CHAPTER – II
REVIEW OF LITERATURE

Introduction

A literature review is an evaluative report of information found in the literature related to their selected area of study. The present study is an attempt to analyze the risk and return relationship equity in investment. The review chapter has been divided into two different segments namely conceptual review and previous studies.

CONCEPTUAL REVIEW OF RISK RETURN

Concept of Risk and Return of Equity Shares:

Introduction to Risk and Return Analysis of Equity Share – Two sides of the Investment Coin People have many motives for investing. Some people investing 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 to 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 return suggest that other factor must be considered besides return in the selection process. Investors not only like return, they dislike risk. Their holding of an assortment of securities and portfolios attest to that fact.
To say that investors like return and dislike risk is, however, simplistic. To facilitate our job of analyzing securities and portfolios within a return risk context, we must begin with a clear understanding of risk and return.

In the current economic scenario dividend (earning) rates are falling and fluctuation in the capital marker has put investors in confusion. One finds it difficult to take decision on investment. This is primarily, because of investments are risky in nature and investors have to consider various factors before investing in investment avenues. These factors include risk, return, volatility of shares and liquidity. The main objective of comparing investment in different equity share prices is to analyze the performance of equity share by using risk, return as a parameter. Historical data were taken for calculating risk, return. Analysis has done on percentage method for comparing equity share prices.

Financial markets are often hard to understand. Stock prices are highly volatile and difficult to predict, requiring that market participants and researchers devote significant resources to understanding the behavior of expected returns relative to the risk of stock market investment.

**RETURN:**

Return is primary motivating force that drives investment. It represents the reward for undertaking investment. Since the game of investing is about returns (after allowing for risk), measurement of realized (historical) returns (ex. Post facto) is
necessary to access how well the investment manager has done. In addition, historical returns are often used as important input in estimating future (prospective) return.

The amount of net income returned as a percentage of shareholders equity. Return on equity measures a corporation’s profitability by revealing how much profit a company generates with the money shareholders have invested.

The future is uncertain. Investors do not know with certainty whether the economy will be growing rapidly or be in recession. Investors do not know what rate of return their investments will yield. Therefore, they base their decisions on their expectations concerning the future. The expected rate of return on a stock represents the mean of probability distribution of possible future returns on the stock.

The objective of any investor is to maximize expected returns from his investments, subject to various constraints, primary risk return is the motivating force, inspiring the investor in the form of rewards, for undertaking the investment. The importance of return of any investment decision can be traced to the following factor:

1. It enables investors to compare alternative investments in terms of what they have to offer the investor.

2. Measurement of historical returns enables the investors to access how well they have done.

Type of Return

There are two types return, these are follows:

1. Realized return
2. Expected return

Realized Return:

This is ex-post (after the return) or return that was or could have been earned.

For example:

A deposit of Rs.1000/- in a bank on Jan 1 at stated annual interest rate of 10% will be worth Rs.1100 exactly a year later. The historical or realized return in this case is 10%.

Expected Return:

This is return from an asset that investors anticipate or expect to earn over future some period. The expected return is subject to uncertainty in return and the timing of those returns by requiring an expected return that is sufficiently high to offset the risk or uncertainty.
Component of Return:

There are two components of return. These are followings:

1. Yield / Current
2. Capital Gain

Yield / Current:

Yield is a periodic cash flow (income) such as dividend or interest which is generated by the investment in various instruments. Current return is measured as the periodic income in relation to the beginning price of the investment.

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\text{Current Income} = \frac{\text{Current Return / Yield}}{\text{Beginning Price}}
\]

Capital Gain:

Capital gain means earn income from particulars asset-like equity stock. It is simply measured as price appreciation or depreciation divided by beginning price of the particular security. The capital return can be positive or zero or negative. The periodic (the period may be one month, one week) rate of return on equity shares prices is calculated as follow;

\[
\text{Ending Price} - \text{Beginning Price}
\]
Capital Return / Capital Gain / Loss Yield = -------------------------
                   Beginning Price
                   = P1 – P0
                   ------
                   P0

RISK:

The dictionary meaning of risk is the possibility of loss or injury, the degree or probability of such loss. Risk is the composed of the demand that bring in variations in return of income. The main forces contributing to risk are price and interest.

“RISK” is as uncertainties resulting in adverse outcome, adverse in relation to planned objective or expansions. Uncertainties associated with risk element impact the net cash flow or any business or investment. Under the impact of uncertainties, variation in net cash flow takes place. This could be favorable as well as unfavorable. The possible is the unfavorable impact is the “RISK” of the business.

Definition of Risk:

Risk is, “the variability of return around the expected average is thus a quantitative description of risk”.

-FISCHER AND JORDON

Courses of Risk:
1. Wrong Decision
2. Wrong Timing
3. Nature of instruments
4. Credit worthiness of Issuer
5. Maturity period or length of investment
6. Amount of Investment
7. Method of investment
8. Terms of leading
9. Nature of industry
Classification of Risk:

Following are the two broad type risks:

**Systematic Risk**

Market Risk
Interest Rate Risk
Purchasing Power Risk

**Unsystematic Risk**

Business Risk
Financial Risk
Internal Risk
External Risk

Systematic Risk:

The risk inherent to the entire market segment is known as “un diversifiable risk” or “market risk”.

Systematic risk is also referred as uncontrollable risk. Systematic is non diversifiable and is associated with the securities market as well as economic sociological, political and legal consideration of the prices of all securities.

Interest rates, recession and wars all represent sources of systematic risk because they affect the entire market and cannot be avoided through diversification. Whereas that type of risk affects a broad range of securities, unsystematic risk affects a
very specific group of securities or an individual security. Systematic risk can be mitigated only by being hedged.

Even a portfolio of well-diversified assets cannot escape all risk.

**There are three type of systematic risk:**

1. Market Risk
2. Interest rate Risk
3. Purchasing Power Risk

**Market Risk:**

Market risk is as the portion of total variability of return caused by the alternating forces of bull and bear market. When the security index moves upward haltingly for a significant period of time, It is known as bull market, the index moves from a down level to the peak. Bear market is just a reverse to the bull market low point called through for a significant period of time.

During the bull and bear market more than 80% of the security prices rise or fall along with the stock market indices.

**Interest rate risk:**

Interest rate risk is the variation in the single period rates of return caused by the fluctuation in the market interest rate. Most commonly interest rate risk affects the price of bonds, debentures and stocks. The fluctuations in the interest rates are caused by the changes in the government monetary policy and the changes that occur in the interest rates of treasury bills and the government bonds. The bonds issued by the
government and quasi government are considered to be risk free. If higher interest rates are offered, investors would like to switch his investments from private sector bonds to public sector bonds.

**Purchasing Power Risk:**

Variations in the returns are caused also by the loss of purchasing power of currency. Inflation is the reason behind the loss of purchasing power. The level of inflation proceeds faster than the increase in capital value. Purchasing power risk is the probable loss in purchasing power of the return to be received. The rise in price penalizes the returns to the investor, and every potential rise in price is a risk to the investor.

**Unsystematic Risk:**

There are two type unsystematic risks as follows:

1. Business Risk
2. Financial Risk

**Business Risk:**

Definition:

Risk associated with the unique circumstances of a particular company, as they might affect the price of that company’s securities.

Business risk it the possibility that a company will have lower than anticipated profits, or that it will experience a loss rather than a profit. Business risk is influenced by numerous factors, including sales volume, per-unit price, input costs, competition and overall economic climate and government regulations. A company with a higher business risk should choose a capital structure that has a lower debt ratio to ensure that it can meet its financial obligations at all times.
Business risk can be divided into external business risk and internal business risk.

**Internal Business Risk:**

Internal business risk associated with the operational efficiency of the firm. The operational efficiency differs from company to company.

**External Business Risk:**

External Risk is the result of operating conditions imposed in the firm by circumstances beyond its control. The external environments in which it operates exert some pressure on the firm.

**Financial Risk:**

Financial risk is the amount of chance that is present with any type of financial investment. Typically, the goal is to secure investments that appear to have a low amount of risk since these are more likely to earn a return. Both individual and corporate investors access the degree of risk present before executing an order to buy share on any investment market.

Shareholders usually investigate the degree of financial risk present in any investment deal by exploring both the current and past performance of stock option. The shareholders will also consider any changes in the current financial climate that could either cause the option to increase dramatically in value or cause the option to drop. Knowing this detail will help the investors determine how owing the option will affect his or her overall financial stability.

Corporations also engage in the process of assessing financial risk. In terms of property purchases, there is attention given to the stability to build up equity in the acquisitions, or how to make the most of equity financing strategies. The company will also want to maintain an adequate cash flow, so that even if the acquisition does not appreciate as quickly as projected, the finances of the business remain stable.
2.1 PREVIOUS STUDIES

This part of the review gives details of previous studies on investments is the risk return relationship.

2.2 Risk and return

Grewal S.S and Navjot Grewall (1984)\(^1\) revealed some basic investment rules and rules for selling shares. They warned the investors not to buy unlisted shares, as Stock Exchanges do not permit trading in unlisted shares. Another rule that they specify is not to buy inactive shares, ie, shares in which transactions take place rarely. The main reason why shares are inactive is because there are no buyers for them. They are mostly shares of companies, which are not doing well. A third rule according to them is not to buy shares in closely-held companies because these shares tend to be less active than those of widely held ones since they have a fewer number of shareholders. They caution not to hold the shares for a long period, expecting a high price, but to sell whenever one earns a reasonable reward.

Jack Clark Francis (1986)\(^2\) revealed the importance of the rate of return in investments and reviewed the possibility of default and bankruptcy risk. He opined that in an uncertain world, investors cannot predict exactly what rate of return an investment will yield. However he suggested that the investors can formulate a probability distribution of the possible rates of return. He also opined that an investor who purchases corporate securities must face the possibility of default and bankruptcy by the issuer. Financial analysts can foresee bankruptcy. He disclosed some easily observable warnings of a firm's failure, which could be noticed by the investors to avoid such a risk.

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\(^1\) Grewal and Navjot Grewal, Profitable lnvestment in shares, Vision Books Pvt. Ltd. 36 Connaught Place, New Delhi 1984

Preethi Singh (1986) disclosed the basic rules for selecting the company to invest in. She opined that understanding and measuring return and risk are fundamental to the investment process. According to her, most investors are 'risk averse'. To have a higher return, the investor has to face greater risks. She concludes that risk is fundamental to the process of investment. Every investor should have an understanding of the various pitfalls of investments. The investor should carefully analyse the financial statements with special reference to solvency, profitability, EPS, and efficiency of the company.

David.L.Scott and William Edward (1990) reviewed the important risks of owning common stocks and the ways to minimize these risks. They commented that the severity of financial risk depends on how heavily a business relies on debt. Financial risk is relatively easy to minimize if an investor sticks to the common stocks of companies that employ small amounts of debt. They suggested that a relatively easy way to ensure some degree of liquidity is to restrict investment in stocks having a history of adequate trading volume. Investors concerned about business risk can reduce it by selecting common stocks of firms that are diversified in several unrelated industries.

Lewis Mandells (1992) reviewed the nature of market risk, which according to him is very much 'global'. He revealed that certain risks that are so global affect the entire investment market. Even the stocks and bonds of the well-managed companies face market risk. He concluded that market risk is influenced by factors that cannot be predicted accurately like economic conditions, political events, mass psychological factors, etc. Market risk is the systemic risk that affects all securities simultaneously and it cannot be reduced through diversification.

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3 Preethi Singh, Investment Management, Himalaya Publishing House, Bombay Nagpur and Delhi, 1986
Nabhi Kumar Jain (1992) specified certain tips for buying shares for holding and also for selling shares. He advised the investors to buy shares by diversifying in a number of growth companies operating in a different but equally fast growing sector of the economy. He suggested selling the shares, the moment company has or almost reached the peak of its growth. Also, sell the shares the moment you realise you have made a mistake in the initial selection of the shares. The only option to decide when to buy and sell high priced shares is to identify the individual merit or demerit of each of the shares in the portfolio and arrive at a decision.

Carter Randal (1992) offered to the investors the underlying principles of winning on the stock market. He emphasized on a long term vision and a plan to reach the goals. He advised the investors that to be successful, they should never be pessimists. He revealed that - though there has been a major economic crisis almost every year, it remains true that patient investors have consistently made money in the equities market. He concluded that investing in the stock market should be an un-emotional endeavour and suggested that investors own a stock if they believe it would perform well.

L.C.Gupta (1992) revealed the findings of his study that there is the existence of wild speculation in the Indian stock market. The over speculative character of the Indian stock market is reflected in extremely high concentration of the market activity in a handful of shares to the neglect of the remaining shares and absolutely high trading velocities of the speculative counters.

Yasaswy N.J (1993) disclosed how 'turnaround stocks' offer big profits to bold investors and also the risks involved in investing in such stocks. Turnaround stocks are

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6 Nabhi Kumar Jain, How to earn from shares, Nabhi Publications, Delhi, 1992
stocks with extraordinary potential and are relatively under priced at a given point of time. He also revealed that when the economy is in recession and the fundamentals are weak, the stock market, being a barometer of the economy, also tends to be depressed. A depressed stock market is an ideal hunting ground for 'bargain hunters', who are aggressive investors. Sooner or later recovery takes place which may take a very long time. He concluded that the investors' watch work is 'caution' as he may lose if the turnaround strategy does not work out as anticipated.

Sunil Damodar (1993)\(^{10}\) evaluated the 'Derivatives' especially the 'futures' as a tool for short-term risk control. He opined that derivatives have become an indispensable tool for finance managers whose prime objective is to manage or reduce the risk inherent in their portfolios. He disclosed that the over-riding feature of 'financial futures' in risk management is that these instruments tend to be most valuable when risk control is needed for a short-term, ie, for a year or less. They tend to be the cheapest ones and easily available for protecting against or benefiting from short term price. Their low execution costs also make them very suitable for frequent and short term trading to manage risk more effectively.

Yasaswy J.N." (1993)\(^{11}\) evaluated the quantum of risks involved in different types of stocks. Defensive stocks are low risk stocks and hence the returns are relatively low but steady. Cyclical stocks involve higher risks and hence the rewards are higher when compared to the growth stocks. Growth stocks belong to the medium risk category and they offer medium returns which are much better than defensive stocks, but less than the cyclical stocks. The market price of growth stocks does fluctuate, sometimes even violently during short periods of boom and bust. He emphasized the financial and organizational strength of growth stocks, which recover soon, though they may hit bad patches once in a way.

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Donald E Fischer and Ronald J. Jordan (1994) analyzed the relation among risk, investor preferences and investor behaviour. The risk return measures on portfolios are the main determinants of an investor's attitude towards them. Most investors seek more return for additional risk assumed. The conservative investor requires a large increase in return for assuming small increases in risk. The more aggressive investor will accept smaller increases in return for large increases in risk. They concluded that the psychology of the stock market is based on how investors form judgments about uncertain future events and how they react to these judgments.

R.Venkataramani.(1994) disclosed the uses and dangers of derivatives. The derivative products can lead us to a dangerous position if their full implications are not clearly understood. Being off balance sheet in nature, more and more derivative products are traded than the cash market products and they suffer heavily owing to their sensitive nature. He brought to the notice of the investors the 'Over the counter product' (OTC) which are traded across the counters of a bank. OTC products (eg. Options and futures) are tailor made for the particular need of a customer and serve as a perfect hedge. He emphasized the use of futures as an instrument of hedge, for it is of low cost.

K.Sivakumar (1994) disclosed new parameters that will help investors identify the best company to invest in. He opined that Economic Value Added (EVA) is more powerful than other conventional tools for investment decision making like

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EPS and price earnings ratio. EVA looks at how capital raised by the company from all sources has been put to use. The higher the EVA, the higher the returns to the shareholder. A company with a higher EVA is likely to show a higher increase in the market price of its shares. To be effective in comparing companies, he suggested that EVA per share (EVAPS) be calculated. It indicates the super profit per share that is available to the investor. The higher the EVAPS, the higher is the likely appreciation in the value in future. He also revealed a startling result of EVA calculation of companies in which 200 companies show a negative value addition that includes some blue chip companies in the Indian Stock Market.

Lubatkin, Michael, Chatterjee, Sayan, (1994) arrive at the conclusion that Executives frequently justify a diversification move by claiming that it reduces a firm's exposure to cyclical and secular uncertainties, or risk. The accuracy of that claim is not, however, well documented. In fact, very little is known about the relationship between corporate diversification and risk. Much of what is known is borrowed from modern portfolio theory. Although that theory can provide guidance to a securities manager trying to predict the risk outcomes of stock diversification, it may not be an appropriate guide for predicting the risk outcomes of corporate diversification. This study offers evidence that the evolving theory of strategic management better explains the risk outcomes of corporate diversification.

Pattabhi Ram.V. (1995) emphasized the need for doing fundamental analyses and doing Equity Research (ER) before selecting shares for investment. He opined that the investor should look for value with a margin of safety in relation to price. The margin of safety is the gap between price and value. He revealed that the

16 Pattabhi Raman.V. "Wanna Do Equity Research, Annlyst, Monthly, October 1995, p.22
Indian stock market is an inefficient market because of the absence of good communication network, rampant price rigging, and the absence of free and instantaneous flow of information, professional broking and so on. He concluded that in such inefficient market, equity research will produce better results as there will be frequent mismatch between price and value that provides opportunities to the long-term value oriented investor. He added that in the Indian stock market investment, returns would improve only through quality equity research.

Philippe Jhorion and Sarkis Joseph Khoury (1996) reviewed international factors of risks and their effect on financial markets. He opined that domestic investment is a subset of the global asset allocation decision and that it is impossible to evaluate the risk of domestic securities without reference to international factors. Investors must be aware of factors driving stock prices and the interaction between movements in stock prices and exchange rates. According to them the financial markets have become very much volatile over the last decade owing to the unpredictable speedy changes like oil price shocks, drive towards economic and monetary unification in Europe, the wide scale conversion of communist countries to free market policies etc. They emphasized the need for tightly controlled risk management measures to guard against the unpredictable behaviour of financial markets.

S.Rajagopal. (1996) commented on risk management in relation to banks. He opined that good risk management is good banking. A professional approach to Risk Management will safeguard the interests of the banking institution in the long run. He

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described risk identification as an art of combining intuition with formal information. And risk measurement is the estimation of the size, probability and timing of a potential loss under various scenarios.

**Charles.P.Jones (1996)** reviewed how to estimate security return and risk. To estimate returns, the investors must estimate cash flows the securities are likely to provide. Also, investors must be able to quantify and measure risk, using variance or standard deviation. Variance or standard deviation is the accepted measure of variability for both realized returns and expected returns. He suggested that the investors use it as the situation dictates. He revealed that over the past 12 years, returns in stocks, bonds, etc. have been normal. Blue chip stocks have returned an average of more than 16% per year. He warned that the investors, who believe that these rates will continue in the future also, will be in trouble. He also warned the investors not to allow themselves to become victimized by "investment gurus".

**V.T.Godse. (1996)** revealed the two separate but simultaneous processes involved in risk management. The first process is determining risk profile and the second relates to the risk management process itself. Deciding risk profile is synonymous with drawing a risk picture and involves the following steps.

1. Identifying and prioritizing the inherent risks
3. Establishing standards for each risk component
4. Evaluating and controlling the quality of managerial controls.
5. Developing risk tolerance levels.

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He opined that such an elaborate risk management process is relevant in the Indian context. The process would facilitate better understanding of risks and their management.

Aswath Damodaran (1996)\textsuperscript{21} reviewed the ingredients for a good risk and return model. According to him a good risk and return model should

a. Come up with a measure for risk that is universal

b. Specify what types of risks are rewarded and what types are not.

c. Standardize risk measures, to enable analysis and comparison.

d. Translate the risk measure into an expected return.

He opined that a risk measure, to be useful, has to apply to all investments whether stocks or bonds or real estate. He also stated that one of the objectives of measuring risk is to come up with an estimate of an expected return for an investment. This expected return would help to decide whether the investment is a 'good' or 'bad' one.

Edwin J. Elton a, Martin J. Gruber (1997)\textsuperscript{22} reviewed "Modern Portfolio Analysis" and outlined some important topics for further research. Issues discussed include the history and future of portfolio theory, the key inputs necessary to perform portfolio optimization, specific problems in applying portfolio theory to financial institutions, and the methods for evaluating how well portfolios are managed. Emphasis is placed on both the history of major concepts and where further research is needed in each of these areas.

Basude v Sen (1997)\textsuperscript{23} disclosed the implications of risk management in the changed environment and the factors constraining the speed of risk management technology up-gradation. He opined that the perception and management of risk are crucial for players and regulators in a market oriented economy. Investment managers have started upgrading their risk management practices and systems. They have strengthened the internal control systems including internal audit and they are increasingly using equity research of better quality. He observed that risk measurement and estimation problems constrain the speed of up-gradation. Also, inadequate availability of skills in using quantitative risk management models and lack of risk hedging investments for the domestic investors are major constraints. He concluded that with the beginning of a derivative market, new instruments of risk hedging would become available.

Melwyn Reo (2001)\textsuperscript{24} reviewed the various risks to which the Indian corporates are exposed to and also the corporate risk management policies. He opined that the corporates need to focus on their primary business risks and hedge risks arising from commodity price movements. An appropriate level of risk for a corporate is dependent on how much business and financial risk it is exposed to. A corporate with volatile cash flows and high operational risk may find it appropriate to take on less market risks. A corporate who is exposed to a relatively lower business risk may feel more comfortable in taking on more unhedged financial risk. Ultimately, the corporate may decide to fix the total risk appropriate to it as some percentage of its capital base or the expected earnings. He opined that the corporates, despite their unlimited life span have


\textsuperscript{24} Melwyn Reo, "Ignore it at your own risk", The Economics Times, Daily, Vo1.41, No.3, March 7tt1, 2001, p.11.
limited tolerance to price volatility. The commodity price exposure should be fully hedged because corporates face enough business risk and cannot afford to add further risks. Since all corporates are exposed to commodity price risk, they should maintain a Board approved policy and procedures that outline its risk management strategy. He concluded the article by stating that the underlying objective in any risk management policy should meet the aspirations of the equity holders.

Punsak (2007)\textsuperscript{25} studied Thailand stock exchange with reference to risk return relationship taking 27 real estate stocks for 400 trading days ranging from May 2005 to December 2006. The findings of the study showed that nine real-estate stocks are above 1.0 and the rest of 18 real-estate stocks have less than 1. And the expected rate of return of 15 stocks is higher than the required rate of return based on CAPM. This means that these stocks are undervalued stocks, Whereas 12 real-estate stocks have the expected rate of return lower than the required rate of return based on CAPM. This means that these stocks are overvalued stocks.

Ludvigson, Sydney C. & Ng, Serena,(2007)\textsuperscript{26} find a positive conditional correlation between risk and return that is strongly statistically significant, whereas the unconditional correlation is weakly negative and statistically insignificant. A key criticism of the existing empirical literature on the risk-return relation relates to the relatively small amount of conditioning information used to model the conditional mean and conditional volatility of excess stock market returns. To the extent that

\textsuperscript{25} Kullapassorn Punsak, "Beta value (Systemic risk) of 27 real-estate stocks", An unpublished Thesis Submitted to Business Administration Department of International Business Graduate School University of the Thai Chamber of Commerce.

financial market participants have information not reflected in the chosen conditioning variables, measures of conditional mean and conditional volatility--and ultimately the risk-return relation itself--will be misspecified and possibly highly misleading. We consider one remedy to these problems using the methodology of dynamic factor analysis for large datasets, whereby a large amount of economic information can be summarized by a few estimated factors. We find that three new factors, “volatility," "risk premium," and "real" factor, contain important information about one-quarter ahead excess returns and volatility that is not contained in commonly used predictor variables. Moreover, the factor-augmented specifications we examine predict an unusual 16-20 percent of the one-quarter ahead variation in excess stock market returns, and exhibit remarkably stable and strongly statistically significant out-of-sample forecasting power.

**Sehgal and Jhanwar (2008)** evaluated the performance of 60 growth and growth – income mutual fund schemes in India from January 2000 to December 2004. They examined both the stock selection skills and the timing abilities of the sample fund managers and argued that multi-factor benchmarks provide better selectivity and timing measures compared to one-factor CAPM as they control style characteristics such as size, value and momentum. It found that the evidence on selectivity improved marginally when higher frequency data such as daily returns are used instead of monthly returns.

**Debasish (2009)** investigated the effect of futures trading on the volatility and operating efficiency of the underlying Indian stock market by taking a sample of

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selected individual stocks. The results of this study suggest that there is a trade-off between gains and costs associated with the introduction of derivatives trading at least on a short-term perspective. The study offers a unique contribution in examining the impact of introduction of index futures trading in NSE Nifty index and the index futures covering a period since introduction of index futures in Indian Capital Market. The results suggest that the market would have to pay a certain price, such as loss of market efficiency for the sake of market stabilization.

Gannon, G.L. (2010)²⁹ studied the relationship between stock market liquidity and volatility and risk. The paper also deals with time series data by applying Cochrane Orchutt two step procedures. An effort has been made to establish a relation between liquidity and volatility in this paper. It has been found that there is a statistically significant negative relationship between risk and stock market liquidity. Finally it is concluded that there is no significant relationship between liquidity and trading activity in terms of turnover.

S.M.Tariq Zafar, D.S.Chaubey, and Shruti Nagar (2010)³⁰ attempted to know the risk and return relationship. Every investor has different thinking to invest in stock which may give him/her maximum return with lesser or no risk. So, investors want a portfolio which provides maximum return. The main objective of this paper is to analyze the relationship among risks, return, and diversification effect on portfolio risk with composite of market and non-market risk. For the purpose, 25 stock of S&P

nifty have been analyzed on the basis of portfolio beta and portfolio return. The first part of paper gives an insight about the portfolio, risk return and diversification and its various aspects while the second part consists of data and their analysis.

**Prof. Y. Rama Krishna (2010)**\(^{31}\) This article includes HPR, Daily and annualized Returns and Unsystematic Risk and correlation among the stocks belonging to similar industry type of S&P CNX 500 was considered as market index. This study considers 244 days of trading from 31 December 2008 to 31st December 2009. Returns are calculated using the continuous compounding method and Correlation analysis was used for the movement of stock market. A positive correlation was found among the stock and market index.

**P.Varadharajan (2011)**\(^{32}\) points out an optimal portfolio that maximizes the overall return and minimizes the risk associated with the individual stocks using the Sharpe Single Index Model. The study includes 25 stocks from five different sectors. Only the secondary data for the past five years (2005-2006 to 2009-2010) are used in the study. The final portfolio thus constructed includes stocks from more than one sector. Thus even if some of the sectors do not perform well as expected, it will be compensated by the excess returns from the other sectors that exceed the expectation. This is how risk is diversified. This method of construction of optimal portfolio is very effective and convenient as revision of the optimal portfolio can be an ongoing exercise. The existence of a cut-off rate is also extremely useful because most new

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\(^{32}\) P.varadharajan asst. Professor & coordinator [mba (pt)] psg institute of management (2011) — a study on construction of equity portfolio (oil, it, steel and banking stocks) with reference to the sharpe index model, VOLUME NO. 1 , ISSUE NO. 5.
stocks that have an excess return-to-beta ratio above the cut-off rate can be included in the optimal portfolio. Thus this study helps the investors minimize risk and maximize the return of their investment.

P. Karthika, (2011)\textsuperscript{33} compared stocks of selected companies from different sectors like Information Technology, Automobiles, Banking, Pharmaceuticals, and Oil Sectors in the form of their risk, return and liquidity. The study is also creating awareness about Stocks among the investors to invest in the particular sectors. The risk/return relationship is a fundamental concept not only in financial analysis, but in every aspect of life. If decisions are to lead to benefit maximization, it is necessary that individuals/institutions consider the combined influence on expected return or benefit as well as on risk/cost. The requirement that expected return/benefit be commensurate with risk/cost is known as the "risk/return trade-off" in finance. It discusses the trade-off using beta and standard deviations, coefficient of correlation tools and provides a method for quantifying risk.

P. Varadharajan and Dr. P Vikkraman (2011)\textsuperscript{34} created a portfolio to reduce the risk of the investors in the stocks or commodities. To create a portfolio, the individual risk and returns are evaluated and selected. From the calculation the better stocks are selected to form the portfolio. In this research, the risk and return involved in a banking sector are found. 15 banks were selected from the calculation based on the William Sharpe index model. After the analysis based on William Sharpe Index model, four banks were selected to form the portfolio. Out of the four, the proportion to be


\textsuperscript{34} P. Varadharajan and Dr. P Vikkraman (2011) “Construction of Portfolio Using Sharpe Index Model with Special Reference to Banking Industry”, SUGYAN Siva Sivani Institute of Management, Secunderabad, India. Volume III, Issue II/ ISSN -0975-4032
invested was also calculated. This analysis was done not considering short sales option. The portfolio also analyzed, it's consideration with the sales. From this, the low performing stocks are found and can be sold. The out performing stocks can be held for long.

Lourence Wormald and Elmarie van der merwe (2012)\textsuperscript{35} studied and made analyses with the relationship between conventional shrinkage approaches to the construction of the covariance matrix for portfolio optimization. Here, we use Quadratic constraints on each part of the total risk (variance) measure, such as the systematic or specific risk associated with risk factor. To examine the practical value of this approach, using a well documented set of alphas, we set out the result of 13-year simulation exercise over the Russell 3000 Growth U.S. equity universe. And the result shows that the effect of constraints on decline on covariance matrix related with span part of alpha will result in different portfolio allocations.

Sasikanta Tripathy (2013)\textsuperscript{36} provides a model of stock returns that decomposes influences on returns into a systematic factor, as measured by the return on the broad market index, and firm specific factors. The relationship is between a securities' performance and the performance of a portfolio containing it. The market model states that the security's performance is related to its portfolio's performance, according to its beta. Financial market forecasting is based on certain principles, theories and models to study the financial markets and predict what their future trend or course will be. Changes in stock prices are largely dependent on human opinions and expectations about the future performance of a stock or share. In this paper the


\textsuperscript{36} Mr. Sasikanta Tripathy (2013) forecasting through single index model: a study on selected indian banks DRIEMS Business Review VGSOM, IIT, Kharagpur West Bengal Vol.-1 No.-1
author has tried to give a bird's eye view about the concept of Single Index Model given by William Sharpe for the practical application to find out the returns in public sector banks from Indian context. Also the author has analyzed the correlation of these banks, return and market return (Bankex). At last it is concluded by applying ANOVA, whether returns from all banks are equal or not.

Anu Sahi, Anurag Pahuja (2013)\textsuperscript{37} used Historical simulation, Normal VaR and Modified VaR techniques for calculating value at risk. Mutual fund performance is an unending area of interest both for academicians and fund managers for the simple reason that it is a product meant for retail investor. A set of performance measures like Sharpe ratio and Jensen's Alpha are widely used measures. But in today’s volatile market environment, investor’s mind is inundated with one major question i.e. what is maximum downside risk, if investment is made in mutual funds. Performance measures that consider both upward and downwards volatility might not be very useful for investors. However performance measures that consider risk by taking into account only losses, such as Value-at-Risk (VaR), are more appropriate techniques to evaluate the performance. In the present study, standard VaR (Value at Risk) has been used to analyze the performance of public and private sector mutual funds.

Kadar Muhammad Masum, Hamid Chowdhury & Kalam Azad (2013)\textsuperscript{38} analyzed performance of Shahjalal Islami Bank Ltd. (SJIBL) at micro level. The study is based on 18 companies of Dhaka Stock Exchange (DSE). As population, 93 listed companies of DSE are purposively selected from a total of 544 companies. Ratio


analysis, Individual stock analysis and Portfolio analysis have been done using data between 2005 and 2011. A three stock portfolio analysis has been made compiling three financial industries namely; Banking, Insurance and Financial Institutions. Evidence from the study reveals that SJIBL has high return and low risk characteristics. Portfolio result depicts that combination of Islamic Banks’ (IB) stock in portfolio investment can accelerate portfolio return and can reduce risk. The risk level of an Islamic bank is the combined effect of the three new statutes governing the operations of this institution, namely deposit holders are replaced by equity holders; interest payments to depositors are converted into profit or loss sharing, and loans to customer are transformed into capital participation. It is expected that in future, after the analysis of risk-return characteristics of Islamic banking institutions in other countries, these preliminary conclusions will be examined to establish general principles and final terminations.

Dhanraj Sharma (2013) reviewed the samples consisting of 10 growth oriented-open ended-equity mutual fund schemes from 5 public and 2 private mutual fund companies. Results are tested through risk-return analysis, Co-efficient of variation, Treynor’s ratio, Sharp’s ratio, Jensen’s measure, Fama’s measure and regression analysis. The data used is monthly closing for the study period of April 2007 to March 2012. The risk return analysis revealed that out of 10 schemes, 3 have underperformed the market, 7 are found to have lower total risk than the market and all the schemes have given returns higher than risk free rates. The regression analysis suggests that benchmark market return index has statistically significant impact on mutual fund return at 5% level of significance.

Dr. Ratna Sinha (2013)\textsuperscript{40} compared the banking equity performance with two major effected sectors (Real, IT). The hypothesis taken is that there is significant difference in return in banking and non banking equity. The statistical tools which were used for analyzing the hypothesis were descriptive analysis and T-test. The author has given some suggestions to improvise the market condition from the global recession. India is one of the emerging economies, which have witnessed significant development in the stock markets during the liberalization policy initiated by the government. And Indian stock market is largely integrated with the world markets. In that context, financial crisis of 2007-09 was a glass case of large spillovers from one bank to another bank heightening risk. It is clear that the investing in banking shares includes high risk and at the same time it earns extremely negative return which is revealed by the performance analyses on selected banking shares. Investing in stocks is a risky business. There are some risks which can control over others that can only guard against. Most of these risks affect the market or the economy and require investors to adjust portfolios or ride out the storm. In this paper author analyzes the risk and return in banking equity with non banking equity in Bankex.

Dr. P. Nageswari; Dr. M. Selvam; Dr. P. Bhuvaneswari (2013)\textsuperscript{41} studied portfolio analysis considering the determination of future risk and return in holding various blends of individual securities. In the rapidly developing and changing capital markets, an average investor finds himself in a fix to make decisions regarding the purchase of securities. Therefore, the present study highlights the optimal portfolio

\textsuperscript{40} Dr. Ratna Sinha (2013) An Analysis Of Risk And Return In Equity Investment In Banking Sector International Journal of Current Research, Vol. 5, Issue, 08, pp.2336-2338,

selection using Sharpe's Single Index model, through which a significant reduction in the riskiness or variability of the return of securities can be obtained. It tries to provide guidance for investor's rescue from this situation. For the purpose of the study, BSE Sensex index and its securities’ daily closing prices were collected and analyzed from April 2007 to March 2012. The proposed method formulates a unique cut off point (Cut off rate of return) and selects stocks having excess of their expected return over risk free rate of return surpassing this cut-off point. Percentage of investment in each of selected stocks is then decided on the basis of respective weights assigned to each stock depending on respective beta value, stock movement variance unsystematic risk, return on stock and risk free return vis-à-vis the cut off rate of return. The optimal portfolio consists of six stocks selected out of 28 short listed scripts, giving the return of 10.91%.

Nicole Branger, Linda Sandris Larsen (2013)⁴² had focused in the findings that there are pronounced differences between ambiguity aversion with respect to diffusion risk and jump risk. Ignoring uncertainty with respect to jump risk causes larger losses in an incomplete market, whereas ignoring uncertainty with respect to diffusion risk is more severe in a complete market. For a deterministic jump size we show that the loss from market incompleteness is always increasing in the level of uncertainty aversion with respect to one risk factor and decreasing in the level of uncertainty aversion with respect to the other risk factor.

Radhika Desai and Manisha Surti (2013)⁴³ focused on wise investors investing their valued money in bunch of securities rather than in single security

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⁴³ Radhika Desai and Manisha Surti (September 2013) optimum portfolio construction: Sharpe single index model‖ International journal of scientific Research Issue 9, Volume 2.
because they want to take advantage of diversification of risk and they want to earn maximum return. Bunch of securities is known as portfolio and this portfolio should possess minimum risk and maximum return. In this research they construct Sharpe single index optimum portfolio by using data of fifty companies CNX NSE Nifty index for period of 2010-2012.

Niranjan Mandal B.N. Dutta Smriti Mahavidyalaya, Burdwan(2013) An attempt is made here to get an insight into the idea embedded in Sharpe’s single index model and to construct an optimal portfolio empirically using this model. Taking BSE SENSEX as market performance index and considering daily indices along with the daily prices of sampled securities for the period of April 2001 to March 2011, the proposed method formulates a unique cut-off rate and selects those securities to construct an optimal portfolio whose excess return to beta ratio is greater than the cut-off rate. Then, proportion of investment in each of the selected securities is computed on the basis of beta value, unsystematic risk, excess return to beta ratio and cut-off rate of each of the securities concerned.

Inderjit Kaur (2013) evaluated the performance of Indian equity mutual funds and further made attribution analysis of managerial performance on the parameters of diversification, timing and selectivity for the period 2008-10. Based on the performance for 2008-10, top ten open ended growth funds have been selected for the study. We have evaluated the performance of funds using Sharpe index, Treynor index and Jensen alpha. The Treynor-Mazuy model is used to test the timing and Fama

44 Niranjan Mandal B.N. Dutta Smriti Mahavidyalaya, Burdwan (2013) sharpe’s single index model and its application to construct optimal portfolio: an empirical study|| Yale-Great Lakes Center for Management Research, Volume 7, Issue 1

measure is used to test the selectivity skills of mutual fund managers. The research findings show that on an average mutual funds track their benchmark and an investor is benefitted by the less risky investment. The results have implications for investors as mutual funds outperform the market and attribution analysis shows that ‘managerial acumen’ is present. The results are in contradiction with previous research in developed markets.

Dr. Rachna Agarwal and Jyoti Mangla (2014)⁴⁶ argue that since the birth of the Capital Asset Pricing Model (CAPM), enormous efforts have been devoted to evaluate the validity of this model. No one can deny its unique breakthrough and valuable contribution to the world of financial economics. Some empirical studies conducted, have appeared to be in harmony with the principles of CAPM while others contradict the model. These differences in previously conducted studies serve as a major stimulating factor to researchers’ curiosity to verify its practical applicability of the CAPM. The aim of this paper is to study if the CAPM holds in the automobile sector in Indian Stock Market (NSE). The present paper is a sincere attempt to find answers for the questions by applying CAPM - Does higher beta yield higher expected return? Is there any linearity between the stock beta and the expected return? For the same objectives, the paper is focusing on investigating the under & over valued stock of six firms of automobile sector.

M.Tariq Zafa and Chaubey (2015)⁴⁷ know how the performance of mutual funds is assessed and ranked after analyzing the NAV and their respective returns so as

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⁴⁶ Dr. Rachna Agarwal and Jyoti Mangla(January 2014) testing practical application of CAPM: a study of stocks of automobile sector using CNX auto index in NSE] International Journal of Advanced Research in Management and Social Sciences Edition: - Vol. 3 | No. 1

to measure investment avenues. For this purpose, thirteen most preferred public and private sector equity diversified growth schemes over a period of one year viz. 2007-08 have been taken through judgment sampling and Yield on 10 yr. govt. bond has been taken as the surrogate for the risk free rate of return viz. 7.56% p.a. First part of paper provides a necessary insight about the mutual fund. The second part consists of data (collected from websites & Economic times) and their analysis. It's an empirical study stating the ranking & evaluation of funds based on three ratios namely, Jenson's, Treynor's & Sharpe's. The study produced sufficient information of risk and return associated with fund and their rank depending on their performance which will ultimately help investors choose the best mutual fund generating maximum return with minimum risk.

2.3 Portfolio management

Kendall (1953) found that stock prices evolved randomly and that his data offered no way to predict future price movements. The explanation for this phenomenon, the efficient market hypothesis, initially seemed counter-intuitive to the academic community. However, after the first shock had passed, scholars quickly embraced the theory and began to document its validity in real-world markets by studying empirical data. To do so, they developed different frameworks to model the characteristics of market prices.

Carlsen (1970)\(^48\) evaluated the risk-adjusted performance and emphasized that the conclusions drawn from calculations of return depend on the time period, type of fund and the choice of benchmark. Carlsen essentially recalculated the Jensen and

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Shape results using annual data for 82 common stock funds over the 1948-67 periods. The results contradicted both Sharpe and Jensen measures.

**Eugene Fama**(1972) developed a methodology for evaluating investment performance of managed portfolios. In this paper he breaks down performance into two dimensions namely ‘selectivity’ – ability to pick the best stocks of given level of risk and ‘timing’ – ability to predict general price movement of the market. He uses single period evaluation schemes to work on these new dimensions of performance.

**Nassir et al (1997)** The increasing entry of small investors into unit trusts investments can be attributed to the October 1985 stock market crash, which has led to small investors making the decision of investing in unit trusts in which their resources are pooled together and managed by experienced fund managers. Through unit trusts, small investors now enjoy the benefits that hither to were only available to a privileged wealthy few. One of these benefits includes diversification of exposure to varying stock exchange markets since the inception of unit trusts are no longer the exclusive domain of wealthy individuals and institutions. Furthermore unit trust investors are expecting high returns on their investment beyond which is obtained from a buy and hold strategy.

**Himmelberg et al (1999)** re-examined the ownership-performance relationship and showed that there is one factor that determines the level of managerial

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ownership namely; the riskiness of the firm which is measured by the volatility of the stock price, firm size, capital intensity, R&D, intensity, advertising intensity, cash flow, and the investment rate. Using panel data and 16 controlling for firm fixed effects, they found no meaningful correlation between managerial ownership and performance. They concluded that previous studies failed to account for unobserved firm differences that affect both ownership and performance; hence their results which are subject to inconsistent estimators are likely to be outcomes of false correlations.

According to Zhou (2001) potential problems exist in Himmelberg et al’s methodology of examining the ownership-performance relationship. He argues that in panel data with firm fixed effects it would be hard to find a meaningful relationship between ownership and performance even if one existed. He looks at the cross-sectional features of managerial ownership, as executives now hold options which if looked at in terms of numbers of shares held are often comparable to ownership. This increases incentives and so performance.

Samir K Barua, J R Varma, V Raghunathan (2003) “Portfolio Management” this book is written to help investment practitioners as well as students. It covers fundamental analysis, technical analysis and modern portfolio theory and shows how these can be used to evaluate securities and to design and manage portfolios: It illustrates all the examples from Indian capital market. It kept the use of mathematics to a minimum and whenever necessary it is separately disclosed in appendices. This book draws upon a large number of books, papers and articles which are cited as bibliography.

V. Gangadhar (2003) Security analysis and Portfolio Management” This book becomes helpful to them who are beginners in the area of portfolio management and security analysis. This book is divided into 12 chapters. The first five chapters give knowledge about the concept and basic principles, techniques and theories of security analysis while the remaining chapters give knowledge regarding portfolio, it’s construction, process, measurement etc. This book is helpful for graduate and post graduate students including research scholars. Hence, it will help the reader develop skills to understand, analyze and point out analytical techniques of securities for an effective selection of portfolio.

Albert Mentink (2005) examines whether the optimal bond portfolio is really an improvement by analyzing the characteristics of the individual bonds in the optimal portfolio. Moreover, the composition of such an optimal portfolio is very sensitive to small changes in the mean forward price of its main constituents. As a risk measure we use the conditional value at risk, which at a given percentile, equals the expected value of the losses that exceed the value at risk and also provides information about the losses larger than the value at risk. Furthermore, the conditional value at risk can be optimized using linear programming.

Rajan Bahadur Paudel and Sujan Koirala (2006) conducted research to test whether or not Markowitz and Sharpe models of portfolio selection offer better investment alternatives to Nepalese investors. It has been done by applying those models in a sample of 30 stocks traded in Nepalese stock market. The study finds that the application of these elementary models developed about

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55 Albert Mentink (2005), Conditional value at the risk optimization of a credit bond portfolio: A Practical Analysis, Financial risk and management, IUP Publications, New Delhi
a half century ago, offer better options for making decision in the choice of optimal portfolios in Nepalese stock market.

According to Khorana et al (2007)\textsuperscript{57} managerial ownership has predictive power in explaining future returns. Generally speaking, directors who own a large amount of shares in the companies they manage have the tendency to manage the assets of the company in such an effective and efficient manner making sure that they make the most of every future beneficial opportunity that comes their way. No manager will venture to give such dedication to the company they manage if it were not for the financial implications that befell them for every wrong decision taken.

Rakesh Kumar and Raj’s Dhankar (2008)\textsuperscript{58} advocate the relationship between risk and return and also examine the possibility of diversification effect on portfolio risk, which is the composite of market and non-market risk. The study is based on daily, weekly, and monthly adjusted opening and closing prices of BSE 100 composite portfolios for the period of June 1996 through May 2005. The findings suggest that the relationship between portfolio return and risk is very weak, based on daily return. However, Portfolio risk and return exhibit a high degree of positive relationship when monthly return is used. Portfolio non-market risk shows a declining tendency with diversification.

Asif Ullah Khan, T. K. Bandopadhaya, Sudhir Sharma (2009)\textsuperscript{59} stated that it is always a difficult task to select stocks that are suitable for a portfolio. The main


The aim of every investor is to earn maximum possible returns on investment. There are many criteria behind picking stocks like, price-earnings ratio, price book ratio, price sales ratio, price cash flow ratio, and market capitalization. The main issue with any approaches is the proper weighting of criteria to obtain a list of stocks that are suitable for a portfolio. This paper proposes an improved method for stock picking using self-organizing maps. The best of the portfolio constructed by self-organizing maps outperformed the NSE-50 Index by about 14.88% based on one and half month of stock data.

Rakesh Gupta and Parikshit K. Basu (2009) conducted study on changing global financial environment and emergence of new economic powers in recent decades, diversification of investment portfolios at country and sector levels. Optimum portfolio selection within a capital market is primarily based on the best risk-return trade-off among the industry sectors. Literature suggests that much of market volatility can be attributed to substantial increase in sector specific and sub-sector specific risks. This research has estimated the dynamics of correlations of stock market returns between industry sectors in India using Asymmetric DCC GARCH model and tested efficient portfolios that generates returns above the market average. Analysis of daily and monthly market data for the period April 1997 to April 2007 on a sample of 10 industry sectors selected randomly indicates that investors can substantially improve their reward to risk as compared with the market returns. Major contributions of this research are twofold. It used a computationally efficient model for estimating

correlations that can incorporate the changes in correlations over time and it applied the model for the Indian market where research is extremely inadequate.

Sheridan Titman (2010)\(^{61}\) studied the problem of identifying proper benchmark portfolio, the possibility of overestimating risk because of market-timing ability, and the failure of informed investors to earn positive risk-adjusted returns because of increasing risk aversion. The article argues that these need not be serious problems for getting perfect portfolio and its performance evaluation.

Denis Chaves, Jason Hsu, Feifei Li, and Omid Shakernia Heuristic (2011)\(^{62}\) undertake most of the strategies used for a portfolio. It finds that the traditional portfolio construction does not consistently outperform model pension fund portfolio anchored 60/40 equity/bond portfolio structure. Although risk parity performs on par with equal weighting, it does provide better diversification and then we allocate asset. Thus, to execute risk parity successfully, the careful selection of asset classes is critical, which, for the time being, remains an art rather than a formulaic exercise based on theory.

Richard Grinold (2011)\(^{63}\) provides a general framework for the description of various aspects of a portfolio using a set of factors. The work is cousin to the well-worn topic of performance analysis and attribution, and in that sense, is fairly

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\(^{62}\) Denis Chaves, Jason Hsu, Feifei Li, and Omid Shakernia Heuristic (2011) “Risk Parity Portfolio vs. Other asset Allocation Heuristic Portfolio” The Journal of Investing, Institutional Investor Journals, Number 1, Volume 20, New York

represented as being old wine in new bottles—the scope is much more general, however. Grinold first provides a theoretical structure with a model that describes various aspects of a portfolio as either the allocation of a portfolio’s variance or as the covariance of two portfolios. Here researcher takes a portfolio-centric approach and explains all the results in terms of risk and correlation of portfolios. The expanded framework and portfolio focus opens up a wide range of problems that can be studied with the same framework. The researcher uses examples to illustrate what the methodology can accomplish and as a guide to sense when we are asking too much from the model.

A R Dani, Nusarat Ali, Suresh Simhadri and Dakshina Murthy \(^{64}\) (2012) had discussed assets that include real as well as financial assets. However, in the context of this paper, the discussion is restricted to financial assets or securities. It is better than the returns of the five best performing mutual funds for the period 2006-2009 as well as portfolios constructed using CAPM approach. The Min-Max approach ensures high level of returns, which are better than index, equal allocation, best performing mutual funds, and a managed fund. Future work would include incorporating transaction cost in the model.

Ashish Garg and Ajay Chauhan (2012)\(^{65}\) explains the impact of the developed world market on the Indian industrial portfolios’ return by taking returns of Dow Jones index and Morgan Stanly Composite Index (MSCI) as representatives of the developed world markets‘ returns, and returns of various sectoral indices,

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\(^{64}\) A R Dani, Nusarat Ali, Suresh Simhadri and Dakshina Murthy (2012) Portfolio Selection using Min-Max Approach\[\text{VIKALPA by IIMA VOLUME 37 • NO 2.}\]

constructed by BSE, as representatives of the Indian industrial portfolios‘ return. For this purpose, a set of parametrical and econometric tests are employed on daily data, from January 2000 to December 2009. The findings show that auto, metal, banking, healthcare, technology and real estate are the most affected sectors by the US market and developed world markets. The study also reveals that the Indian markets also influence the developed world markets.

Edward Qian (2012)\(^\text{66}\) examines analytical results regarding portfolio rebalancing and the associated diversification returns for different kinds of portfolios. He analyzes diversification returns of risk parity portfolios. His numerical examples show that diversification return is, in general, positive for leveraged risk parity portfolios when leverage ratio is not too high; in addition, he shows that low correlations between different assets are crucial in achieving positive diversification return and reducing portfolio turnover for risk parity portfolios.

Kumar Gaurav and Pitabas Mohanty (2013)\(^\text{67}\) who had studied Traditional portfolio theory, assume that when the returns are not jointly normally distributed, then the mean variance efficient portfolio does not maximize the utility of the investor. In addition to mean-variance, the investors also need to consider skewness, the third moment of return distributions. Using nine years‘monthly returns data for the NSE‘s CNX nifty stocks, we attempt to create portfolios which maximize returns, minimize variance and maximize skewness at the same time. Results show substantial

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improvement in portfolio performance when we consider skewness in addition to mean and variance.

**Dr. Rachna Agarwal and Jyoti Mangla (2014)** evaluate the validity of this CAPM model. No one can deny its unique breakthrough and valuable contribution to the world of financial economics. Some empirical studies conducted, have appeared to be in harmony with the principles of CAPM while others contradict the model. These differences in previously conducted studies serve as a major stimulating factor to researchers’ curiosity to verify its practical applicability of the CAPM. The aim of this paper is to study if the CAPM holds in the automobile sector in Indian Stock Market (NSE). The present paper is a sincere attempt to find answers for the questions by applying CAPM - Does higher beta yields higher expected return? Is there a linearity between the stock beta and the expected return? For the same objectives, the paper is focusing on investigating the under & over valued stock of six firms of automobile sector.

2.4 Investment analysis

**Resnik, Bruce L(2010)** discussed the possible failure of the modern portfolio theory (MPT), which quantified investment risk and diversified a portfolio by combining investments with different historical performance characteristics, in the credit crisis in 2010. MPT investors reportedly suffered losses in equities, fixed - Income securities and hedge funds when the crisis hit. It is stated that MPT failed to

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68 Dr. Rachna Agarwal and Jyoti Mangla (January 2014) — testing practical application of CAPM: a study of stocks of automobile sector using CNX auto index in NSE|| International Journal of Advanced Research in Management and Social Sciences Edition: -Vol. 3 | No. 1

consider the real world risk of price and that it hindered tactical or strategic investing and focusing on assets that will likely appreciate in future.

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**Sathya Swaroop Debasish (2011)** investigates the change, if any, in the volatility observed in the Indian stock market owing to the introduction of futures trading. The change in the volatility is compared in terms of the structure of the volatility. This is done to give insights into the way the futures market is influencing the Indian spot market’s volatility. The main objective of the study is to investigate whether there has been significant change in relative volatility of the underlying spot return and futures return. The period of study is from 1st January 1997 to 31st May 2007 for the spot prices. The study used three stock indices of NSE namely Nifty, CNX IT and CNX Bank. The index futures time series analyzed here used data on the near month contract as they are most heavily traded. The study has used four measures of volatility. The study reveals that for the three NSE indices, the study rejects the null hypothesis of no significant change in relative inter-day volatility between spot

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prices and futures prices over the entire period 2000-2007, but cannot reject the hypothesis fully for all the individual years. There is significant change in relative intra-day volatility between spot prices and futures prices for all the three NSE indices.

Saravanan A. and Natarajan P. (2012) attempt to construct an optimal portfolio by using Shapre's Single index model. For this purpose NSE, NIFTY and all the 50 stocks have been used as market index for preparing portfolio. The daily data for all the stocks and index for the period of April 2006 to December 2011 have been considered. The proposed method formulates a unique cut off point (Cut off rate of return) and selects stocks having excess of their expected return over risk free rate of return surpassing this cut-off point. Percentage of investment in each of selected stocks is then decided on the basis of respective weights assigned to each stock depending on respective beta value, stock movement variance unsystematic risk, return on stock and risk free return vis-a-vis the cut off rate of return. The optimal portfolio consists of four stocks selected out of 50 short listed scripts, giving the return of 0.116%.

Mark C. Szigety (2013) reviewed framework for evaluating candidate rebalancing strategies within the context of organizational objectives and concerns. It acknowledges the usefulness of secondary sales, and of modeling cash flows as stochastic processes. The author finds that simple commitment and sales rules that essentially depend only on distance from the target, work reasonably well, but that the precise formulation of these rules depends on specific situation.

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M. Muthu Gopalakrishnan (2014) tested whether single index model offers an appropriate explanation of stock returns on IT stocks. The sample in the present study consists of 13 actively traded scrips listed in the National Stock Exchange Limited, Bombay (NSE). The scrips in the sample are selected from NSE IT index. Having tested using regression on the excess return of S&P CNX Nifty and IT Index, it is found that there is a significant relationship and a good explanation of IT index over S&P CNX Nifty. In addition to that, the study investigated that there are four aggressive stocks having beta co-efficient of more than 1 such as Moser Baer India Ltd, Oracle Financial Services Software Ltd, Polaris Software Lab Ltd, Rolta India Ltd. Ultimately it is recommended that among the sample companies all the stocks are undervalued except one stock (G T L Ltd.). Thus the investors can pick these stocks to revise their portfolio.

2.5 STOCK EXCHANGES OF INDIA

Barua et al (1994) undertake a comprehensive assessment of the private corporate debt market, the public sector bond market, the govt. securities market, the housing finance and other debt markets in India. This provides a diagnostic study of the state of the Indian debt market, recommending necessary measures for the development of the secondary market for debt. It highlights the need to integrate the regulated debt market with the free debt market, the necessity for market making for financing and hedging options and interest rate derivatives, and tax reforms.

74 M. Muthu Gopalakrishnan (2014) —Optimal Portfolio Selection Using Sharpe’s Single Index Model‖ Indian journal of applied research, Volume: 4 | Issue: 1 | ISSN -2249 -555X
Amitabh Gupta(2003)\(^{76}\) examines the performance of select mutual funds by using performance measures – rate of return, Sharpe Ratio, Treynor Ratio, Jenson Differential Return Measure and Fama’s Components of Investment Performance. The study uses weekly NAV data for 73 mutual fund schemes from April 1, 1994 to March 31, 1999. It is observed that the sample schemes were not adequately diversified. The empirical result indicates a mixed performance of sample schemes. The study found that performance of some private sector funds was superior but there was no conclusive evidence to suggest that performance of mutual funds was better than the relevant benchmark and the risk and return characteristics of schemes were not in conformity with their stated objectives.

Shirai (2004)\(^{77}\) examines the impact of financial and capital market reforms on corporate finance in India. India’s financial and capital market reforms since the early 1990s have had a positive impact on both the banking sector and capital markets. Nevertheless, the capital markets remain shallow, particularly when it comes to differentiating high-quality firms from low-quality ones (and thus lowering capital costs for the former compared with the latter). While some high-quality firms (e.g., large firms) have substituted bond finance for bank loans, this has not occurred at any significant degree for many other types of firms (e.g., old, export-oriented and commercial paper-issuing ones). This reflects the fact that most bonds are privately placed, exempting issuers from the stringent accounting and disclosure requirements necessary for public issues. As a result, banks remain major financiers for both high and low-quality firms. The paper argues that India should build an infrastructure that will foster sound capital markets and strengthen banks’ incentives for better risk management.


N P Tripathy (2006) studied the market timing ability of the mutual fund managers and its impact on the performance of the fund. Her study makes a comprehensive evaluation of equity linked savings schemes. For the purpose of this study, equity linked savings schemes have been taken from December, 1995 to January, 2004. A total of 31 schemes over the eight-year period are selected. The following close ended fund from UTI, LIC, Can Bank Mutual Funds have been taken for the study. Her study indicates that Indian Fund managers have not been able to time the market correctly.

Dheeraj Mishra, R Kannan and Sangeeta D Mishra (2006)\(^\text{78}\), tried to find out the spot - future parity relationship in case of index futures in the Indian stock market. NSE Nifty has been chosen as underlying asset. It also aims at exploring different factors responsible for the violation of spot-future parity relationship. It was found that there exists a theoretical relationship among spot, futures and other relevant variables as dividend yield, maturity etc. The paper also aimed at finding out whether there exists an arbitrage profit owing to violation of spot future. It was found that arbitrage profits are higher for distant future contracts than for immediate future contracts. Arbitrage profits are more for undervalued future markets than for overvalued future markets.

Hayk Zayimtsyan conducted research in (July 2006)\(^\text{79}\) on the topic of “Optimum portfolio structure for Investments in the International Financial Market: The Example of the Central Bank of America”. The major focal point of the study was theoretical and practical aspect of portfolio construction. For constructing the portfolio he used Markowitz‘s mean-variance model.


Reddy and Sebastin (2008)\textsuperscript{80} studied the temporal relationship between the equities market and the derivatives market segments of the stock market using various methods and by identifying lead-lag relationship between the value of a representative index of the equities market and the price of a corresponding index futures contract in the derivatives market. The study revealed that price innovations appeared first in the derivatives market and were then transmitted to the equities market. The dynamics of such information transport between stock market and derivatives market were studied using the information theoretic concept of entropy, which captures non-linear dynamic relationship also.

Daan Struyven (2008)\textsuperscript{81} conducted Contemporary Concerns Study which concludes, That NSE surpassed BSE in one year although the - natural monopoly-character of the liquid stock market. This study aims to identify the reasons for this shift. For the options & derivatives, NSE & BSE introduced simultaneously index futures, index options and options and futures on individual securities between June 2000 and November 2002. The O&D segment was heavily contested with capricious market share jumps from June 2000 until July 2001. Since July 2001, NSE has always dominated the O&D market with market shares above 90%.

Ms. Anju bala(2013)\textsuperscript{82} advocates that Stock Market is one of the most vibrant sectors in the financial system, marking an important contribution to economic development. Stock Market is a place where buyers and sellers of securities can enter into transactions to purchase and sell shares, bonds, debentures etc. In other words


\textsuperscript{81} Daan Struyven(2008) - the battle between the Bombay stock exchange and the national stock exchange\]

Indian Institute of Management (IIM) Bangalore Contemporary Concerns Study

\textsuperscript{82} Ms. Anju bala(2013) —indian stock market - review of literature\]

Amity University, Noida, India./ TRANS Asian Journal of Marketing & Management Research Vol.2 Issue 7, ISSN 2279- 0667.
Stock Market is a platform for trading various securities and derivatives. Further, it performs an important role of enabling corporate entrepreneurs to raise resources for their companies and business ventures through public issues. Today long term investors are interested in investing in the Stock market rather than in investing anywhere. The Bombay Stock Exchange (BSE), the National Stock Exchange (NSE) and the Calcutta Stock Exchange (CSE) are the three large stock exchanges of Indian Stock Market. The main objective of present study is to present review of literature related to Indian Stock Market to study the Indian Stock Market in depth. The study would facilitate the reader to know the past, current and future trend or prospects of Indian Stock market. This study would provide guidelines to investor to maximize profit with minimized risks. High degree of volatility in the recent times in the Indian market has led to more development in the future.

Nalina K.B. and Ambritha H.J.(2014)\textsuperscript{83} focus on diversification which is carried on NSE stocks for the data of three years January 2009 to December 2011; It consists of analysis of diversification of the stocks and the diversifiable risk associated with stocks, the returns of the stocks considering the risk free rate. This paper also analyses the return for the borrowing investors and lending investors. Diversifications of stocks are analyzed using Markowitz model.

2.6 Stock Markets

Hodgson et al (1991)\textsuperscript{84} study the impact of All Ordinaries Share Index (AOI) futures on the Associated Australian Stock Exchanges over the All Ordinaries Share Index. The study spans a period of six years from 1981 to 1987. Standard deviation of


daily and weekly returns is estimated to measure the change in volatilities of the underlying index. The results indicate that the introduction of futures and options trading has not affected the long-term volatility, which reinforces the findings of the previous U.S. studies. However, there was a problem of confounding variables such as floating of Australian dollar in late 1983, deregulation of stock exchanges, foreign bank ownership and mutual fund investment rules during 1984.

**Yang (2001)** applied different econometric methods in order to find the optimal variance ratio in the Australian Futures Market during the period 1 January 1988 to 12 December 2000. Specifically, he used the OLS Regression, the Bi-variate Vector Autoregressive model (BVAR), the Error Correction model (ECM) and the multivariate diagonal VEC GARCH model. It was generally found that GARCH time varying hedge ratios provide the greater portfolio risk reduction but they do not produce the greater profit return. So, it is obvious that it is a matter of investor to decide in which product to invest, the less risky or the more profitable.

**Chuang (2003)** examined the price discovery efficiency of TAISEX (Taiwan Stock Exchange Capitalization Weighted Index Futures) and MSCI (Morgan Stanley Capital International Taiwan Index Futures) during 1998-99 and found strong statistical evidence of market efficiency in its weak form.

**Gupta and Singh (2006)** also made an attempt to investigate the price discovery efficiency of the Nifty futures by considering lengthy time frame and their results showed the evidences that futures market has been an efficient price discovery vehicle.

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Asif Ullah Khan, T. K. Bandopadhyaya, Sudhir Sharma (2009)\textsuperscript{88} stated that it is always a difficult task to select stocks that are suitable for a portfolio. The main aim of every investor is to earn maximum possible returns on investment. There are many criteria behind picking stocks like, price-earnings ratio, price book ratio, price sales ratio, price cash flow ratio, and market capitalization. The main issue with any approaches is the proper weighting of criteria to obtain a list of stocks that are suitable for a portfolio. This paper proposes an improved method for stock picking using self-organizing maps. The best of the portfolio constructed by self-organizing maps outperformed the NSE-50 Index by about 14.88% based on one and a half month of stock data.

Zhang et al (2010)\textsuperscript{89} test the random walk hypothesis and weak form market efficiency in the VIX futures market using a variety of tests. A unit root in the aggregated market price series suggests that the VIX futures market is efficient. For the individual VIX futures price series, 51 of 54 futures contracts meet the sufficient condition for an efficient market: the prices are found to follow a random walk either because there is a unit root or because the increments are not correlated. Overall, the market for VIX futures has been efficient since the first day of trading.

Aalberts, Robert J., Poon, Percy S (2011)\textsuperscript{90} arrive at the conclusion that in the 1990s, owing to the efforts of the influential American Law Institute and the National Conference of Commissioners on Uniform State Laws, a number of new investment


strategies have been submitted for reforming the Prudent Investor Rule, including the very notable modern portfolio theory. By 1995, four large states, New York, Illinois, Florida, and Virginia had adopted statutes incorporating the theory and other general investment philosophies contained in these model laws. The result of this new direction, which is likely to be repeated in other states, will be positive for both fiduciaries and beneficiaries. Income will, in all probability, increase without undue risk to the principal amount. In addition, according to Richard V. Wellman, the drafting chairman of the Uniform Prudent Investor Act, there may be a reduction of litigation when conflicting court rulings on what constitutes a prudent investor's duties are eliminated.

Puja Padhi (2011)\textsuperscript{91} studied the implied volatility linkages among the Asian, American and European stock markets. For this purpose, the study makes use of implied volatilities calculated from the market prices of stock index options from India (IVIX), Japan (VXJ), Hong Kong (VHSI), South Korea (VKSOPI), the US (VIX) and Germany (VDAX). The results of the study suggest that the US implied volatility index has substantial impact over the variations of other international implied volatility indices, thus raising the possibility of it constituting a usable risk-factor for investors trading internationally; another issue here relates to abrupt changes in the VIX, giving rise potentially to destabilizing contagion over volatility internationally. The implications of our results for India specifically at the market's current state of financial development are, at first glance, comforting, since none of the examined volatility indices bears a notable impact over their Indian equivalent, a fact perhaps indicative of the market's lag in terms of integration with the global financial system. However, as this integration expands with time, it is expected that this will change, as the results from the rest of the markets in this study suggest.

Neeta banthia(2011)\(^{92}\) in her thesis advocates that construction of portfolio is only a part of the battle. Once it is built, the portfolio needs to be maintained. The market values, needs of the beneficiary, and relative merits of the portfolio components can change over time. The portfolio manager must react to these changes. Portfolio management usually requires periodic revision of the portfolio in accordance with a predetermined strategy. The Sample consists of 50 retail investors from various backgrounds. The target customers were only the retail investors who invest in various avenues so as to know about their knowledge and concern regarding the economy, principal invested, investment options, market conditions etc.

Prashant Joshi(2011)\(^{93}\) tries to explore the dynamics of co-movement of stock markets of USA, Brazil, Mexico, China and India during the period from January, 1996 to July, 2007 using daily closing price data. It attempts to analyze the speed of adjustment coefficients using daily, weekly and monthly data. It also tries to examine the efficiency of the stock market as a result of initiatives and regulatory measures taken by NSE and SEBI respectively. The long-term relationships among the markets are analyzed using the Johansen and Juselius multivariate co-integration approach. Short-run dynamics are captured through vector error correction models. The analysis reveals that there is an evidence of co-integration among the markets demonstrating that stock prices in the countries studied here share a common trend. The results reveal that the speed of adjustment of Indian stock market is higher than that of other stock markets of the world. The analysis of speed of adjustment coefficient reveals that there are significant under reaction and overreaction along with full adjustment which are

\(^{92}\) NEETA BANTHIA(2011) —diversification applications in portfolio management\] thesis to Welingkar Institute of Management

observed at both shorter as well as longer differencing intervals during first period i.e. 1996-2001 using daily data while the second period i.e. 2002-2007 indicates significant overreactions with higher speed of adjustment coefficient. The results of event methodology reveal that the stock market has become efficient at information processing in recent times with regard to a few regulatory measures taken by SEBI.

**Tejas Mankar (2012)** investigated by using the momentum investment strategy, strategy of buying stocks that have performed well in the past and selling stocks that have performed poorly in the past--to generate returns over a 3 to 12-month holding period. This paper provides evidence against the weak form of market efficiency theory which claims that superior returns cannot be produced on the basis of investment strategies based on historical data and if any such returns are earned, it may be a mere compensation for the higher risk taken. The trading strategy has been tested using the constituents of CNX 100 for a period between 2003 and 2011.

**Mitra, Anupam (2014)** observed that portfolio is collection of bonds, warrants, future contracts, stocks, ETFs, real estate etc., where an investor wants to invest. In this paper we shall see how an investor should go about selecting the one best portfolio to meet his needs. Or, more explicitly, how should an investor go about selecting securities to purchase and deciding how many dollars to invest in each. For the comparison of Sensex portfolio with Nifty portfolio, famous Markowitz’s Modern Portfolio Theory (MPT) has been used. For the performance evaluation of both of these portfolios, Sharpe Index has been used. This paper presents a simplified

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94 Tejas Mankar (2012) test of momentum investment strategy using constituents of cnx 100 index
STUDENT RESEARCH PROJECT National Stock Exchange of India Limited RPS/02/2012.

95 Mitra, Anupam (2014) comparison of SENSEX and NIFTY equities using markowitz theory||
International Journal of Economics, Commerce and Management United Kingdom Vol. II, Issue 2,
The perspective of Markowitz’s contributions to Modern Portfolio Theory. It is to see the effect of duration of historical data on the risk and return of the portfolio and to see the applicability of risk-reward logic.

2.7 Relationship of risk and return

Bhalla V.K. (1997) reviewed the various factors influencing the equity price and price earnings ratio. He is of the opinion that equity prices are affected primarily by financial risk considerations that, in turn, affect earnings and dividends. He also stated that market risk in equity is much greater than in bonds, and it influences the price also. He disclosed that many analysts follow price earnings (P/E) ratio to value equity, which is equal to market price divided by earnings per share. He observed that inflationary expectations and higher interest rates tend to reduce P/E ratios whereas growth companies tend to have higher P/E ratios. He suggested that an investor examines the trend of P/E ratios over time for each company.

Ghosh T.P. (1998) reviewed the various types of risks in relation to the different institutions. He opined that 'Managing risk' has different meanings for banks, financial institutions, and nonbanking financial companies and manufacturing companies. In the case of manufacturing companies, the risk is traditionally classified as business risk and financial risk. Banks, financial institutions and nonbanking financial companies are prone to various types of risks, important of which are interest rate risk, market risk, foreign exchange risk, liquidity risk, country and sovereign risk and insolvency risk.

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Suseela SubramanyaV (1998) commented on the risk management processes of banks. She revealed that banks need to do proper risk identification, classify risks and develop the necessary technical and managerial expertise to assume risks. Embracing scientific risk management practices will not only improve the profits and credit management processes of banks, but will also enable them to nurture and develop mutually beneficial relationships with customers. She concluded that the better the risk information and control system, the more risk a bank can assume prudently and profitably.

Terry.J.Watsham (1998) discusses the nature of the risks associated with derivative instruments, how to measure those risks and how to manage them. He stated that risk is the quantified uncertainty regarding the undesirable change in the value of a financial commitment. He opined that an organisation using derivatives would be exposed to risks from a number of sources, which are identified as market risk, credit or default risk, operational risk and legal risk. He revealed that there is 'systemic risk' in which the default by one market participant will precipitate a failure among many participants because of the inter-relationship between the participants.

Ghose.T.P. (1998) reviewed VAR (Value at Risk). There are two steps in measuring market risk. The first step is computation of the DEAR, (The Daily Earning at Risk) and the second step is the computation of the VAR. He also reviewed the measurement of price sensitivity. He stated that price sensitivity could be measured by modified duration (MD) or by cash flow approach.

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100 Gosh.T.P. "Value at Risk", Express investment Week, Weekly Vol.8, No. 49, November 30 to December 6,1998.
Mall C.P. and Singh J.P. (1998)\textsuperscript{101} emphasized the importance of diversification and introducing flexibility to reduce risk. They stated that diversification reduces risks on the one hand and increases the possibility of large gains on the other. They also reviewed insurance as a way-out for reducing the risk. The immense schemes help transfer of risks to the insurance companies, especially applicable in agricultural business.

Avijit Banerjee (1998)\textsuperscript{102} reviewed Fundamental Analysis and Technical Analysis to analyse the worthiness of the individual securities needed to be acquired for portfolio construction. The Fundamental Analysis aims at comparing the Intrinsic Value (I.V) with the prevailing market price (M.P) and to take decisions whether to buy, sell or hold the investments. The fundamentals of the economy, industry and company determine the value of a security. If the I.V is greater than the M.P., the stock is under priced and should be purchased. He observed that the Fundamental Analysis could never forecast the M.P. of a stock at any particular point of time. Technical Analysis removes this weakness. Technical Analysis detects the most appropriate time to buy or sell the stock. It aims at avoiding the pitfalls of wrong timing in the investment decisions.

He also stated that the modern portfolio literature suggests 'beta' value $p$ as the most acceptable measure of risk of scrip. The securities having low $P$ should be selected for constructing a portfolio in order to minimize the risks.

Juan H Pujadas (1999)\textsuperscript{103} commented on the models of measuring risks. He opined that the models of measuring risk are only as good as the assumptions underlying them. They are not realities, but models. Commenting on default risk in India, he stated that many defaults are not reported. He is of the opinion that default risks are not handled properly.

Suresh G Lalwani (1999)\textsuperscript{104} emphasized the need for risk management in the securities market with particular emphasis on the price risk. He commented that the securities market is a 'vicious animal' and there is more than a fair chance that far from improving, the situation could deteriorate.

Indu Salian (1999)\textsuperscript{105} reviewed risk management of the financial sector. She opined that managing financial risk systematically and professionally becomes an important task, however difficult it may be. All risks are to be monitored within reasonable limits. He revealed that tested risk control systems are today available virtually off the shelf and can be made universally applicable with a little bit of judgment and modification. While discussing financial sector reforms introduced in 1992-93 and its effect on risk management, he revealed that reforms would necessarily have transition risks and volatility. And margins will get squeezed and the cushion to absorb risk will get reduced. Then management of risk requires strong risk control. He concluded that if we are able to manage the transition phase of the reforms and upgrade our infrastructure for improved risk management capabilities, we are certain to come out ahead.


\textsuperscript{105} Indu Salian, "Risk Management of Financial sector", \textit{The Express investment week}, weekly, February 8-14, 1999, p.10.
Seema Shukla (1999) disclosed the changing face of risk by comparing the old paradigm and the new paradigm. The old paradigm is that risk assessment is an AD-HOC activity that is done whenever managers believe that there is a need to do it. But the new paradigm is that risk assessment is a continuous activity. The old pattern of risk management was to inspect and detect business risk and then react. But the new pattern is to anticipate and prevent business risk at the source and then monitor business risk controls continuously. She distinguished between business risks and financial risks. In managing the business risk, one looks at the risk reward profile to maximize reward based on the risk appetite. She opined that one can run a business by minimising financial risk, but the business risk itself could be high. She clears the air by stating that business risk is technology risk, political risk, geography risk, the changing preference of customers, economic risk, etc. whereas financial risk is currency risk, interest rate risk, commodities risk etc. To manage these risks, the first step is to identify the risks and determine the source of those risks. There is no way to manage something that cannot be measured; so the next step involves getting a measure of the significance and likelihood of occurrence. She concluded by emphasizing the need to prioritise the risks, as it is impossible to throw resources on all kinds of risks.

Arun Jethmalani (1999) reviewed the existence and measurement of risk involved in investing in corporate securities of shares and debentures. He commended that risk is usually determined, based on the likely variance of returns. It is more difficult to compare risks within the same class of investments. He is of the opinion that the investors accept the risk measurement made by the credit rating agencies, but it was questioned after the Asian crisis. Historically, stocks have been considered the

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most risky of financial instruments. He revealed that the stocks have always
outperformed bonds over the long term. He also commented on the 'diversification
theory' concluding that holding a small number of non-correlated stocks can provide
adequate risk reduction. A debt-oriented portfolio may reduce short term uncertainty,
but will definitely reduce long-term returns. He argued that the 'safe debt related
investments' would never make an investor rich. He also revealed that too many
diversifications tend to reduce the chances of big gains, while doing little to reduce
risk. Equity investing is risky, if the money will be needed a few months down the
line. He concluded his article by commenting that risk is not measurable or
quantifiable. But risk is calculated on the basis of historic volatility. Returns are
proportional to the risks, and investments should be based on the investors' ability to
bear the risks, he advised.

A. Selvaraj (1999)\textsuperscript{108} reviewed the strategies for combating risk. A risk
management programme should encompass all parts of the organisation and all types
of potential risks. Risk management is, essential and one should be aware of how to
strategically organize an effective programme. He revealed that to safeguard a business
against risk, it is necessary to know the various kinds of risks that the business faces.
There are risks in everything and the degree of risk may vary. He recommended certain
strategies for combating risks. When risks must be born, prudence lies in the reduction
of the area of uncertainty within which a business is operating. He opined that since
most of these risks proceed largely from ignorance, they could be avoided by
understanding them properly.

R.B.I Guidelines for Risk Management system in banks" (1999) broadly cover management of credit, market and operational risks. According to the guidelines, the management of credit risk should receive the prime attention of the top management. The guidelines also mention that it would be desirable to adopt international standards on providing explicit capital cushion for the market risk to which banks are exposed.

Rajagopala Nair and Elsamma Joseph (2000) revealed the various risks experienced by investors in corporate securities and the measures adopted for reducing risks. They opined that calculated risk might reduce the intensity of loss of investing in corporate securities. As per their study, many investors are holding shares of those companies that are non-existent at present. They opined that investors may accept risks inherent in equity, but they may not be willing to reconcile to the risk of fraud. Promoters should not be allowed to loot the genuine investors by their fraudulent acts.

Mitra. S.K." (2000) commented on the increasing volatility of the bourses, which forces an investor to shift away from the equity market. He observed that analysts profess to the investors the virtue of long-term time horizon for the equity investment. But sharp volatility has become a feature of the capital market worldwide, resulting in frequent, sharp, downward corrections. In this scenario it is proving difficult to convince the investors to think long-term. He opined that the risk of obsolescence and failure have increased enormously in the highly valued economy.

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companies, resulting in huge loss on investments. Investors with long outlook are real losers in this new paradigm of stock market gambles. He argued that, in this scenario, investors are shifting away from the equity market to cash and debt. Long-term vision in the equity investments has given way to short term trading.

**Gere1a.S.T. and Balsara.K.A. (2001)**\(^ {112} \) reviewed the risk management system at the Bombay Stock Exchange. They reported that the BSE has strengthened the risk management measures to maintain the market integrity. The introduction of the modified carry forward system, coupled with the BOLT (Bombay Online Trade) expansion to cities all over India has led to a significant increase in the liquidity and volumes at the exchange. As a consequence, the risk management function at the BSE has assumed greater importance. In order to maintain the market integrity and to avert payment defaults by the members, the exchange has strengthened its risk management system by taking the following measures:

1. All members are required to maintain the base minimum capital of Rs.10 lakh with the exchange.

2. As a risk management measure, the exchange places trading restrictions on the members.

3. The exchange has prescribed a ceiling on the gross exposure of the members.

4. The exchange collects from the members, daily margin, additional volatility margin, incremental carry forward margin, etc.

5. The exchange has constituted a risk management committee to put in place a long-term risk management policy.

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Rukmani Viswanath (2001)\textsuperscript{113} reported that the primary dealers in Govt. securities are working on a new internal risk management model suited for the Indian market conditions. The attempt is to lay down general parameters for risk perception. The Primary Dealers Association of India (PDAI) is formulating a set of prudential norms for 'risk management practices'. While internationally the principles of risk management may be the same everywhere, the Association is of the view that they have to identify the relevant issues and apply those principles in the Indian context. It strongly argues that it must work on a model that can help to manage liquidity and interest rate risk. While the existing RBI guidelines on risk management cover mainly statutory risk, the PDAI hopes that its new risk management model will be able to perceive 'real risk'. These new norms are expected to help gauge several issues like, whether a fall in the prices of securities or yields is a temporary or permanent situation etc. The areas, the new norms are likely to address, are the assessment of the liquidity situation and envisaging investor appetite for a specific instrument and their appetite for risk. According to the govt. securities dealers, these norms are expected to help them hedge their risks better. The primary dealers are looking forward to these norms to help them manage their internal risks.

The Economic Times Investors' year Book (2000-01)\textsuperscript{114} commented on the "Paperless World and described what makes dematerialization the preferred choice and how it reduces risk. The dematerialised trading was introduced in India in 1996 to reduce pains and risks in settlement through the loss of share certificates in transit, bad deliveries, delays in transfer and forged/fake/stolen certificates. It helps in doing away with the risk of loss in transit by directly crediting the account with bonus shares and rights. There is no risk of bad delivery because the ownership status is clearly captured in the Depository's computers.


\textsuperscript{114} The Economic Times investors' Year Book (2000-01) "The Paperless World", p.56.
Bohm (2002)\textsuperscript{115} discussed the demand behaviour of consumers and the existence of equilibrium for the standard capital asset pricing model (CAPM) with one riskless and finitely many risky assets. The discussion revealed that towards CAPM, the existence and uniqueness of equilibrium are essentially determined by those properties of risk preferences in mean and in standard deviation which guarantee globally investible demand function for risk.

Bossaet (2003)\textsuperscript{116} contributed by testing CAPM in real markets, that in spite of disequilibrium, one specific portfolio that remains continuously on the mean-variance efficient frontier, namely the risk aversion weighted endowment portfolio be defended as test of the CAPM. The paper investigated the empirical analysis of equilibration in experimental competitive market.

Zhang and Wihlborg (2004)\textsuperscript{117} analyzed unconditional and conditional CAPM using a sample of 753 firms from six emerging markets. The empirical study indicated that there exists a significant conditional relationship between beta and returns when the domestic CAPM is tested. The international CAPM performs well in two markets, which indicates that these local markets are more integrated with the world market, especially in more recent years. The overall evidence indicated that beta is still a useful measure of risk for investors and portfolio managers to make investment decisions even in emerging markets.

Bossaerts and plot (2004)\textsuperscript{118} studied the basic principles of Asset pricing theory and its validity on large scale experimental financial market. The study highlights with

\textsuperscript{115}CAPM Basics(2002) Discussion paper 495.
\textsuperscript{116}Peter Bossaet, "Testing CAPM in Real Markets Implication from experiments" — California Institute Of Technology.
\textsuperscript{117}Zhang, J., Wihlborg, C., "Unconditional and conditional CAPM: evidence from European emerging markets", Working Paper, Department of Finance Copenhagen Business School
experimental demonstration that the basic principles of modern asset pricing theory are very much at work in competitive financial market. Prices tend towards a pattern where risk premium is solely determined by co-variance with aggregate risk. These results are rendered more significant.

**Sandoval and Saens (2004)**\(^{119}\) studied the conditional and unconditional CAPM in Latin America using the data from the Argentine, Brazilian, Chilean, and Mexican stock markets covering the period of 1995-2002. Size, book-to-market ratio and the degree of market integration were included in the analysis. Since Latin American stocks are traded infrequently, the regression was performed on individual security returns against lagging, matching and leading market returns calculated from both the Latin American Stock Market Index and S&P 500. Portfolios were formed as to the beta-based ranking of securities. Then, portfolio betas were estimated for each two-year period and used as explanatory variables in the following year. The analysis was performed based on Black *et al.*, 1972 model, but with panel data. The results of conditional test showed a significant and positive beta-risk premium relationship during up-markets and a significant but negative beta-risk premium relationship during down-markets. Additional risk factors as size, book-to-market ratio and degree of market integration had all insignificant regression coefficients.

**Galagedera and Faff (2004)**\(^{120}\) examined the empirical validity of a conditional three beta CAPM. The test result highlighted that the conditional three beta risk premium are positive and significantly different from zero in the up market and are

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\(^{120}\) Don U.A.Galagedera, Robert Faff, "Modelling the risk and return relation conditional on market volatility and market condition" — Working paper 08/04.
negative and significantly different from zero in the down market. The strong evidence has suggested that the components of the total portfolio return variation are systematically related to the low, neutral and high market volatility.

**Chen (2005)**\(^{121}\) used the returns of all stocks listed in NYSE, AMEX, and NASDAQ over the period of 1926-2001. The conditional CAPM was used to portfolios sorted by book-to-market ratios. It is found that the conditional CAPM model with time-varying betas predict the market risk premium, and stochastic systematic volatility. There was little evidence that the conditional alpha for a book-to-market trading strategy was statistically different from zero. Besides, the model sufficiently explained risk return relationships of book-to-market portfolios over the long run. Nevertheless, the authors did not hypothesize that the conditional CAPM is the complete model for the cross-sectional analysis of stock returns, and that the conditional CAPM can explain all anomalies.

**Tang and Shum (2006)**\(^{122}\) studied the risk return relationship in the Hongkong stock market using the monthly return during 1986-1998. This study provides a new evidence that the beta is not significantly related to realized returns. Beyond beta unsystematic risk, total risk, and kurtosis play a significant role in explaining the cross sectional variation in stock returns. The sign of their coefficient are different from what was expected from traditional finance theory. Hence it was concluded that other risk measures in addition to beta are also important in pricing risky assets and investors do not hold diversified portfolio in the Hongkong stock market.

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Paramita Mukherjee & Suchismita (2008)\textsuperscript{123} in the paper “Does the Stock Market in India Move with Asia? A Multivariate Co-integration Vector Auto regression Approach” examines if the Indian stock market moves with other markets in Asia and the United States in an era of capital market reforms and the sustained interest of foreign investors in that market. By using techniques of co-integration, vector auto regression, vector error correction models, and Granger causality, the research indicated that, though there is definite information leadership from the U. S. market to all Asian markets, the U. S. indexes do not uniquely influence the integration of Asian markets, while Japan is found to play a unique role in the integration of Asian markets. The U. S. market is seen not only to influence, but also to be influenced by information from most of the major Asian markets. The Indian stock return in recent times is definitely led by major stock index returns in the United States, Japan, as well as other Asian markets, such as Hong Kong, South Korea, and Singapore. More important, returns on the Indian market are also seen to exert considerable influence on stock returns in major Asian markets.

Krishna Reddy Chittedi (2008)\textsuperscript{124} analyzed the performance of the sensex vs. FIIs in Indian stock market and some of the most talked about movements of sensex starting with the secondary market summary of each year. FII s investments in BSE sensex reveal that the liquidity as well as volatility were highly influenced by FII flows. FIIs are a significant factor determining the liquidity and volatility in the stock market prices. After going through all the analysis regarding the stock market in last 2


years, we can say that stock market touched its peak at 21000 but then crashed badly. Though the sensex is a barometer and after seeing such fluctuations one could be afraid of investing. So even after such downturns, we can be hopeful for a positive market.

M. Thenmozhi and Abhijeet Chandra (2013) examine the symmetric relationship between the India Volatility Index (India VIX) and stock market returns, and demonstrate that Nifty returns are negatively related to the changes in the India VIX levels; in the case of high upward movements in the market, the returns on the two indices tend to move independently. When the market takes a sharp downward turn, the relationship is not as significant for higher quantiles. This property of the India VIX makes it ideal as a risk management tool whereby derivative products based on the volatility index can be used for portfolio insurance against bad declines. We also find that the India VIX captures stock market volatility better than traditional measures of volatility, including the ARCH/GARCH class of models. Finally, we test whether changes in the India VIX can be used as a signal for switching portfolios. Our analysis of timing strategy based on changes in the India VIX exhibits that switching to large-cap (mid-cap) portfolios when the India volatility index increases (decreases) by a certain percentage point can be useful in maintaining positive returns on a portfolio.

CONCLUSION

The review of literature gives an overall background of the study. This review helps to identify the various dimensions or factors influencing risk and return of the investors and their optimum portfolio management. This review part explains the major issues involved in the relationship of risk and return. It is found that review of previous studies did not discuss the issues of risk return relationship in sector wise basis. The present study analyses the risk return relationship in five different sectors. Hence the present study assumes significance due to constant changes in business and economic environment.