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## CONTENTS

Sr. No.	TITLE & NAME OF THE AUTHOR (S)	Page No.
1.	<b>SPECIFICS OF INVESTOR SENTIMENTS: ANALYSIS OF CHINESE MARKET</b> <i>JOHN WEI-SHAN HU &amp; ASKAR KOSHAEV</i>	1
2.	<b>DETERMINANTS OF THE FLOWER PRODUCERS &amp; EXPORTERS PERFORMANCE IN ETHIOPIA</b> <i>DR. GETIE ANDUALEM IMIRU</i>	9
3.	<b>IMPACT OF DEMOGRAPHIC VARIABLES ON QUALITY OF WORK LIFE: AN ANALYSIS ON POLICE PERSONNEL'S OF TAMIL NADU POLICE DEPARTMENT IN TIRUNELVELI CITY</b> <i>M. NIROSHA KAMALI &amp; DR. SUSAN CHIRAYATH</i>	18
4.	<b>STRATEGIES IMPLEMENTED IN ORGANIZED RETAIL SECTOR</b> <i>RIJWAN AHMED MUSHTAK AHMED SHAIKH &amp; DR. DILIP B. SHINDE</i>	24
5.	<b>EVALUATION OF CUSTOMER RELATIONSHIP MANAGEMENT IN APSRTC: A CASE STUDY OF EMPLOYEES OF GUNTUR DISTRICT</b> <i>M. V. SUBBA RAO &amp; DR. M. S. NARAYANA</i>	28
6.	<b>A STUDY ON FINANCIAL PERFORMANCE IN MAYURAM CO-OPERATIVE URBAN BANK LTD. WITH SPECIAL REFERENCE TO MAYILADUTHURAI, TAMILNADU</b> <i>DR. R. SRINIVASAN</i>	35
7.	<b>IMPACT OF PSYCHOSOCIAL FACTORS ON DOCTORS PRESCRIBING BEHAVIOR</b> <i>ANKUSH &amp; DR. DEEPAK KAPUR</i>	38
8.	<b>DIMENSIONS IN GROWTH OF SMALL SCALE INDUSTRIES (MSMEs) IN ODISHA: AN IMPACT OF EMPLOYEES</b> <i>GOLAKH KUMAR BEHERA, RUDRA PRASANNA MAHAPATRA &amp; SALMAMANI TUDU</i>	43
9.	<b>A STUDY ON KNOWLEDGE, ATTITUDE AND PRACTICE ASSESSMENT ABOUT BIO –MEDICAL WASTE MANAGEMENT AMONG HEALTHCARE PERSONNEL</b> <i>T UMAMAHESWARA RAO, DR. V. N. SAILAJA &amp; DR. N. BINDU MADHAVI</i>	47
10.	<b>DIFFUSION OF PERCEIVED RISK: A KEY TO SUCCESS</b> <i>DR. RUPINDER SINGH</i>	52
11.	<b>THE ROLE OF BANCASSURANCE IN DIGITAL ERA</b> <i>SREENISH S R &amp; DR. S A SENTHIL KUMAR</i>	54
12.	<b>VALUATION OF HERO MOTOCORP LTD. AND BAJAJ AUTO LTD.: AN ANALYTICAL PERSPECTIVE</b> <i>SURENDER SINGH &amp; DR. SHARMILA DAYAL</i>	57
13.	<b>PRADHAN MANTRI JAN DHAN YOJANA - AN EXPLORATORY STUDY OF BANKS PARTICIPATION IN FINANCIAL INCLUSION IN INDORE DISTRICT</b> <i>VAISHALI WAIKAR &amp; DR. YAMINI KARMARKAR</i>	61
14.	<b>IMPACT OF BANKING SOFTWARE PRODUCT OF INFOSYS AMONG BANK EMPLOYEES WITH SPECIAL REFERENCE TO CHENNAI</b> <i>DR. S. SARAVANAN &amp; DR. S. VELAYUTHAM</i>	65
15.	<b>A STUDY OF NON PERFORMING ASSETS IN INDIAN PUBLIC SECTOR BANKS</b> <i>DR. A. C. PRAMILA</i>	71
16.	<b>DEMONETISATION: ANALYSIS OF ITS CURRENT KEY EFFECTS ON THE INDIAN ECONOMY</b> <i>MOHD SAZID</i>	74
17.	<b>A STUDY ON FACTORS AFFECTING BRAND LOYALTY OF FMCG USERS</b> <i>DR. SWAYAMBHU KALYAN MISHRA</i>	76
18.	<b>PORTFOLIO MANAGEMENT: A DECISION MAKING TOOL IN THE HANDS OF INVESTORS</b> <i>SIMRAN SAINI</i>	80
19.	<b>PERFORMANCE EVALUATION OF STATE BANK OF INDIA AND ITS ASSOCIATE BANKS THROUGH CAMEL ANALYSIS</b> <i>VIJAY KUMAR SHARMA</i>	84
20.	<b>FACTOR AFFECTING QUALITY OF WORK LIFE IN PUBLIC &amp; PRIVATE SECTOR BANKS IN LUCKNOW</b> <i>ISHA GUPTA</i>	92
	<b>REQUEST FOR FEEDBACK &amp; DISCLAIMER</b>	98

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**PORTFOLIO MANAGEMENT: A DECISION MAKING TOOL IN THE HANDS OF INVESTORS**

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**ABSTRACT**

*All investments are linked to risk and returns. Any investor, who wants to invest in any securities like shares, debenture, bonds etc, must have a good knowledge about investment market. Investing in securities not only requires a good deal of knowledge but also requires analytical skills to deal with it. Investing in financial securities provides a way to the investors to earn a good amount of money. But on the other hand it is full of risks. The challenge with the investors is not limited to choosing the right security but is also linked with the correct selection of the securities from a particular category of securities. The investors instead of investing their savings in a single security should invest in group of securities. This group of securities is called as portfolio. By creating portfolios risks can be reduced without sacrificing the returns. This technique is referred as portfolio management, which help the investors in maximizing their expected returns and provides them with better chances of success in choosing a right investment strategy.*

**KEYWORDS**

portfolio management, investor's tools.

**INTRODUCTION**

Today's financial markets are full of complexities. Besides these complexities, investment always attracts the people from all walks of life to invest in different securities. But the investors are not aware of the fact that investment is considered as an art and science because it makes use of certain rules and also require a good deal of analytical knowledge and skills. Only with the help of sufficient knowledge and required skills the optimum risk and return relationship can be achieved. The investor always aims at constructing optimum portfolio which can enhance their returns on investment. But the construction of portfolio is not a layman's job. It is based on rational investment decision making followed with analytical knowledge. Because of this reason the investors can take the help of portfolio managers who can do this task for them. Portfolio managers are experienced people in making an optimum portfolio as they are continuously involved in reviewing and revisions of the securities in the portfolio. These managers are also having a good deal of knowledge about the investment markets. Besides this the construction of portfolio is always dependent on the financial goals and needs of the investor's.

Portfolio management is the combination of two key words: portfolio and management: Portfolio refers to a group of different financial securities or assets. Management is a process of planning, organizing and coordinating the business activities in accordance with the predefined business objectives Thus Portfolio management consists of all those processes which are involved in creation, maintenance and evaluation of a portfolio. It is a systematic way of keeping one's investment in an efficient manner by reducing the risks and enhancing the returns. The foundation of portfolio management is always linked to the goals and objectives of the investors. In order to reach these goals investors diversifies their portfolio by allocating the funds among different types of securities. Portfolio management enables the portfolio managers to provide good, reliable and easy investment solutions to their clients/investors.

**CONSTRUCTION OF THE PORTFOLIO**

Following steps are considered at the time of constructing the portfolio:

**1. IDENTIFICATION OF OBJECTIVES AND CONSTRAINTS**

The foremost step under portfolio management is to find out the aims and objectives of the investors. For one investor the main aim can be maximizing the returns with minimum risk, but for the other it may be capital appreciation. Thus utmost care should be taken at the time of identifying investor's investment objectives. The analysis of this data gives an idea about the types of securities and asset classes to be selected for making portfolio.

**2. SELECTION OF ASSET MIX**

Selection of the assets that are to be included in the portfolio is considered as one of the critical steps. The portfolio may be the combination of different types of asset classes like equities, preference shares, bonds, debentures etc. The percentage of each mix in the portfolio is dependent upon the risk tolerance and investment limits of the investors.

**3. FORMULATION OF PORTFOLIO STRATEGY**

The formulation of portfolio strategy is linked with the income and capital appreciation for a given level of risk tolerance. This strategy must have a correlation with the expectations of capital markets and individual industry and market as a whole.

**4. SECURITY ANALYSIS**

Security analysis is a process of analyzing the securities in relation to their prices, risks, returns etc. This analysis is done by the investors. Only after analyzing these securities, the investors will finalize the securities to invest in.

**5. PORTFOLIO EXECUTION**

The next step is the execution of the portfolio which includes buying and selling of the securities in the markets. The success of this step always depends upon the innovation and judgment of the person constructing the portfolio

**6. PORTFOLIO REVISION**

The next important step is revision of the portfolio. This includes adding new securities in the portfolio and deleting the old ones, or keeping both old and new securities. It also includes shifting from one stock to another or shifting from equities to bond or vice versa. But all these things are dependent upon the conditions of the market.

**7. PORTFOLIO EVALUATION**

It is the duty of the portfolio manager to evaluate the performance of the portfolio in order to find out its strengths and weaknesses. Portfolio evaluation is treated as a feedback tool which helps in continuously improving the quality of the portfolio this step is considered as a last step in portfolio management process

**PORTFOLIO MANAGEMENT SERVICES****1. Active Portfolio Management services**

The active portfolio management services enable the portfolio manager to buy and sell securities continuously in order to maximize the profits for their clients

**2. Passive Portfolio Management services**

Under passive portfolio management services, the portfolio manager only deals with the fixed portfolio which is designed as per the current market scenario.

**3. Discretionary Portfolio Management services**

The portfolio manager has given the full discretion by the client/investor to take any type of investment decisions on his/her behalf. Those investors who have less knowledge about the securities market, they hire the professional services of the portfolio managers who will construct a good portfolio for them keeping in mind their financial objectives and constraints.

**4. Non Discretionary Portfolio Management services**

Non discretionary portfolio management services states that the portfolio manager is only entrusted with the job of guiding the investor or client relating to different investment decisions. But the right to take final decisions only lies with the client

**TRADITIONAL VS MODERN APPROACH OF INVESTMENT**

Traditional investment approach is comprehensive approaches which emphasize investments in one single security after making risk- return analysis of that particular security. Under traditional approach investors were concerned with maximizing the returns by reducing the risk factor. The usual method of calculating the returns is to find out the dividends on each individual security, their price earnings ratio and the estimation of the market conditions. But on the other hand modern portfolio approach focus on investing in more than one security in order to diversify the risks and to maximize the returns. This approach is called as Modern portfolio theory (MPT) or portfolio theory. This approach was introduced by Harry Markowitz in his paper "Portfolio Selection," which appeared in the 1952 in Journal of Finance. After 38 years of his publication he shared a Nobel Prize with Merton Miller and William Sharpe for his modern theory on portfolio selection. Markowitz used the technique of Statistical analysis for the measurement of risk and the tool of mathematical programming for the selection of assets in the portfolio. In this way he generated number of portfolio within the given amount of money taking into consideration the risk and return preferences of investors. Besides this Markowitz also determines three important variables (returns, standard deviation and coefficient of correlation) for efficient set of portfolio. According to him a portfolio is said to be efficient if it is expected to yield the highest possible return for the lowest level of risk. This model is also called as Full Covariance model. Based on his scientific research, Markowitz has laid down certain guidelines for diversification which are as follows:

- All the investments have different types of risk characteristics
- Markowitz diversification should always involve a proper number of securities which are neither too less or nor too high
- The securities in the given portfolio have no correlation or have negative correlation
- In order to make choice of companies, securities or assets, only those are selected whose returns are not related to each other.

**ASSUMPTIONS OF MARKOWITZ PORTFOLIO THEORY**

1. Investors are rational and they always behave in the manner so as to maximize their utility with a given level of income
2. Investors are free to access any type of fair and correct information on return and risk
3. The markets are efficient and absorb the information quickly and perfectly
4. Investors are risk averse and they always try to minimize their risk and maximize their returns.
5. Investors decision is based on Expected return, Standard deviation or Variance of these returns from their mean
6. Investors prefer higher returns for the given level of risk and they can reduce the risk by adding more investments to their portfolio.

**PORTFOLIO RETURN**

Markowitz emphasize that investors are always interested in maximizing the expected returns from the portfolio. So as per traditional approach by investing in single security, investors assume that they can increase their returns. But in real world all the market conditions are full of uncertainties. Because of these uncertainties Markowitz gave the concept of diversification of securities. It is always considered that holding more than one security is always beneficial rather than putting all the eggs in the same basket. Thus through diversification investors can reduce their risks and maximize their returns. Moreover the securities should be correlated to each other so that maximum returns can be achieved. For calculating returns on the portfolio Markowitz has given the following formula:

$$ER_p = wE(R_x) + (1-w)E(R_y)$$

Where  $ER_p$  = the expected return of the portfolio,  $w$  = the proportion of the portfolio's value invested in security  $x$ ,  $E(R_x)$  = the expected return of security  $x$ ,  $1-w$  = the proportion of the portfolio's value invested in security  $y$ ,  $E(R_y)$  = the expected return of security  $y$

**PORTFOLIO RISK**

When investors invest in one security the risk is more and this risk is measured by standard deviation. But if investment is done in more than one security the element of risk is reduced. In this case it is essential to compute covariance for the securities. If the rate of return from two securities is moving in the same direction, then covariance of securities is considered to be positive. If rate of returns from the securities are independent then covariance is considered as zero. If rate of return is moving in the opposite direction, the covariance is considered as negative.

$$\sigma_p = \sqrt{X_1^2 \sigma_1^2 + X_2^2 \sigma_2^2 + 2 X_1 X_2 (r_{12} \sigma_1 \sigma_2)}$$

Where  $\sigma_p$  = std. deviation of portfolio,  $X_1$  = proportion of stock  $X_1$ ,  $X_2$  = proportion of stock  $X_2$ ,  $\sigma_1$  = std. deviation of stock  $X_1$ ,  $\sigma_2$  = std. deviation of stock  $X_2$ ,  $r_{12}$  = correlation coefficient of both stocks

**COEFFICIENT OF CORRELATION**

The coefficient of correlation is a statistical measure used to find out the similarity and dissimilarity between two or more securities. If correlation coefficient is near to 1 then it is considered as perfect positive correlation between the securities. If correlation coefficient is - 1 then it is considered as perfect negative correlation between the securities. If correlation coefficient is 0 then it is considered that no linear relationship exists between the securities. It is calculated by using the following formula:

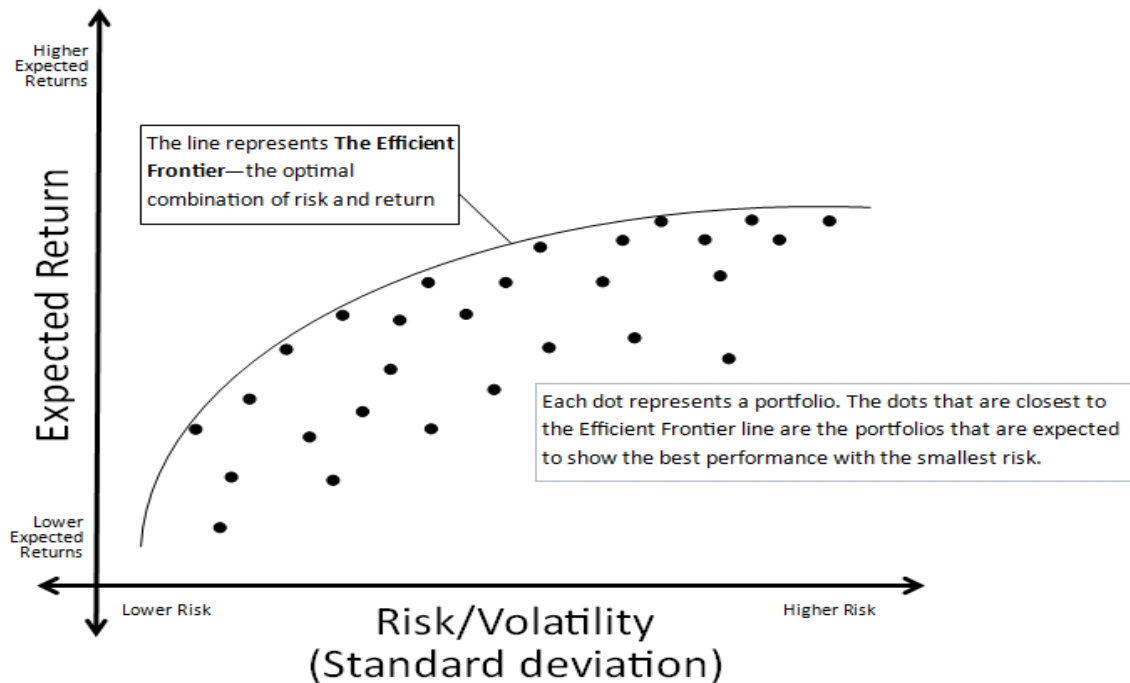
$$r_{ij} = \frac{COV_{ij}}{\sigma_i \sigma_j}$$

Where  $r_{ij}$  = the correlation coefficient of returns,  $\sigma_i$  = the standard deviation of  $R_{it}$ ,  $\sigma_j$  = the standard deviation of  $R_{jt}$

**MARKOWITZ EFFICIENT FRONTIER**

Markowitz efficient frontier aims at maximizing the returns for given amount of risk. As per Markowitz for determining the efficient portfolio all portfolios are plotted in risk return relationship. Different portfolios are constructed from the available securities and all possible combinations of risk and return are determined after analyzing the expected rate of return and the volatility of each investment. Markowitz named this risk reward equation as "Efficient Frontier". Efficient frontier helps the investor in selecting a suitable portfolio out of given set of portfolios. Markowitz theory says that if more than one portfolio is located on the efficient frontier, then investor can select that portfolio depending upon investors risk and return requirements. The efficient frontier diagram given below depicts the expected risk and return relationship between different portfolios. All the dots are treated as different portfolios. The line represents the efficient frontier where all investors can get the maximum returns with lowest possible risks. All the portfolios lying below the efficient frontier are not good because the returns would be lower for the given risk. Only those portfolios which are lying on the efficient frontier line are considered as efficient portfolios. The efficient frontier line always begins with the lower expected risks and returns then it moves upward to higher expected risks and returns. Thus on the basis of efficient portfolio line, the investors can select the appropriate portfolio on the basis of their financial requirements.

FIG. 1



### PROBLEMS WITH MARKOWITZ THEORY

- The assumption of Markowitz theory that investors are always acting rationally is wrong because of which it was criticized by many behavioral economists.
- The theory is based on certain mathematical calculations on expected values. These calculations are based on past performance for the purpose of measuring correlations between risk and return. But experienced investors do not always consider past performance as appropriate measure for calculating the future performance.
- As the number of investments increases, this model becomes more cumbersome.

### SHARPE –SINGLE INDEX MODEL

To overcome the limitations of Markowitz model William Sharpe gave a model by simplifying the mathematical calculations given by Markowitz. His model is known as Sharpe's ratio or Sharpe index or reward to variability ratio. This ratio is basically used to evaluate the performance of a fund. Sharpe emphasize that the investors are only concerned about the total risk of the fund. So with the help of this ratio funds can be evaluated on the basis of reward per unit of total risk. This model also aims at evaluating the portfolios performance against a series of securities indices. One main advantage of this ratio is that it is directly calculated from any observed series of returns. Sharpe assumed that return of a security is always related to a single market index because of which it is fully risky. Sharpe classified the risks as systematic risk, unsystematic risk and total risk.

### SYSTEMATIC RISK

Systematic risk relates to the economic conditions, political situations and sociological changes that affect the entire security market. The systematic risk principle states that the reward for bearing risk depends only on the systematic risk of an investment. The Beta coefficient ( $\beta$ ) measures the relative systematic risk of an asset. If  $\beta > 1.0$  it represents more systematic risk than average. If  $\beta < 1.0$  it represents less systematic risk than average. The assets with larger betas have greater systematic risk and can earn greater expected returns. It is calculated as follows:

Systematic risk = Beta coefficient + variance of market index

### UNSYSTEMATIC RISK

Unsystematic risk relates to some unique factors of a firm or an industry like managerial inefficiency, technological change in production process, labor problems, etc. This risk is also known as unique risk and asset-specific risk. Unsystematic risk is calculates as follows:

Unsystematic risk = Total variance – Systematic risk

Unsystematic risk is classified as

#### 1) Business Risk

Business risk arises from the inability of a firm to maintain its competitive edge, growth and stability in the earning. Business risk is further divided into two parts.

- Internal business Risk arises because of fluctuations in sales, Research and development, Change in fixed cost, Personnel management etc.
- External Business Risk arises because of those conditions which are beyond companies control like Social & Regulatory factors, Political Risk, Business Cycle etc.

#### 2) Financial Risk

When the company is having insufficient funds to meet its financial requirements then financial risk arises. The risk arises when companies use more of debt securities for raising finance.

### TOTAL RISK

It is an overall financial loss presented by a particular course of action like a measurement of the total risk for a business could involve summing up the various types of risk that it faces in its operations that have a non-zero probability of causing a loss within a given time frame.

### ASSUMPTIONS OF SHARPE MODEL

- All investors have homogeneous expectations.
- For estimating risk return, holding period is same for all the securities.

- The change in price movements of a security is dependent upon the general and economic business environment.
  - The relationship between the securities occurs only through their individual influences along with some indices of business and economic activity.
- Sharpe's model can easily identify the relationship between each pair of securities by comparing each security to the market index and this relationship is used to estimate the return on the stock. The mean return is calculated as:

$$R_i = a_i + b_i R_m + e_i$$

Where

$R_i$  = expected return on security  $i$

$a_i$  = alpha coefficient

$b_i$  = beta coefficient

$R_m$  = the rate of return of market index

$e_i$  = error term

#### BETA FACTOR

Beta measures the degree of change in prices of stocks to the changes in overall stock market. Beta is a measure of the volatility or systematic risk of a security or a portfolio in comparison to the market as a whole. It is used in the capital asset pricing model (CAPM), which calculates the expected return of an asset based on its beta and expected market returns. Beta is also known as the beta coefficient. A beta of 1 indicates that the security's price moves with the market whereas a beta of less than 1 means that the security is less volatile than the market. A beta of greater than 1 indicates that the security's price is more volatile than the market.

#### SHARPE'S OPTIMAL PORTFOLIO

Sharpe's model has provided a way of selecting appropriate securities in a portfolio. The selection of any security is related to excess return beta ratio. Ranking of the securities are done on the basis of their excess return to beta. If the Sharpe Ratio (SR) is higher than fund will provide superior risk adjusted performance and if SR is lower it will give unfavorable performance. This is calculated as:

$$SR = \frac{R_i - R_f}{\beta_i}$$

Where

$R_i$  - the expected return on stock  $i$

$R_f$  - the return on a riskless asset

$\beta_i$  - the expected change in rate of return on stock  $i$  associated with one unit change in market return

#### CONCLUSION

Portfolio consists of different securities which are combined together in order to get the advantage of diversification by increasing the returns and reducing the risks. Portfolio management is considered as one of the leading strategy as it increases the confidence of investors to invest in diversified set of securities. It is all about finding the strengths, weaknesses, opportunities and threats about different securities so that a good amount of trade off can be achieved between risks and returns. It also requires regular and systematic analysis and judgment of the market conditions. Thus, the key to effective portfolio lies in gaining good knowledge and then practices it by creating and investing in your own portfolio. To be successful in investing one should understand the investment philosophy first and then make it consistent with the individual goals and preferences.

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