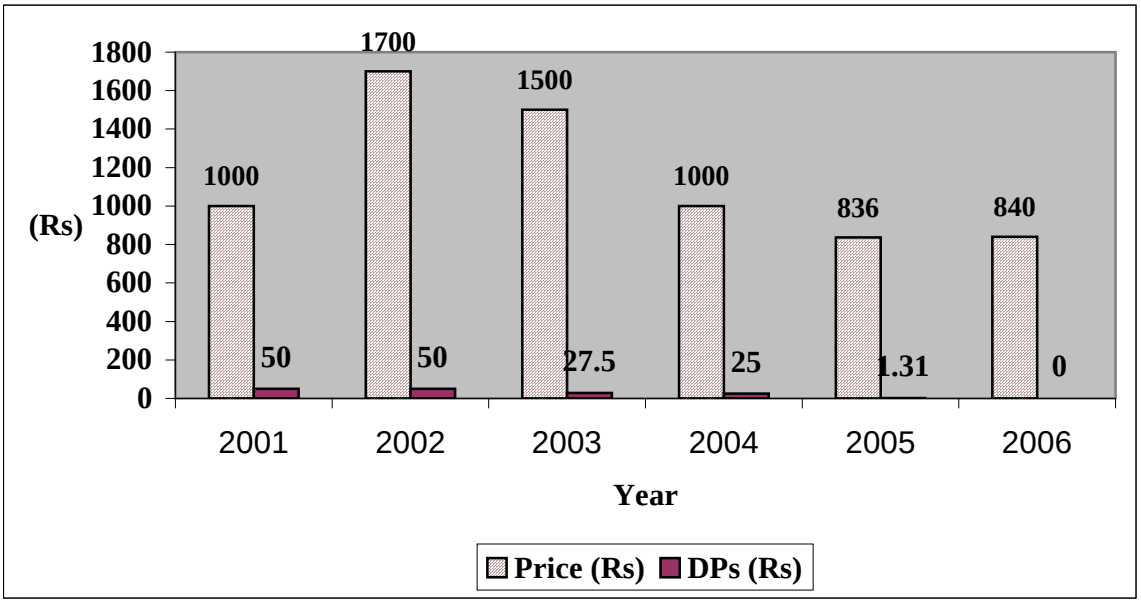
Graph No. 14:

DY, CGY & Return on stock of HBL bank



Graph No. 15:

DPs & MPs of HBL



From the above table and graph it can be observed that MPs increases from year 2001 to year 2002. After year 2002 MPs goes on decreasing, this decreasing trend continues till year 2005 ad MPs increases in year 2006 in compare to year 2005. Decline in MPs can be observed due decline in CGY. Higher increase in MPs can be observed in year 2002 and higher decrease in MPs can be observed in year 2004.

The bank offered the dividend of Rs.50, Rs.50, Rs.27.50, Rs.25 and Rs.1.31 in year 2001, 2002, 2003, 2004, 2005 respectively. Hence no dividend was given in year 2006. The highest return can be observed in year 2000 and lowest return can be observed in year 2004.

The average return is found to be 3.28%. The variance and standard deviation, which relates to risk is found to be 1644.30% and 40.55% respectively. A lower rate of return at moderate level of risk.

4.3.7 Nepal Bangladesh Bank Limited (NB)

Nepal Bangladesh bank limited is the Joint Venture Bank with IFIC Bank Ltd. of Bangladesh. Its Head Office is situated at New Baneshwor, Bijuli Bazar, Kathmandu. The bank was incorporated in year 1994 A.D. and it was listed in NEPSE in year 1995 A.D.

The following table shows the relevant data of MPs, DPs, and calculation of DY, CGY, and Return of NB bank ltd. during the year 2001 to 2006.

Table No. 11:

Table mentions the DPs, MPs, CGY, DY, and Return of stock of NB from 2001 to 2006

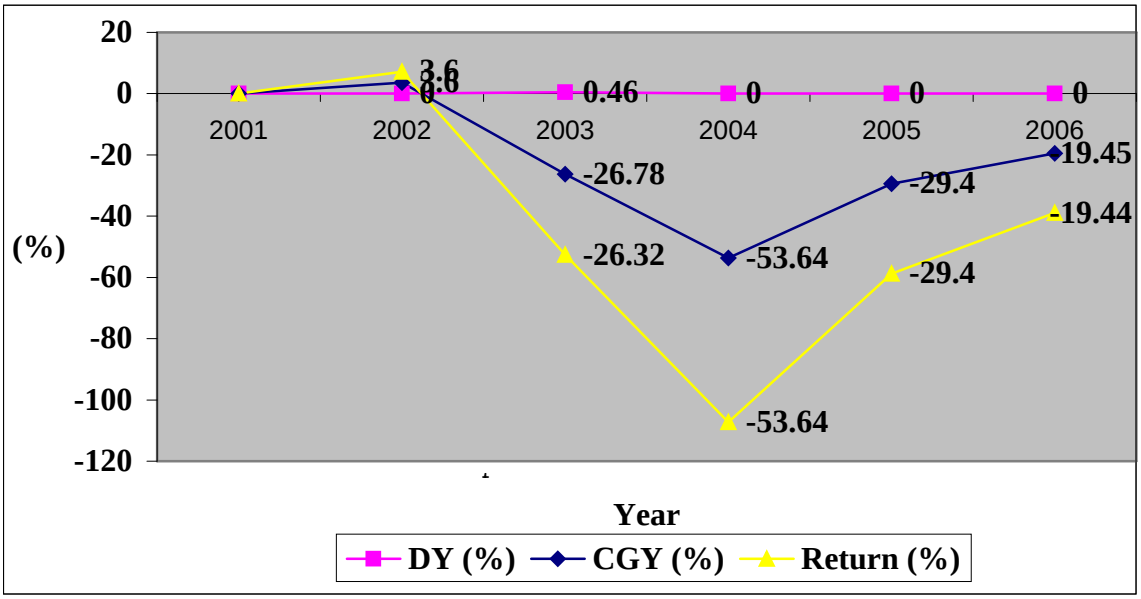
Year	**Price (Rs)**	**DPs (Rs)**	**DY (%)**	**CGY (%)**	**Return (%)**
2001	1450				
2002	1502	0	0	3.60	3.60
2003	1100	5.04	0.46	-26.78	-26.32
2004	510	0	0	-53.64	-53.64
2005	360	0	0	-29.40	-29.40
2006	290	0	0	-19.45	-19.44
Total					**-125.20**
Average Return					**-25.04**
Standard deviation					**21.62**
Variance					**467.42**

Source: www.nepalstock.com/listedcompanies

The graph presented below shows the relationship among CGY, Stock return and DY of NB bank ltd. as well as the relationship between DPs and MPs.

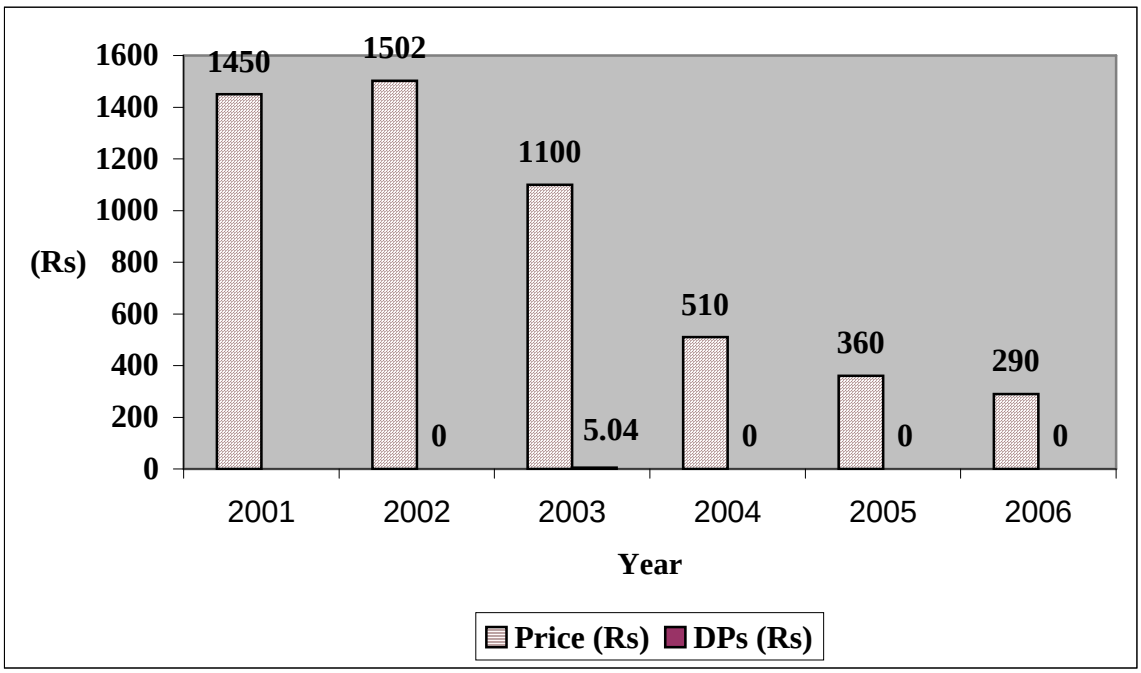
Graph No. 16:

DY, CGY & Return on stock of NB bank



Graph No. 17:

DPs & MPs of NB bank



From the above table and graph it van be observed that MPs increases from Rs.1200 in year 2001 to Rs.1502 in year 2002. And then gradual decline in MPs can be observed in related year due to decline in CGY. Highest CGY can be found in year 2002 and the lowest CGY can be found in year 2004.

The bank offered dividend of Rs.5.04 in year 2003 and hence no divided was paid in any year. Highest return can be seen in year 2002 and lowest return can be seen in year 2004.

The average return is found to be –25.04%, which shows the negative return. The variance and standard deviation is found to be 467.42% and 21.62%, which shows the rirskiness of security. However this bank gives negative return at moderate risk. Which is not favorable.

4.4 Summary Result of Banking Sector

The following table, which is presented below, gives the overview on calculated summary result of the analysis of banking sector.

Table No. 12:

Table showing the Return and Risk of selected Banks.

Banks	**Return (%)**	**Variance (%)**	**Standard deviation (%)**	**Coefficient Of Variation (C.V)**
NABIL	23.24	3063.62	55.35	2.38
SCBNL	18.50	1243.25	35.26	1.90
EBL	27.67	5381.68	73.36	2.65
NSBI	16.69	8339.34	91.32	5.47
NIBL	9.47	1669.53	40.86	4.31
HBL	3.28	1644.30	40.55	12.36
NB	-25.04	467.42	21.62	-0.86

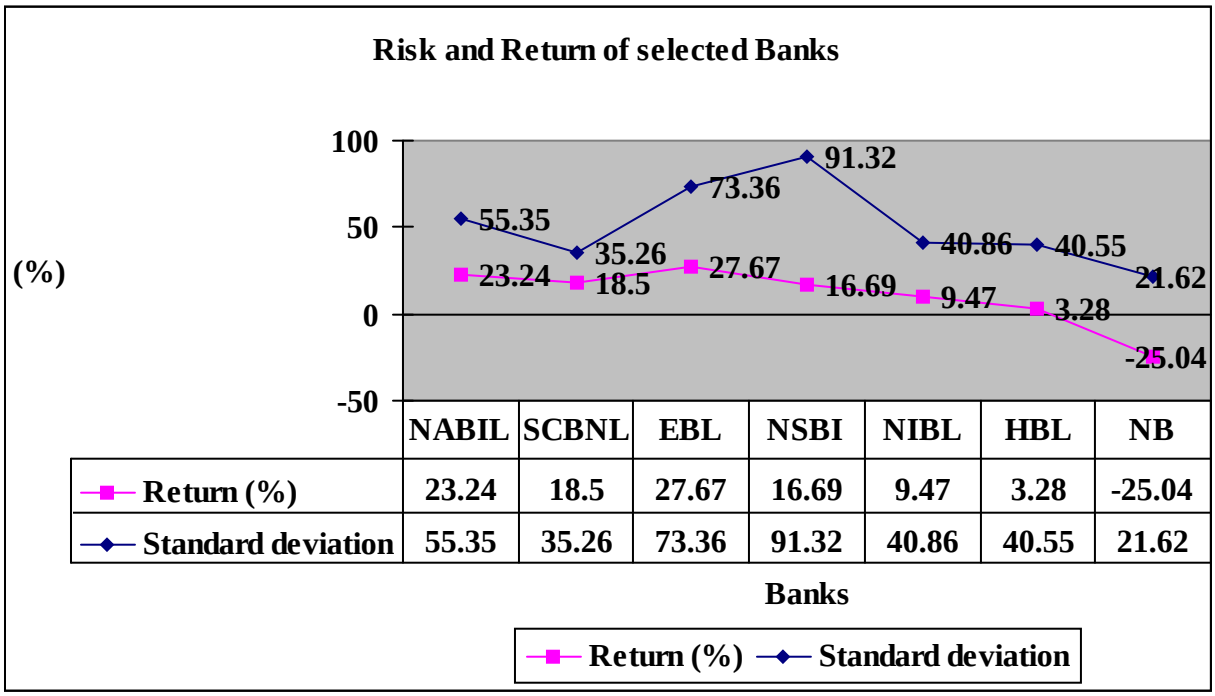
The table above summarizes the analysis of banking sector. EBL has the highest return but NSBI has the highest risk. The table also presents some interesting result. The NBBL has the negative return. If the investor wants to inst in NB bank the investor is taking high risk with negative return. Investor can achieve high return at moderate risk if he selects EBL. In above table all other selected banks dominate NB bank.

Higher the coefficient of variation (C.V) higher the risk and lower the coefficient of variation (C.V) lower the risk. Here C.V is an important tool for measuring the variability of return. According to this tool of measurement. HBL is most risky and SCBL is the least risky.

The following graph presents the above table so that comparison can be done easily:

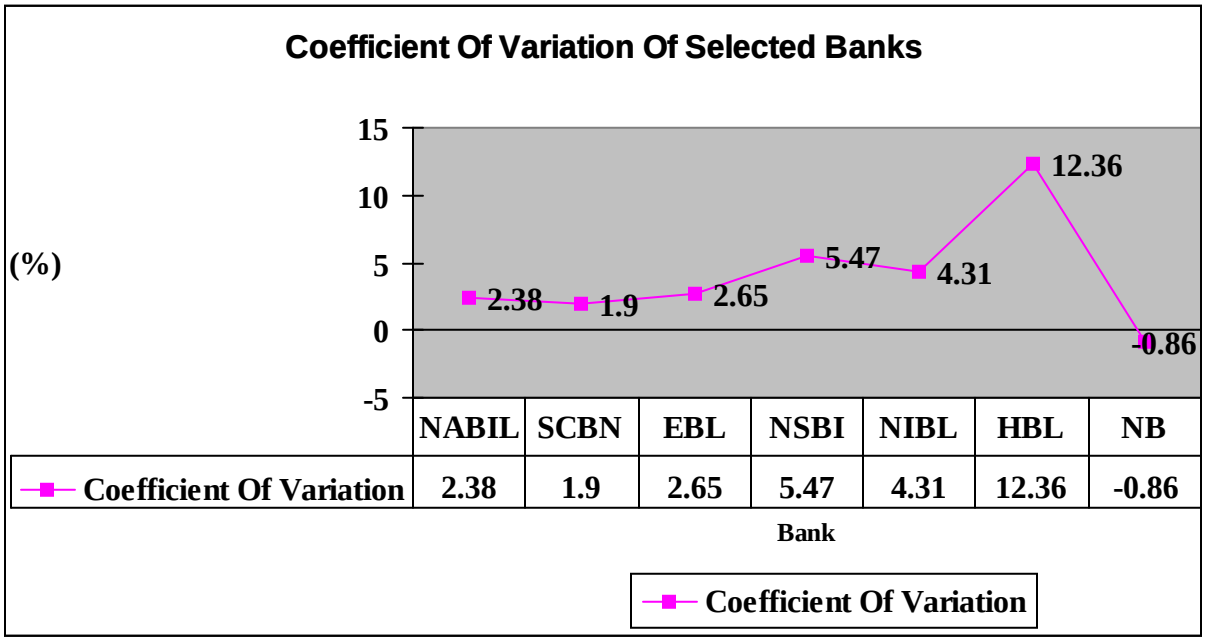
Graph No. 18:

Risk and Return of Selected Banks



Graph No. 19:

Coefficient of Variation (C.V) of Selected Banks



4.5 Analysis Of Covariance and Correlation

Always some degree of covariance in the market price of various securities can be observed. The covariance measures how two variables co-vary. Covariance is indicated by COV.

The correlation coefficient is standard statistical measure of the linear relationship between two variables. It ranges from –1 to +1. If the correlation is negative it states that the risk can be eliminated. Correlation is indicated by "ρ".

In this part, the numerical value of covariance and correlation among the price of securities is presented. Mathematically, covariance can be shown as:

If the probability is given,

$$\text{Cov}(x,y) = \Sigma P_i [(R_x - E(R_x)] \quad [(R_y - E(R_y)]$$

In case of historical return

$$\text{Cov (x,y)} = \frac{\Sigma [(R_x - E(R_x)] \quad [(R_y - E(R_y)]}{n-1}$$

Mathematically for correlation (ρ_{xy})

$$\rho_{xy} = \frac{\text{COV (x, y)}}{\pm_x \pm_y}$$

4.5.1 Covariance and Correlation analysis of Banking Sector

Generally, the movement of bank's share price seems to be positive which indicates that when the price of one bank's share increases otter bank's share also follow the same trend. The table presented below shows the covariance, variance and coefficient of correlation of return on stock with in banking sector.

Table No. 13:

Variance and Covariance matrix of banking sector between periods of 2001 to 2006

Bank	**NABIL**	**SCBNL**	**EBL**	**NSBI**	**NIBL**	**HBL**	**NB**
NABIL	3063.62	1870.58	3903.58	1013.90	2177.95	2114.45	1128.50
SCBNL	1870.58	1243.25	2384.50	543.35	1359.12	1390.53	695.18
EBL	3903.58	2384.50	5381.68	-462.78	2971.20	2814.70	1389.68
NSBI	1013.90	543.35	-462.78	8399.34	-233.65	268.77	554.62
NIBL	2177.95	1359.12	2971.20	-233.65	1699.53	1556.95	785.05
HBL	2114.45	1390.53	2814.70	268.77	1556.95	1644.30	764.15
NBBL	1128.5	695.18	1389.68	554.62	785.05	764.15	467.42

Table No. 14:

Correlation Coefficient matrix for Banking sector between periods of 2001 to 2006

Bank	**NABIL**	**SCBNL**	**EBL**	**NSBI**	**NIBL**	**HBL**	**NB**
NABIL	1	0.95	0.96	0.20	0.96	0.94	0.94
SCBNL	0.95	1	0.92	0.16	0.94	0.97	0.91
EBL	0.96	0.92	1	-0.06	0.99	0.94	0.87
NSBI	0.20	0.16	-0.06	1	-0.06	0.07	0.28
NIBL	0.96	0.94	0.99	-0.06	1	0.93	0.88
HBL	0.94	0.97	0.94	0.07	0.93	1	0.87
NB	0.94	0.91	0.87	0.28	0.88	0.87	1

In order to invest for investor the above table gives very important information. Especially, the second table is more important. The table indicates the relationship among the share price of given banks. The coefficient of correlation between NABIL to NABIL is 1, which itself vary with perfectly. The coefficient of correlation between EBL and NIBL is 0.99, which indicates the share price of EBL and NIBL is positively correlated. If the share price of EBL increases by 100%, then the share price of NIBL increases by 99%. Similarly, if the share price of EBL decreases, the share price of NIBL also decreases. However the decreasing ratio is only 99% of decrease rate of EBL. In the correlation table the correlation of NSBI with EBL and NIBL is -0.06, which indicates the share price of NSBI with EBL and NIBL is positively correlated. If the share price of NSBI increases by 100%, then the share price of EBL and NIBL decreases by 6%. Such negative correlated securities are very important and precise for rational and clever investor. The risk can be eliminated if the risk between the securities is negative.

The above table of banking sector's covariance and correlation analysis summarizes that EBL and NIBL has highest positive degree of correlation. NSBI with EBL and NIBL has highest negative degree of correlation.

4.6 Analysis of Diversification

Portfolio is the ct of investing the funds in two or more than two securities which helps in diversifying the risk. In other way a well-diversified portfolio reduces the risk. In this portion of the study, it is attempted to test the effect of diversification. Furthermore, the role of covariance or correlation in selecting optimum combination of securities and weight of investment is also tested. Portfolio theory suggests that positively correlated securities do not reduce the risk where as negatively correlated securities the risk.

4.6.1 Analysis of diversification in banking sector

Selecting two samples, say NABIL and NSBI following data related to two samples are already calculated.

	NABIL	**NSBI**
Expected Return	23.24%	16.69%
Variance	3063.62%	8339.34%
Covariance = 1013.90		

An investor selects the stock of NABIL and NSBI to make a portfolio that he hopes, will reduce his/her risk from the investment. He/she decides to invest 'W_x' portion of his/her investable fund into the stock of NABIL. Similarly, (1-W_x) of funds will be invested in NSBI stock. The expected return from this portfolio can be found by using the equation,

$$E [R_p] = W [E (R_x) + (1 – W_x) E (R_y)$$

Table No. 15:

Table showing the expected risk and return portfolio for various levels of investment between the shares of NABIL and NSBI.

W_x	$1-W_x$	**Expected return portfolio** $E(R_p)$ **(%)**	**Standard deviation portfolio** $(\pm_p)$ **(%)**	**Variance portfolio (VAR) (%)**
1	0	23.24	55.35	3063.62
0.9	0.1	22.58	52.41	2747.42
0.8	0.2	21.93	51.17	2618.73
0.7	0.3	21.27	51.74	2677.55
0.6	0.4	20.62	54.07	2923.86
0.5	0.5	19.96	57.94	3357.69
0.4	0.6	19.31	63.07	3979.01
0.3	0.7	18.65	69.19	4787.84
0.2	0.8	18	76.05	5784.17
0.1	0.9	17.34	83.47	6968
0	1	16.69	91.31	8339.34

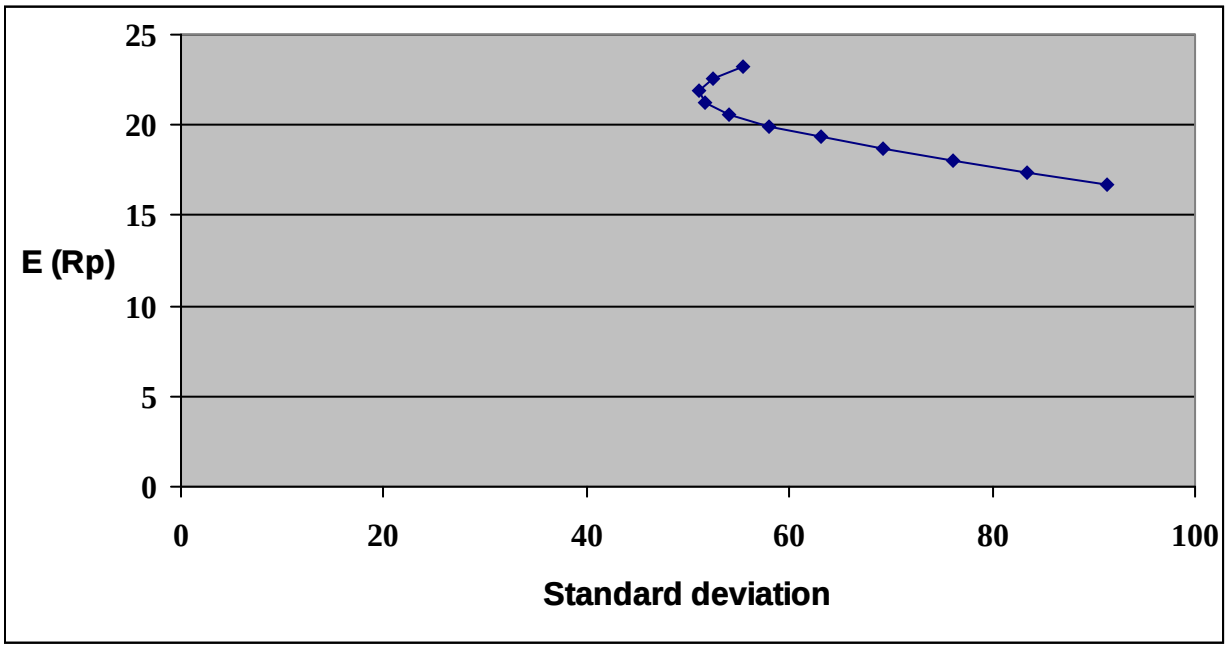
Above presented table states the risk and rerun portfolio consisting two securities. One is NABIL and other one is NSBI. In the above table first row shows that the investor invests all of his funds in NABIL bank and no portfolio is formed. The return and risk of portfolio is just what the NABIL bank has. Since, there is no portfolio formation. Second row of table shows that the investor puts 90% of his fund in NABIL and 10% of his fund in NSBI. Which shows the

formation of portfolio and it's return and standard deviation portfolio is 22.58% and 52.41% respectively. The highest retune can be achieved by investing all of the funds in NABIL bank but it is not a portfolio. Hence the objective of portfolio is not to increase return but to reduce risk. The lowest level of risk in the table can be found out by investing 80% of fund in NABIL and 20% of fund in NSBI. The return of this portfolio is 21.93% and standard deviation portfolio is 51.17%. So, a rational investor should make his investment in this particular level of portfolio.

Table no.15 can be presented in graphic form too. Such graphs is called "efficient frontier". As efficient frontier is locus of all the combination of portfolio risk and return. Graph of efficient frontier is presented below:

Graph No. 20:

Risk and return portfolio of stock of NABIL and NSBI



The lowest level of risk is 51.17%, which is occurred from an investment of 20% of fund in NSBI and 80% of fund in NABIL. The point is at the most left side of the curve. In term of return highest return can be achieved by investing the entire entire fund in NABIL bank. The two points at the top of curve is almost

desirable point. These two points are called efficient frontier and dominates all other point at given curve. An investor should always try to be at efficient frontier.

Above example is about positive covariance. Another investor may select two common stock one of NSBI and other of EBL. The covariance between the stock's return is negative. Thus, it is negative correlated investment case. Following data related to two samples are already calculated.

	NSBI	**EBL**
Expected return	16.69%	27.67%
Variance	8339.34%	5381.68%
Covariance = -462.78		

The investor investment is NSBI is W_x and investor's investment in EBL is $1-W_x$. following table presented below shows the return and risk portfolio at different level of investment.

Table No. 16:

Table showing the expected risk and return portfolio for various levels of investment between the shares of NSBI and EBL

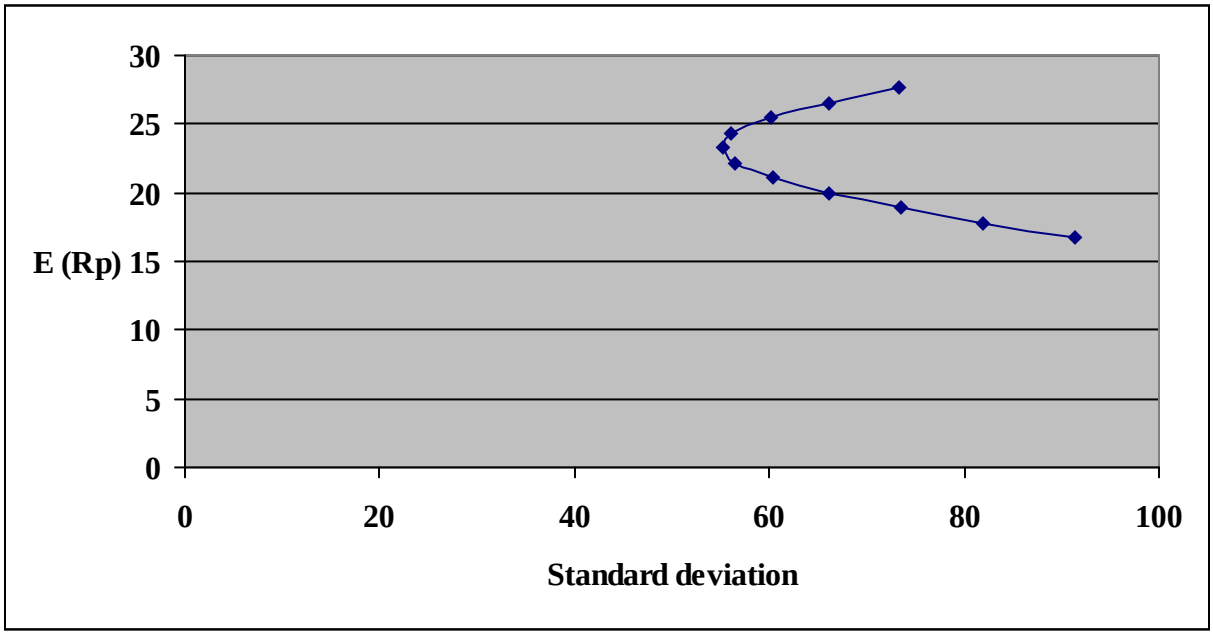
W_x	$1-W_x$	Expected Return Portfolio $E(R_p)$ (%)	Standard deviation Portfolio $(\pm_p)$ (%)	Variance Portfolio (VAR) (%)
1	0	16.69	91.32	8339.34
0.9	0.1	17.78	82	6725.38
0.8	0.2	18.88	73.51	5404.35
0.7	0.3	19.98	66.15	4376.26
0.6	0.4	21.08	60.34	3641.09
0.5	0.5	22.18	56.55	3198.86
0.4	0.6	23.27	55.22	3049.56
0.3	0.7	24.37	56.08	3193.19
0.2	0.8	25.47	60.24	3629.75
0.1	0.9	26.57	66.02	4359.25
0	1	27.67	73.35	5381.68

Risk and return portfolio at different level of proportion is calculated in the table above. In the above table last row shows that the highest return can be achieved by investing he4 entire fund in the EBL bank and hence no portfolio is formed. The risk and return is what the EBL bank has second row of the table shows that the investor puts 90% of funds in NSBI and 10% of funds in the EBL. Which shows the formation of portfolio and its return and standard deviation is

17.78% and 82% respectively. Hence the objective of portfolio is not to increase return but to reduce risk. The lowest level of risk in the table can be found out by investing 40% of fund in NSBI and 60% of fund in EBL. The return of this portfolio is found to be 55.22%. So, a rational investor should make his investment in this particular level of portfolio. The table is shown in graph below:

Graph No. 21:

Risk and return portfolio of stock of NSBI and EBL



The graph shown the combination of risk and return portfolio at different level of proportion at different level of proportion. Such a graph is called efficient frontier. The left side of the curve has lower level of risk. Bottom right corner of the curve has the higher level of risk. Thus all the points of the curve below the first point from left dominates all other points on the curve. The point dominates because it has lower level of risk and higher level of expected return. Any rational investor would not choose the point below it. If they did, they should be ready to bear higher risk and lower return. A rational investor will surely choose the first point from the left side, but any point above this is desirable which depends soon the preference of investor toward the risk.

The meaning of portfolio cannot be confined with the limit of just two securities. A portfolio can also be more than two securities. An investor can invest in his/her in all seven selected securities of banking sector. In this case the risk and return portfolio can be calculated by selecting the proportion can be calculated by selecting the proportion on investment randomly.

Table No. 17:

Table showing the expected risk and return portfolio among all selected banking samples between the year 2001 to 2006.

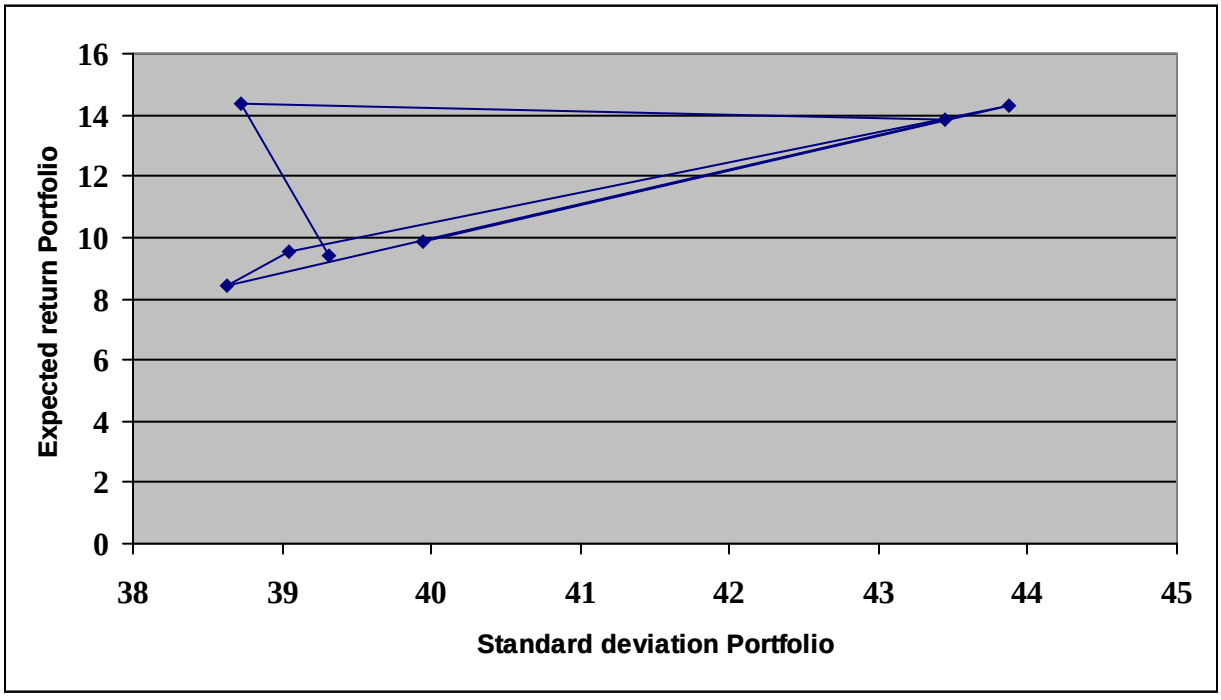
Banks	**WEIGHTS**							**Return (%)**	**Standard deviation (%)**
NABIL	0.14	0.20	0.03	0.04	0.12	0.40	0.05	23.24	55.35
SCBNL	0.14	0.20	0.20	0.16	0.15	0.10	0.10	18.50	35.26
EBL	0.14	0.20	0.18	0.16	0.24	0.10	0.15	27.67	73.36
NSBI	0.14	0.10	0.13	0.16	0.14	0.10	0.20	16.69	91.32
NIBL	0.14	0.10	0.16	0.16	0.16	0.10	0.20	9.47	40.86
HBL	0.14	0.10	0.14	0.14	0.09	0.10	0.16	3.28	40.55
NB	0.16	0.10	0.16	0.18	0.10	0.10	0.14	-25.04	21.62
Expected return Portfolio E (R_p) (%)	9.83	14.32	9.51	8.45	13.84	14.35	9.41		
Standard deviation Portfolio ($\pm_p$) (%)	39.95	43.87	39.04	38.63	43.44	38.72	39.32		

The proportions of weight for investment are taken randomly. Above table shows the risk and return portfolio at the selected proportion. The highest expected return portfolio is 14.35% but to achieve this return the investor has to invest 40% in NABIL bank, and 10% in SCBL, EBL NSBI, NIBL, HBL, NB banks. The investor could not ignore the risk factor. The higher risky portfolio is 43.87%. The investor has to bear the risk of 43.87% for earning the return of 14.32%. The risk is usually calculated in terms of standard deviation. As observed above in the table the highest standard deviation portfolio is 43.87%. Is this reasonable or high? One cannot judge it by merely a single look. The investor can minimize the level of risk by changing the proportion of investment. An interesting result can be seen in the above table that lower the risk lower the return. The lowest level of risk is 38.63% with the return of 8.45%, which can be obtained by investing 4% in NABIL, 16% in SCBNL, EBL, NSBI, NIBL, 14% in HBL and 18% in NB.

Table no.17 can also be presented in graph as shown below. Following graph shows the allocation of risk and return portfolio for each set of weights.

Graph No. 22:

Graph showing risk and return portfolio of selected bank's stock with hypothetical weights during the period of 2001 to 2006.



The points on the curve represent one set of portfolio. Observing the graph it shows that higher return has the higher risk. The risk taker investor will choose that point which is in the top-right corner of the figure. In case of risk-averse investor would not like to choose tat point having higher risk. Risk averse investor would like to choose that point having lowest risk which is located in the left side of the figure which dominates all other point in the figure in case of risk-averse investors. Clearly, this is the point where every investor wants to be, given the proportion of weight presented in the table 4.6.c.

Overall, an investor desire of investment in all stock of banking sector minimizes the level of risk and is quite attractive. However, the investor should be attentive and focus to the weight of investment in each of the stock. The proportion of investment is a very crucial that differentiate bad portfolio and good portfolios beside other then the selection of stock itself.

4.7 Analysis of Undiversified Risk/ Beta Analysis:

The total risk of portfolio has two fold of aspect one is systematic risk and other is unsystematic. Systematic risk is the risk, which cannot be eliminated. Beta coefficient is the index of systematic risk. It is an indicator of the relationship between and individual investment's return and the general market return. The beta is simply the slope of characteristics line and it is indicated by " ".

Unsystematic risk is the risk, which can be eliminated if properly diversified of investment.

In this part of analysis, the betas for all seven selected banks are calculated.

Where,

$$\text{Beta } (\beta_j) = \frac{COV(j,m)}{\pm\ {}^{2}_{m}}$$

And

$$\text{COV (x,y)} = \frac{\Sigma [(R_x - E(R_x)] \quad [(R_y - E(R_y)]}{n-1}$$

Where,

COV (x,y) = Covariance of security 'j' with market 'm'

$\pm_m^2$ = Variance of market.

Following table presents the covariance between each sample's return and market return.

Table No. 18:

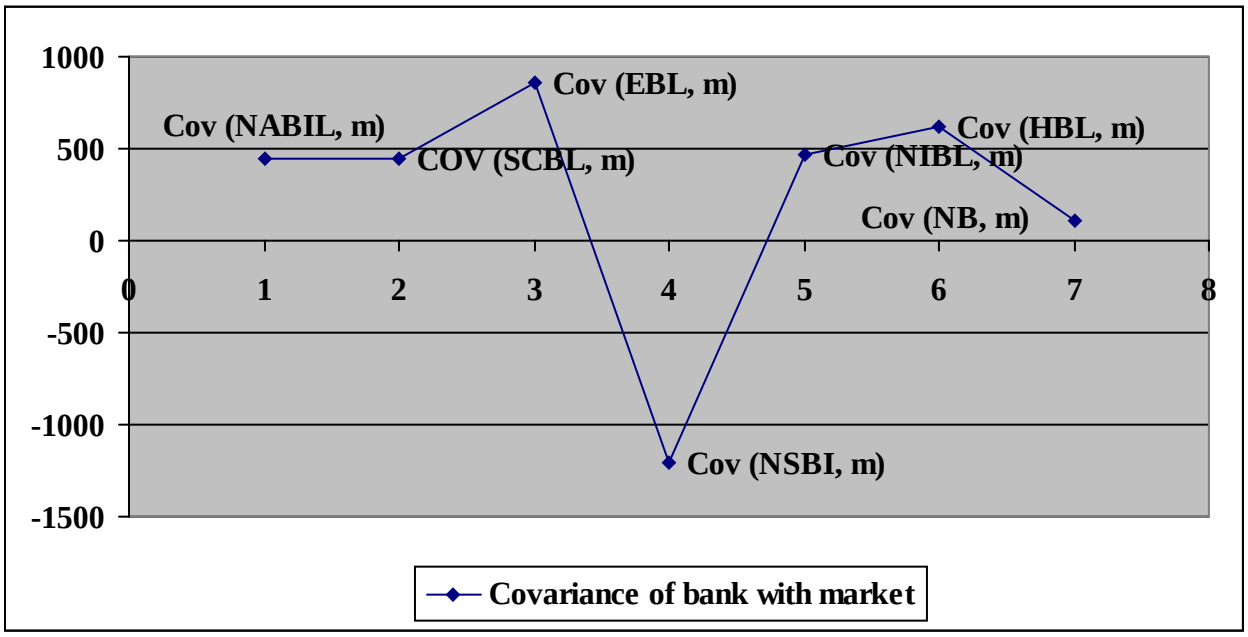
Table showing the covariance between the return of market and other securities during the period of 2001 to 2006.

Banks and Market	**Covariance**
COV (NABIL, m)	450.91
COV (SCBL, m)	445.82
COV (EBL, m)	855.08
COV (NSBI, m)	-1201.82
COV (NIBL, m)	461.98
COV (HBL, m)	619.33
COV (NB, m)	105.33

The covariance of all selected banks with the market that is listed in the table no.18 is presented in the graph as shown below:

Graph No. 23:

Figure showing the covariance between the return of market and other securities during the period of 2001 to 2006.



The variance of market return is 1409.51, which is calculated in table no.4.

Table No. 19:

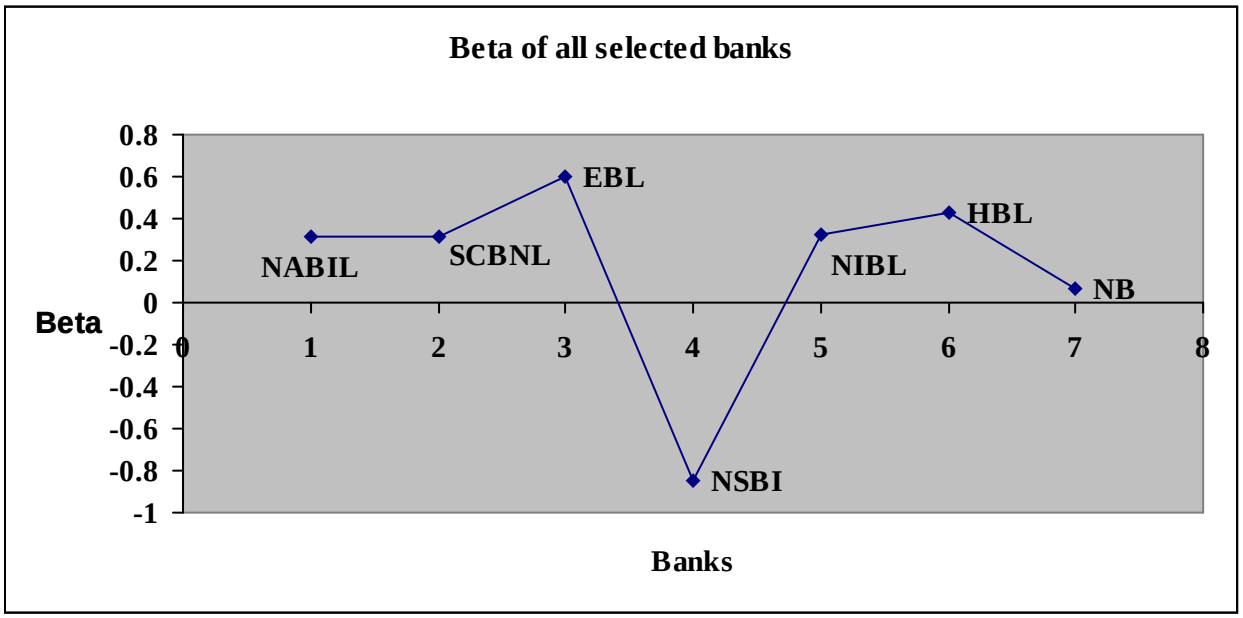
Table showing the beta for all selected sample banks during he period of 2001 to 2006.

Banks	**Beta ($_j$)=** $\frac{COV(j,m)}{\pm_m^2}$
NABIL	0.31
SCBNL	0.31
EBL	0.60
NSBI	-0.85
NIBL	0.32
HBL	0.43
NB	0.07
Variance of market return **(** $\pm_m^2$ **)** = 1409.51	

The following figure presents the overall look of betas for all securities.

Graph No. 24:

Graph showing the beta of all selected banks as the sample during the period of 2001 to 2006.



The beta, which is calculated of selected samples, varies widely. The Everest bank limited (EBL) holds the highest beta of 0.60 and Nepal SBI bank (NSBI) holds the negative beta of –0.85. The beta of EBL indicates that it's return move in same direction as market moves. Since the beta of EBL is less than 1 it is defensive approach.

On the other hand, the –0.85 beta of NSBI indicates that the return of NSBI stock and return of market moves in the opposite direction. If the market is falling, the stock of NSBI is rising and vice-versa. However, the negative beta is very rare.

On the analysis of beta, the stock of EBL is the riskiest among all other banks selected as the sample. The stock of NSBI with negative beta is very useful in making an excellent portfolio because of its nature of moving opposite against market. Since the beta of NSBI is negative it dominates all other banks in making an excellent portfolio.

4.8 Required Rate of Return by Security Market Line

Security market line is the graphical representation of the CAPM the relationship between an asset's return and its systematic risk can be expressed by the CAPM, which is also called the SML. The equation for the CAPM is:

$$E(R_j) = R_f + [E(R_m) - R_f]\,\beta_j$$

The literature on CAPM is already presented in second chapter. With the help of SML the overpriced and under priced stock can be located. If the expected return [E (R_j)] is more than the required rate of return (RRR) then it is the case of "Under priced" and if the expected return [E (R_j)] is less than the required rate of return then it is the case of "Overpriced". In this portion of study the required rate of return is calculated here and compared with the expected rate of return which is calculated in the earlier part for getting the decision about the overpriced and under priced. Overpriced gives the decision to sell the security where as the under priced gives the decision to buy the security.

For the calculation of RRR the market return (R_m) is 5.32% and risk free rate of return (R_f) is 4.14%, which is, calculate in earlier part in the table no.4.

Table No. 20:

Table showing the required rate of return of all selected banks as sample during the period of 2001 to 2006.

Banks	**Required Rate of Return (RRR)** $E(R_j) = R_f + [E(R_m) - R_f]_j$	**Calculated RRR (%)**
NABIL	4.14 +[5.32 – 4.14] X 0.31	4.50
SCBNL	4.14 +[5.32 – 4.14] X 0.31	4.50
EBL	4.14 +[5.32 – 4.14] X 0.60	4.84
NSBI	4.14 +[5.32 – 4.14] X –0.85	3.13
NIBL	4.14 +[5.32 – 4.14] X 0.32	4.51
HBL	4.14 +[5.32 – 4.14] X 0.43	4.64
NB	4.14 +[5.32 – 4.14] X 0.07	4.22

Table No. 21:

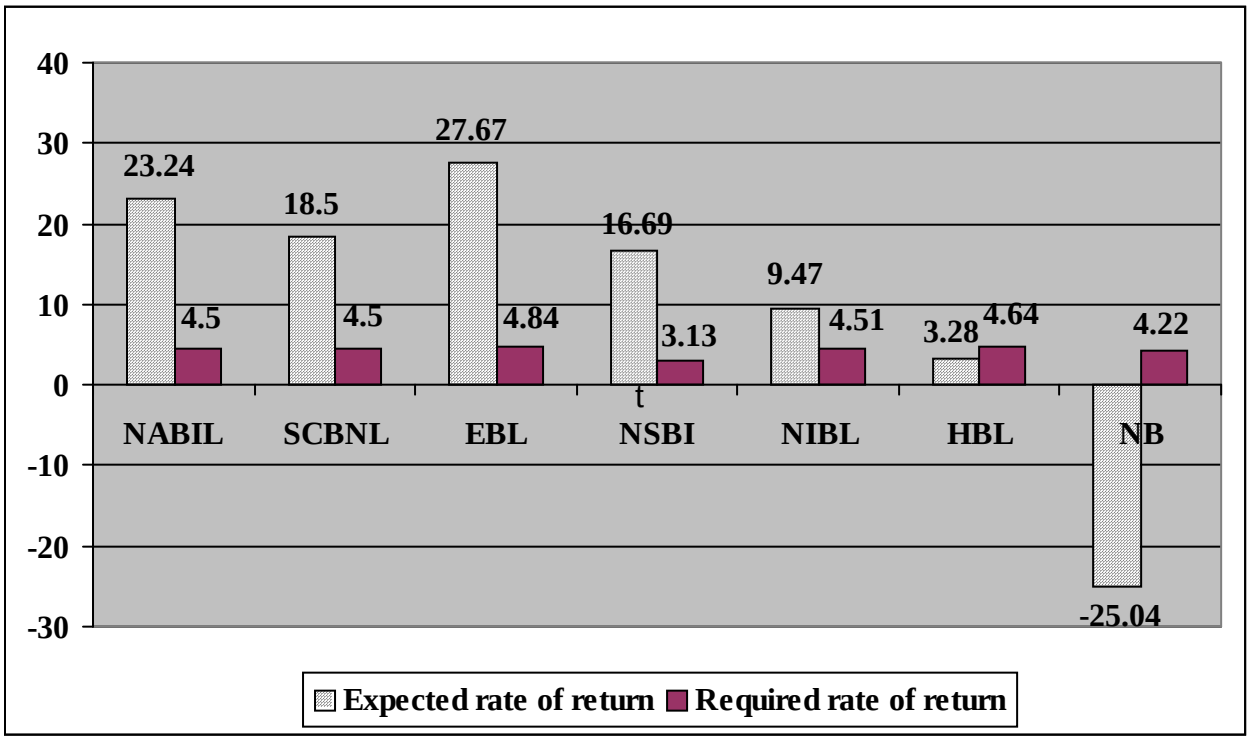
Table showing the comparison between expected rate of return and required rate of return with the buy and sell decision from over priced and under priced of security.

Banks	**Expected rate of return** $E(R_j)$ **(%)**	**Required rate of return (RRR) (%)**	**Pricing**	**Pricing Decision**
NABIL	23.24	4.50	Under-priced	Buy
SCBNL	18.50	4.50	Under-priced	Buy
EBL	27.67	4.84	Under-priced	Buy
NSBI	16.69	3.13	Under-priced	Buy
NIBL	9.47	4.51	Under-priced	Buy
HBL	3.28	4.64	Over-priced	Sell
NB	-25.04	4.22	Over-priced	Sell

A comparative graph between expected rate of return and required rate of return can also be presented which is shown below:

Graph No. 25:

Graph showing the comparison between expected rate of return and required rate of return with the buy and sell decision from over priced and under priced of security.



The above table and graph both shows the expected rate of return and required rate of return. The required rate of return (RRR) on the stock of NABIL is 4.50% while the expected rate of return is 23.24%. Investors can invest in the stock of NABIL as it is offering higher rate than the market actually needs because the expected return is above the RRR. EBL has the higher expected rate of return in compare to RRR which shows that the stock EBL has for better position. The market/investor requires 4.84% and it is expected to offer 27.67%. The expected return is more than the RRR. All the stocks of banking sector follow this trend-higher expected return than required rate of return. The typical case is however of HBL and NB. The RRR on the stock of HBL and NB is 4.64% and 4.22% but its expected rate of return is 3.28% and –25.04%. The movement of stock of HBL and NB is typically opposite than other banks selected as samples. Since the expected rate of return is less than the RRR of

HBL and NB so the investor should sell the stocks of HBL and NB. It clearly gives the decision about not to invest capital in the HBL and NB banks.

For any rational investor the expected rate of return should e more than the RRR. Here in the above graph the investor would prefer to buy all the stock of banks expect the stock of banks of HBL and NB bank. Because, the expected rate of return is less than the RRR of HBL and NB bank. So, the investor should not entertain any rate less than the RRR.

4.9 Major findings of the study

The major findings of this part of the study are given below:

i) Positive degree of correlation (or positive covariance) is not effective while making a portfolio investment.

ii) Greater the number of stocks in the portfolio, lower will be the risk. Nevertheless, the degree of correlation will matters for this effect.

iii) Risk can be reduced by investing the funds in two or more than two securities i.e. by creating portfolio.

iv) While making the portfolio positive degree of correlation (or positive covariance) is not effective.

v) Risk can be reduced through the negative degree of correlation (or negative covariance).

vi) The creation of portfolio itself needs consideration between/among the stocks it includes.

vii) Any, rate of expected rate of return less than the RRR, investors should not entertain it.

viii) Higher the beta higher will be the systematic risk.

CHAPTER- V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

To summarize the study on portfolio management of Nepalese listed companies this study follows the conventions of the methodology set by the faculty of management of Tribhuvan University, Katmandu, Nepal. First chapter includes introduction, brief profile on sample of commercial banks taken under study, focus of study, statement of problem, objective of the study, significance of the study, limitation of the study and scheme of the study. Second chapter includes review of literature where theories of risk and return are included with the concept of portfolio.

Third chapter makes am attempt to review the methodological aspect in brief. Similarly, in the fourth chapter, analytical exploration and manipulation of data has been presented within the frame of the Research Methodology and the analyzed data are presented in suitable forms like tables and diagrams. Finally, the fifth chapter includes summary of the study, conclusions derived from the study and recommendations.

In Nepal very few people has the knowledge about the stock market and financial securities like options, debentures, convertibles, common stock, T-bills etc. the history of issuing and trading of stocks is not so long. In 1937, Biratnagar jute mill established by some of the Indian entrepreneur in Nepal and Nepal Bank limited were floated.

In Nepal the buying and selling activities of financial securities (mainly stock) is conducted in Nepal stock Exchange (NEPSE). The development of stock market in Nepal started with the establishment of commercial banks in the country besides the informal sectors. However the government established the securities market center in 1976, to help to raise capital for public limited companies. The government rapidly reformed the close market to open market, after the restoration of democracy in 1990. The listing of shares in the stock

exchange center (SEC) and their trading in the stock market is a recent phenomenon. Formally stock market development started only after the establishment of securities exchange center in 1984, which was later on renamed as Nepal Stock Exchange (NEPSE) in 1993. Nepal Stock Exchange in 13th January 1994 opened its tracing floor. He financial securities are traded in the floor of NEPSE. Very few people know about the NEPSE despite the history of 12 years of trading shares in NEPSE. The people knowing how, when and where to buy or sell securities are even less in number. With the expectation of getting better return from their investment people shows the awareness of investment in shares of banks, finance, insurance companies, manufacturing companies and other related companies.

Risk and return is not the overnight concept. Risk and return are complementary to each other. There exists positive relationship between risk and return i.e. the higher the level of risk, the higher will be the rate of return. People have many motives for investing. Some people invest in order to gain a sense of power or prestige often the control of corporate empires is a driving motive. For most investors, however their interest in investment is largely pecuniary to earn a return on their money. The return from an investment is the realizable cash flows earned by its owner during a given period of time. On the other hand, risk in the possibility that the actual return from an investment will differ from the expected return. However, selecting stocks exclusively on the basis of maximization of return is not enough. The fact that most investors do not place available funds into the one, two or even their stocks promising the return suggest that their factors must be considered besides returning the selection process. Investor not only like return, they dislike the risk also. However, risk can be reduced to a significant level. In terms of risk systematic risk is the risk, which cannot be eliminated whereas the unsystematic risk is the risk, which can be eliminated. A creation of portfolio investment helps the investor to reduce risk of their investment. The meaning or portfolio is the collection of securities. A portfolio may contain bonds, preferred stocks and common stocks of various types of enterprises. Since a rational investor always dislikes risk the creation of portfolio is the key to avoid such “dislike”. It is found that collections of seven securities can diversity the “Unsystematic” portion of risk. The literatures to test are found to be correct. As the number of stock increases in a portfolio, the risk will decrease. In order to diversify or minimize the risk securities should be carefully selected. To minimize the risk, negative covariance or negative degree of correlation should be preferred between or among the securities of the portfolio. Within the framework of the objectives set this study can be summarized as:

1) The risk and return of common stock is explained using the statistical tools namely average rate of return, standard deviation and coefficient of variation.

2) A portfolio cannot reduce the systematic risk of each security. These risk are due to external factor and are permanent nature. These risk are measured by beta.

3) The systematic risk and unsystematic risk of common stock is explained using different financial and statistical tools.

4) The sensitivity of the stock of the sample company using the security is compared with the required rate of return. The expected return should always be higher than the required rate of return to perform any rational investor decision. The required rate of return is one of the main features of capital asset pricing model (CAPM), mile stonework, worked by William F-Sharpe.

5) The comparison between samples companies risk, return and market risk, return is done.

6) The diversification of the risk of asset is explained with the help of portfolio analysis and performance evaluation of assets is also explained.

5.2 Conclusions

The conclusions of the study are as follows:

1) The year 2002 was very prosperous in terms of market return, market price of share and return on stock.

2) Very few of Nepal knows about the stock market and the numbers of rational investor are very low. Many investors do not know the difference between blind speculation/gambling and informed speculation. An informed speculation is an investment. Which shows that the stock market of Nepal is in very primitive stage.

3) On average, more than 80% of transaction on trading floor of market is of commercial banks.

4) Everest bank limited (EBL) is he best among the sample companies taken under study on the basis of highest return of 27.67%.

5) Standard deviation and variance of Nepal SBI bank limited (NSBI) is 91.32% and 8339.34%, which is highest amount the sample companies taken under study.

6) Nepal Bangladesh bank (NB bank) has the lowest rate of return of –25.04% among all the sample companies taken under study.

7) Nepal Bangladesh bank (NB bank) has the lowest standard deviation and variance of 21.62% and 467.42% respectively.

8) On the basis of coefficient of variation (C.V) Himalayan bank limited (HBL) has the highest C.V of 12.36, which shows that HBL is more risky and Standard Chartered bank limited (SCBNL) has the lowest C.V of 1.90, which shows that SCBNL is less risky.

9) The creation of portfolio can diversify the risk.

10) The covariance and coefficient of correlation is the key for a good portfolio.

11) Only negative correlated stock can diversify the risk. The correlation between NSBI and EBL, and NSBI and NIBL is negatively correlated.

12) More and more stocks in a portfolio safeguard the investor's preference towards low risk.

13) Risk can be of systematic risk or unsystematic risk. Un systematic risk is the risk, which can be eliminated or reduced. Thus creation of portfolio reduces only unsystematic risk of stock. Systematic risk is the risk, which cannot be eliminated. Systematic risk is due to the external conditions on which investor can do nothing.

14) Inconsideration to view of systematic risk the stock of EBL with 0.60 of beta is the highest among the banking sector.

15) The negative beta is very uncommon but very useful for a portfolio of stock. NSBI has the beta of –0.85, which is the lowest beta among all the samples taken under study.

16) Every investor's have a certain required rate of return. The required rate of return (CAPM) is calculated here by using equation of SML. A very important comparison between the expected rate of return and required rate of return is done here which provides a very vital information to the rational investor about the under-price and overprice of security.

17) While comparing expected rate of return with required rate of return NABIL, SCBNL, EBL, NSBI and NIBL gives the decision about Underpricing of security i.e. to buy the stocks of those banks. While comparing expected rate of return with required rate of return HBL and NB bank gives the decision about overpricing of security i.e. to sell the stock of those banks.

18) Investor always wants their money to return more and more return. A gambling in stock market makes many people penniless. However, a careful study and analyze can always ensure the return is sure for any investment. The prospectus of the company, the risk free rate of return, the nature of sample banks taken under study can be analyzed by the statistics published by various source. However, the return, covariance, beta, RRR, is hard to find for each investment because there is no published data in this regard, as it happens in developed countries. The selection of good stock and a better portfolio will always ensure the best return for an investment, a gambling is not taken for sure of a good return.

19) Investors are very pessimistic to trade their stocks. Whatever the price of stock they tend to hold it for long period without knowing the reason to hold such a long period. The frequency of trading is very low among investors.

5.3 Recommendations

The recommendations offered by this study are as follows: -

- Investors want to maximize expected return subjects to their tolerance for risk. Return subject to their tolerance for risk. Return is the motivating force and the principal reward in the investment process, and it is the key method available to investor in comparing alternative investment. Forces that contribute to variation in return-

price or dividend (interest)- constitute element of risk. So, investors have to concentrate their mind both on risk and return.

- ❖ Many companies do not disclose their financial statement in the right time to the general public and to present it to the NEPSE. Such activity of company does not give the right idea for the investor to invest their funds. So the concern governing body of the companies should monitor and discourage the lately disclose and submission of financial statement by a company.

- ❖ Common stock seems to be an attractive security available in the market even though it is risky than the other types of securities so the market should be careful studied and analyzed by investor using the risk-return analysis. Risks do not come in a neatly packaged bag labeled as "Risk". It may make its occurrence at any time which investor has to bear at any moment. For this purpose they should develop investment information center whereby each and every investor can share their experience and expertise to each other. The investment information center should give the information center should give the information regarding the investment opportunity and threat to general investor, fight that rights and unhealthy practices in the market. This study suggests constructing the efficient portfolio to minimize risk and get sustainable future expected returns. Investors have to choose those assets, which have high returns minimum proportion of risk, negative correlation to make the efficient portfolio among the securities in the market. So investor should use portfolio analysis as modern technique in analyzing the risk and return of an investment so that they can maximize their returns.

- ❖ The sock of banking sector is lubricative in terms of risk and return. Thus, investors are advised to invest more in banking sector.

- ❖ Investor should not select the stock having the high positive co-varied stock while creating the portfolio. This study shows that the rather than selecting the highly positive co-varied stock it will be better to select the single security for the investment.

- ❖ Investors should always try to minimize risk and effort should be made to do so. It is advised that investor should select negatively

correlated stock, while they create portfolio investment. In this study, the stock of NSBI with EBL and NIBL is negatively correlated.

- A company should be concerned with the stock price of its own share. A listed company must regularly monitor the movement of stock price in market and if it sis falling necessary step should be taken in time to know the reason and prevent the price of stock falling more. Since investors judge a company by its dividend payout policy also, company should be more careful in this regard and if it is possible, company should also explain the shareholders why it doesn't declare any dividend in case of non-payment of dividend.

- The index of stock market is commonly related to the economy of a nation. The overall development of economy has positive impact on stock market and vice versa. Hence, it is necessary to make every effort, form government to private sector to individual participant to regulate the stock market in food and proper manner.

- People widely perceive the market price of stock as a reflector of financial position of a company. The higher the market price of stock, the better is the position of a company from the point of investor. Thus, the company should make every effort to increase the MPs. A regular dividend payment, timely disclosure of financial statement as well dischargement of social responsibilities is some of god steps for the good effect on stock price. However, a company's own way of functioning and operating are the main point regarding the effect on stock price.

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NABIL BANK LTD.

KANTIPATH KATHMANDU

Authorized Capital	Rs. 500000000.00	Paid-Up Value/Share	Rs. 100 & Rs. 0
Issued Capital	Rs. 491654400.00	No. of Shareholders:	5076
Paid-Up Capital	Rs. 491654400.00	Incorporation Year – B.S.:	2041 A.D.: 1984
Par Value/Share	Rs. 100 & Rs. 0	Listing Date – B.S.:	08/09/42 A.D.: 1986

CHANGE IN PAID-UP CAPITAL (Rs. In Million)

Year	Before	After	Remarks
01/02	392.80	491.65	
02/03	491.65	491.65	
03/04	491.65	491.65	
04/05	491.65	491.65	
05/06	491.65	491.65	

Equity Share Data

Year Ended	7/15/2002	7/15/2003	7/15/2004	7/15/2005	7/15/2006
Paid-Up Price Per Share (Rs)	100.00	100.00	100..00	100.00	100.00
Market Price Per Share					
(i) Closing Price (Rs.)	1400.00	1500.00	735.00	735.00	1000.00
(ii) High Price (Rs.)	1495.00	2301.00	1500.00	875.00	1005.00
(iii) Low Price (Rs.)	700.00	1310.00	465.00	700.00	705.00
Earning Per Share (Rs.)	83.79	59.26	55.25	84.66	92.61
Book Value Per Share (Rs.)	250.53	216.18	233.18	267.30	301.37
Dividend Per Share (Rs.)	55.00	40.00	30.00	50.00	65.00
Dividend	55.00	40.00	30.00	50.00	65.00
PE Multiple	16.71	25.31	13.30	8.68	10.80
Market Capitalization of Closing Price (Rs. In Million)	5499.20	7374.75	3613.63	3613.63	4916.50
Market Price/Book Value	5.59	6.94	3.15	2.75	3.32
Dividend Cover	1.52	1.48	1.84	1.69	1.42

Dividend Yield	3.93	2.67	4.08	6.80	6.50
Dividend Payout	65.64	67.49	54.30	59.06	70.19
Earning Yield	5.98	3.95	7.52	11.52	9.26

STANDARD CHARTERD BANK NEPAL LTD.

NAYA BANESHWOR, KATHMANDU

Authorized Capital	Rs. 1000000000.00	Paid-Up Value/Share	Rs. 100 & Rs. 0
Issued Capital	Rs. 500000000.00	No. of Shareholders:	5037
Paid-Up Capital	Rs. 374640400.00	Incorporation Year – B.S.: 2042	A.D.: 1985
Par Value/Share	Rs. 100 & Rs. 0	Listing Date – B.S.: 03/21/45	A.D.: 1988

CHANGE IN PAID-UP CAPITAL (Rs. In Million)

Year	Before	After	Remarks
01/02	339.55	339.55	
02/03	339.55	339.55	
03/04	339.55	374.64	
04/05	374.65	374.65	
05/06	374.65	374.65	

Equity Share Data

Year Ended	7/15/2002	7/15/2003	7/15/2004	7/15/2005	7/15/2006
Paid-Up Price Per Share (Rs)	100.00	100.00	100..00	100.00	100.00
Market Price Per Share					
(i) Closing Price (Rs.)	1401.00	1150.00	760.00	795.00	940.00
(ii) High Price (Rs.)	1415.00	2730.00	1150.00	890.00	942.00
(iii) Low Price (Rs.)	822.00	1080.00	575.00	635.00	745.00
Earning Per Share (Rs.)	53.68	33.17	33.59	39.56	51.70
Book Value Per Share (Rs.)	303.10	275.96	307.95	216.24	246.89
Dividend Per Share (Rs.)	25.00	0.00	0.00	20.00	15.00
Dividend	25.00	0.00	0.00	20.00	15.00

PE Multiple	26.10	34.67	22.63	20.10	18.18
Market Capitalization of					
Closing Price (Rs. In Million)	6740.07	7279.95	5263.03	5568.03	6537.47
Market Price/Book Value	6.64	6.55	4.26	4.07	4.37
Dividend Cover	1.16	1.27	1.41	1.36	1.31
Dividend Yield	5.04	4.66	6.45	6.71	6.30
Dividend Payout	86.49	78.81	70.86	73.68	76.63
Earning Yield	5.82	5.92	9.11	9.10	8.23

NEPAL INVESTMENT BANK NEPAL LTD.

DURBAR MARG, KATHMANDU

Authorized Capital	Rs. 590000000.00	Paid-Up Value/Share	Rs. 100 & Rs. 0
Issued Capital	Rs. 295293000.00	No. of Shareholders:	2780
Paid-Up Capital	Rs. 295293000.00	Incorporation Year – B.S.:	2042 A.D.: 1985
Par Value/Share	Rs. 100 & Rs. 0	Listing Date – B.S.:	05/08/44 A.D.: 1987

CHANGE IN PAID-UP CAPITAL (Rs. In Million)

Year	Before	After	Remarks
01/02	135.35	135.35	
02/03	135.35	169.98	
03/04	169.98	169.98	
04/05	169.98	295.29	
05/06	295.29	295.29	

Equity Share Data

Year Ended

	7/15/2002	7/15/2003	7/15/2004	7/15/2005	7/15/2006
Paid-Up Price Per Share (Rs)	100.00	100.00	100..00	100.00	100.00
Market Price Per Share					
(i) Closing Price (Rs.)	1985.00	2144.00	1550.00	1640.00	1745.00
(ii) High Price (Rs.)	2050.00	3111.00	2100.00	1760.00	1800.00
(iii) Low Price (Rs.)	1181.00	1860.00	1000.00	1380.00	1520.00

Earning Per Share (Rs.)	115.62	126.88	141.13	149.30	143.55
Book Value Per Share (Rs.)	298.88	327.50	363.86	403.15	399.21
Dividend Per Share (Rs.)	100.00	100.00	100.00	110.00	110.00
Dividend	100.00	100.00	100.00	110.00	110.00
PE Multiple	17.17	16.90	10.98	10.98	12.16
Market Capitalization of					
Closing Price (Rs. In Million)	1896.25	1954.77	1291.85	2347.56	2775.73
Market Price/Book Value	4.62	4.17	2.47	3.68	3.81
Dividend Cover	2.15	0.00	0.00	1.98	3.45
Dividend Yield	1.78	0.00	0.00	2.52	1.60
Dividend Payout	46.57	0.00	0.00	50.56	29.01
Earning Yield	3.83	2.88	4.42	4.98	5.50

HIMALAYAN BANK NEPAL LTD.

THAMEL, KATHMANDU

Authorized Capital	Rs. 1000000000.00	Paid-Up Value/Share	Rs. 100 & Rs. 0
Issued Capital	Rs. 650000000.00	No. of Shareholders:	7210
Paid-Up Capital	Rs. 536250000.00	Incorporation Year – B.S.: 2048	A.D.: 1992
Par Value/Share	Rs. 100 & Rs. 0	Listing Date – B.S.: 03/21/50	A.D.: 1993

CHANGE IN PAID-UP CAPITAL (Rs. In Million)

Year	Before	After	Remarks
01/02	192.00	240.00	
02/03	240.00	300.00	
03/04	300.00	390..00	
04/05	390.00	429.00	
05/06	429.00	536.25	

Equity Share Data

Year Ended

7/15/2002	7/15/2003	7/15/2004	7/15/2005	7/15/2006

Paid-Up Price Per Share (Rs)	100.00	100.00	100..00	100.00	100.00
Market Price Per Share					
(i) Closing Price (Rs.)	1700.00	1500.00	1000.00	836.00	840.00
(ii) High Price (Rs.)	1780.00	2726.00	1530.00	950.00	1010.00
(iii) Low Price (Rs.)	1000.00	1325.00	610.00	750.00	600.00
Earning Per Share (Rs.)	83.08	93.56	60.26	49.25	49.05
Book Value Per Share (Rs.)	219.19	240.20	220.03	247.82	246.93
Dividend Per Share (Rs.)	50.00	27.50	25.00	1.31	0.00
Dividend	50.00	27.50	25.00	1.31	0.00
PE Multiple	20.46	16.03	16.59	16.91	17.12
Market Capitalization of					
Closing Price (Rs. In Million)	4080.00	4500.00	3900.00	3586.44	4504.50
Market Price/Book Value	7.76	6.24	4.54	3.37	3.40
Dividend Cover	1.66	3.40	2.41	37.61	0.00
Dividend Yield	2.94	1.83	2.50	0.16	0.00
Dividend Payout	60.19	29.39	41.49	2.66	0.00
Earning Yield	4.89	6.24	6.03	5.91	5.84

NEPAL SBI BANK NEPAL LTD.

DURBAR MARG, KATHMANDU

Authorized Capital	Rs. 1000000000.00	Paid-Up Value/Share	Rs. 100 & Rs. 0
Issued Capital	Rs. 500000000.00	No. of Shareholders:	7210
Paid-Up Capital	Rs. 426875900.00	Incorporation Year – B.S.: 2050	A.D.: 1993
Par Value/Share	Rs. 100 & Rs. 0	Listing Date – B.S.: 10/03/51	A.D.: 1995

CHANGE IN PAID-UP CAPITAL (Rs. In Million)

Year	Before	After	Remarks
01/02	119.95	119.95	
02/03	119.95	143.94	
03/04	143.94	424.89	
04/05	424.89	425.16	
05/06	425.16	426.88	

Equity Share Data

Year Ended	7/15/2002	7/15/2003	7/15/2004	7/15/2005	7/15/2006
Paid-Up Price Per Share (Rs)	100.00	100.00	100..00	100.00	100.00
Market Price Per Share					
(i) Closing Price (Rs.)	562.00	1500.00	401.00	255.00	307.00
(ii) High Price (Rs.)	670.00	2699.00	1600.00	410.00	307.00
(iii) Low Price (Rs.)	435.00	1150.00	300.00	255.00	231.00
Earning Per Share (Rs.)	41.74	8.69	9.62	11.47	14.26
Book Value Per Share (Rs.)	187.54	165.73	131.88	134.03	146.80
Dividend Per Share (Rs.)	15.01	0.00	0.00	8.00	0.00
Dividend	15.01	0.00	0.00	8.00	0.00
PE Multiple	13.46	172.59	41.71	22.24	21.53
Market Capitalization of Closing Price (Rs. In Million)	674.12	2159.10	1703.81	1084.16	1310.52
Market Price/Book Value	3.00	9.05	3.04	1.90	2.09
Dividend Cover	2.78	0.00	0.00	1.43	0.00
Dividend Yield	2.67	0.00	0.00	3.14	0.00
Dividend Payout	35.95	0.00	0.00	69.76	0.00
Earning Yield	7.13	0.58	2.40	4.50	4.64

NEPAL BANGLADESH BANK LTD.

KATHMANDU

Authorized Capital	Rs. 1500000000.00	Paid-Up Value/Share	Rs. 100 & Rs. 0
Issued Capital	Rs. 1000000000.00	No. of Shareholders:	24598
Paid-Up Capital	Rs. 359924500.00	Incorporation Year – B.S.:	2051 A.D.: 1994
Par Value/Share	Rs. 100 & Rs. 0	Listing Date – B.S.:	09/09/52 A.D.: 1995

CHANGE IN PAID-UP CAPITAL (Rs. In Million)

Year	Before	After	Remarks
01/02	116.35	117.77	
02/03	117.77	238.16	
03/04	238.16	357.25	
04/05	257.25	359.92	
05/06	359.92	359.92	

Equity Share Data

Year Ended	7/15/2002	7/15/2003	7/15/2004	7/15/2005	7/15/2006
Paid-Up Price Per Share (Rs)	100.00	100.00	100..00	100.00	100.00
Market Price Per Share					
(i) Closing Price (Rs.)	1502.00	1100.00	510.00	360.00	290.00
(ii) High Price (Rs.)	1505.00	3430.00	1200.00	535.00	477.00
(iii) Low Price (Rs.)	800.00	950.00	340.00	341.00	290.00
Earning Per Share (Rs.)	118.48	83.45	18.41	19.87	0.74
Book Value Per Share (Rs.)	336.75	249.88	175.36	190.02	182.42
Dividend Per Share (Rs.)	0.00	5.04	0.00	0.00	0.00
Dividend	0.00	5.04	0.00	0.00	0.00
PE Multiple	12.68	13.18	27.70	18.12	393.87
Market Capitalization of					
Closing Price (Rs. In Million)	1768.91	2619.76	1821.98	1295.71	1043.77
Market Price/Book Value	4.46	4.40	2.91	1.89	1.59
Dividend Cover	0.00	16.56	0.00	0.00	0.00

Dividend Yield	0.00	0.46	0.00	0.00	0.00
Dividend Payout	0.00	6.04	0.00	0.00	0.00
Earning Yield	7.89	7.59	3.61	5.52	0.25

EVEREST BANK LTD.

NAYA BANESHWORE, KATHMANDU

Authorized Capital	Rs. 750000000.00	Paid-Up Value/Share	Rs. 100 & Rs. 0
Issued Capital	Rs. 466800000.00	No. of Shareholders:	24222
Paid-Up Capital	Rs. 455000000.00	Incorporation Year – B.S.:	2049 A.D.: 1993
Par Value/Share	Rs. 100 & Rs. 0	Listing Date – B.S.:	12/25/2052 A.D.: 1995

CHANGE IN PAID-UP CAPITAL (Rs. In Million)

Year	Before	After	Remarks
01/02	118.42	118.42	
02/03	118.42	220.86	
03/04	220.86	399.32	
04/05	399.32	455.00	
05/06	455.000	455.00	

Equity Share Data

Year Ended	7/15/2002	7/15/2003	7/15/2004	7/15/2005	7/15/2006
Paid-Up Price Per Share (Rs)	100.00	100.00	100..00	100.00	100.00
Market Price Per Share					
(i) Closing Price (Rs.)	980.00	750.00	430.00	445.00	680.00
(ii) High Price (Rs.)	980.00	1850.00	740.00	490.00	723.00
(iii) Low Price (Rs.)	400.00	670.00	325.00	349.00	400.00
Earning Per Share (Rs.)	34.85	31.56	32.91	29.90	45.58
Book Value Per Share (Rs.)	171.30	144.62	150.74	150.10	171.53
Dividend Per Share (Rs.)	0.00	0.00	0.00	20.00	20.00
Dividend	0.00	0.00	0.00	20.00	20.00

PE Multiple	28.12	23.77	13.07	14.89	14.92
Market Capitalization of Closing Price (Rs. In Million)	1160.52	1656.45	1115.08	1401.75	2142.00
Market Price/Book Value	5.72	5.19	2.85	2.96	3.96
Dividend Cover	0.00	0.00	0.00	1.49	2.28
Dividend Yield	0.00	0.46	0.00	4.49	2.94
Dividend Payout	0.00	6.04	0.00	66.90	43.88
Earning Yield	3.56	4.21	7.65	6.72	6.70