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Portfolio Management

Pavan Kumar Mantha[1]* and Srinivasa Rao M[2]

[1]Jawaharlal Nehru Technological University, Hyderabad, Telangana, India
[2]Gayathri Vidya Parishath, Vishakapatnam, Andhra Pradesh, India

Abstract

Portfolio Management is used to select a portfolio of new product development projects to achieve the following goals: Maximize the profitability or value of the portfolio, Provide balance, Support the strategy of the enterprise. Portfolio Management is the responsibility of the senior management team of an organization or business unit. This team, which might be called the Product Committee, meets regularly to manage the product pipeline and make decisions about the product portfolio. Often, this is the same group that conducts the stage-gate reviews in the organization. A logical starting point is to create a product strategy - markets, customers, products, strategy approach, competitive emphasis, etc. The second step is to understand the budget or resources available to balance the portfolio against. Third, each project must be assessed for profitability (rewards), investment requirements (resources), risks, and other appropriate factors. The weighting of the goals in making decisions about products varies from company. But organizations must balance these goals: risk vs. profitability, new products vs. improvements, strategy fit vs. reward, market vs. product line, long-term vs. short-term. Several types of techniques have been used to support the portfolio management process: Heuristic models, Scoring techniques, Visual or mapping techniques. The earliest Portfolio Management techniques optimized projects' profitability or financial returns using heuristic or mathematical models. However, this approach paid little attention to balance or aligning the portfolio to the organization's strategy. Scoring techniques weight and score criteria to take into account investment requirements, profitability, risk and strategic alignment. The shortcoming with this approach can be an over emphasis on financial measures and an inability to optimize the mix of projects.

Keywords: Portfolio management; Committee; Heuristic models; Scoring techniques; Strategic alignment

Introduction

A portfolio is a collection of assets. The assets may be physical or financial like Shares, Bonds, Debentures, Preference Shares, etc. The individual investor or a fund manager would not like to put all his money in the shares of one company that would amount to great risk. He would therefore, follow the age old maxim that one should not put all the eggs into one basket. By doing so, he can achieve objective to maximize portfolio return and at the same time minimizing the portfolio risk by diversification. Portfolio management is the management of various financial assets which comprise the portfolio. Portfolio management is a decision – support system that is designed with a view to meet the multi-faced needs of investors. According to Securities and Exchange Board of India Portfolio Manager is defined as: "Portfolio means the total holdings of securities belonging to any person". Portfolio manager_means any person who pursuant to a contract or arrangement with a client, advises or directs or undertakes on behalf of the client (whether as a discretionary portfolio manager or otherwise) the management or administration of a portfolio of securities or the funds of the client. Discretionary portfolio manager means a portfolio manager who exercises or may, under a contract relating to portfolio management exercises any degree of discretion as to the investments or management of the portfolio of securities or the funds of the client.

Importance of Portfolio management

Portfolio management has emerged as a separate academic discipline in India. Portfolio theory that deals with the rational investment decision-making process has now become an integral part of financial literature. Investing in securities such as shares, debentures & bonds is profitable well as exciting. It is indeed rewarding but involves a great deal of risk & need artistic skill. Investing in financial securities is now considered to be one of the most risky avenues of investment. It is rare to find investors investing their entire savings in a single security. Instead, they tend to invest in a group of securities. Such group of securities is called as PORTFOLIO. Creation of portfolio helps to reduce risk without sacrificing returns. Portfolio management deals with the analysis of individual securities as well as with the theory and practice of optimally combining securities into portfolios [1].

The modern theory is of the view that by diversification, risk can be reduced. The investor can make diversification either by having a large number of shares of companies in different regions, in different industries or those producing different types of product lines. Modern theory believes in the perspective of combinations of securities under constraints of risk and return.

Scope of Portfolio management

This study covers the Markowitz model. The study covers the calculation of correlations between the different securities in order to find out at what percentage funds should be invested among the companies in the portfolio. Also the study includes the calculation of individual Standard Deviation of securities and ends at the calculation of weights of individual securities involved in the portfolio [2]. These percentages help in allocating the funds available for investment based on risky portfolios.

Objectives of portfolio management

- To study the investment pattern and its related risks and returns

***Corresponding author:** Pavan Kumar M, MBA, Jawaharlal Nehru Technological University, Hyderabad, Telangana, India, E-mail: pavanelecmantha@gmail.com

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In The Housing Development Finance Corporation Limited (HDFC).

➢ To find out optimal portfolio of The Housing Development Finance Corporation Limited (HDFC), which gave optimal return at a minimize risk to the investor in HDFC.

➢ To see whether the portfolio risk is less than individual risk on whose basis the portfolios are constituted

➢ To see whether the selected portfolios is yielding a satisfactory and constant return to the investor

➢ To understand, analyze and select the best portfolio [3].

Methodology and Framework

Data collection methods

The data collection methods include both the primary and secondary collection methods.

Primary collection methods

This method includes the data collection from the personal discussion with the authorized clerks and members of the hdfc financial services.

Secondary collection methods

The secondary collection methods includes the lectures of the superintend of the department of market operations and so on., also the data collected from the news, magazines and different books issues of this study Superintend [4].

The Effect of Combining Two Securities

It is believed that holding two securities is less risky than by having only one investment in a person's portfolio. When two stocks are taken on a portfolio and if they have negative correlation then risk can be completely reduced because the gain on one can offset the loss on the other. This can be shown with the help of following example:

Inter-active risk through covariance

Covariance of the securities will help in finding out the inter-active risk. When the covariance will be positive then the rates of return of securities move together either upwards or downwards. Alternatively it can also be said that the inter-active risk is positive. Secondly, covariance will be zero on two investments if the rates of return are independent [5].

Holding two securities may reduce the portfolio risk too. The portfolio risk can be calculated with the help of the following formula:

Capital Asset Pricing Model (CAPM)

Markowitz, William Sharpe, John Lintner and Jan Mossin provided the basic structure of Capital Asset Pricing Model. It is a model of linear general equilibrium return. In the CAPM theory, the required rate return of an asset is having a linear relationship with asset's beta value i.e. un-diversifiable or systematic risk (i.e. market related risk) because non market risk can be eliminated by diversification and systematic risk measured by beta. Therefore, the relationship between an assets return and its systematic risk can be expressed by the CAPM, which is also called the Security Market Line.

$$R = R_f X_f + R_m(1 - X_f)$$

R_p = Portfolio return

X_f =The proportion of funds invested in risk free assets

$1 - X_f$ = The proportion of funds invested in risky assets

R_f = Risk free rate of return

R_m = Return on risky assets

Formula can be used to calculate the expected returns for different situations, like mixing risk less assets with risky assets, investing only in the risky asset and mixing the borrowing with risky assets [6].

The concept

According to CAPM, all investors hold only the market portfolio and risk less securities. The market portfolio is a portfolio comprised of all stocks in the market. Each asset is held in proportion to its market value to the total value of all risky assets.

For example, if wipro Industry share represents 15% of all risky assets, then the market portfolio of the individual investor contains 15% of wipro Industry shares. At this stage, the investor has the ability to borrow or lend any amount of money at the risk less rate of interest.

E.g.: assume that borrowing and lending rate to be 12.5% and the return from the risky assets to be 20%. There is a trade off between the expected return and risk. If an investor invests in risk free assets and risky assets, his risk may be less than what he invests in the risky asset alone. But if he borrows to invest in risky assets, his risk would increase more than he invests his own money in the risky assets. When he borrows to invest, we call it financial leverage. If he invests 50% in risk free assets and 50% in risky assets, his expected return of the portfolio would be

$$R_p = R_f X_f + R_m(1 - X_f)$$

$= (12.5 \times 0.5) + 20\ (1\text{-}0.5)$

$= 6.25 + 10$

$= 16.25\%$

if there is a zero investment in risk free asset and 100% in risky asset, the return is

$$R_p = R_f X_f + R_m(1 - X_f)$$

$= 0 + 20\%$

$= 20\%$

if -0.5 in risk free asset and 1.5 in risky asset, the return is

$$R_p = R_f X_f + R_m(1 - X_f)$$

$= (12.5 \times -0.5) + 20\ (1.5)$

$= -6.25 + 30$

$= 23.75\%$

Evaluation of Portfolio

Portfolio manager evaluates his portfolio performance and identifies the sources of strengths and weakness. The evaluation of the portfolio provides a feed back about the performance to evolve better management strategy. Even though evaluation of portfolio performance is considered to be the last stage of investment process, it is a continuous process. There are number of situations in which an evaluation becomes necessary and important [7].

i. **Self valuation:** An individual may want to evaluate how well he has done. This is a part of the process of refining his skills and improving his performance over a period of time.

ii. **Evaluation of managers:** A mutual fund or similar organization might want to evaluate its managers. A mutual fund may have several managers each running a separate fund or sub-fund. It is often necessary to compare the performance of these managers.

iii. **Evaluation of mutual funds:** An investor may want to evaluate the various mutual funds operating in the country to decide which, if any, of these should be chosen for investment. A similar need arises in the case of individuals or organizations who engage external agencies for portfolio advisory services.

iv. **Evaluation of groups:** have different skills or access to different information. Academics or researchers may want to evaluate the performance of a whole group of investors and compare it with another group of investors who use different techniques or who

Investment

Investment may be defined as an activity that commits funds in any financial form in the present with an expectation of receiving additional return in the future. The expectations bring with it a probability that the quantum of return may vary from a minimum to a maximum. This possibility of variation in the actual return is known as investment risk. Thus every investment involves a return and risk.

Investment is an activity that is undertaken by those who have savings. Savings can be defined as the excess of income over expenditure. An investor earns/expects to earn additional monetary value from the mode of investment that could be in the form of financial assets [8].

• The three important characteristics of any financial asset are:

Return-the potential return possible from an asset.

• Risk-the variability in returns of the asset form the chances of its value going down/up.

• Liquidity-the ease with which an asset can be converted into cash.

Investors tend to look at these three characteristics while deciding on their individual preference pattern of investments. Each financial asset will have a certain level of each of these characteristics.

Investment avenues

There are a large number of investment avenues for savers in India. Some of them are marketable and liquid, while others are non-marketable. Some of them are highly risky while some others are almost risk less.

Investment avenues can be broadly categorized under the following head.

1. Corporate securities.
2. Equity shares.
3. Preference shares.
4. Debentures/Bonds.
5. Derivatives.
6. Others.

Corporate securities

Joint stock companies in the private sector issue corporate securities. These include equity shares, preference shares, and debentures. Equity shares have variable dividend and hence belong to the high risk-high return category; preference shares and debentures have fixed returns with lower risk.

Results and Discussion

Calculation of average return of companies

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Average Return (R) = (R)/N

(P0) = Opening price of the share

(P1) = Closing price of the share

D = **Dividend** (Tables 1-4).

Diagrammatic representation of company and returns

Diagrammatic representation of each of the company and their returns, risk as shown in Figure 1 and Figure 2.

Year	(P0)	(P1)	D	(P1-P0)	D+(P1-P0)/ P0*100
2007-2008	1,233.45	1361.20	29	127.75	12.71
2008-2009	1,361.20	2,012	5	650.8	48.16
2009-2010	2012	1900.75	5	-111.25	-15.84
2010-2011	1900.75	1900.45	8	-0.3	1.38
2011-2012	1900.45	425.30	-	-1475.15	-0.776
TOTAL RETURN					**45.634**

Average Return=45.63/5=9.12

Table 1: Average Return of WIPRO.

Year	(P0)	(P1)	D	(P1-P0)	D+(P1-P0)/ P0*100
2007-2008	916.30	974.35	5	58.2	6.89
2008-2009	974.35	739.15	5	23.52	-23.63
2009-2010	739.15	1,421.40	5	682.25	92.98
2010-2011	1,421.40	1456.55	3.75	35.15	2.74
2011-2012	1456.55	591.25	.75	-865.3	-59.4
TOTAL RETURN					**19.58**

Average Return=19.58/5=3.916

Table 2: Average Return of Dr Reddy Laboratories Ltd.

Year	(P0)	(P1)	D	(P1-P0)	D+(P1-P0)/ P0*100
2007-2008	138.50	254.65	4	116.15	86.71
2008-2009	254.65	360.55	7	105.9	44.34
2009-2010	360.55	782.20	8	421.61	119.19
2010-2011	782.20	735.25	25	-46.95	-2.8
2011-2012	735.23	826.10	2	90.85	12.63
TOTAL RETURN					**258.07**

Average Return=258.07/5=51.614

Table 3: Average Return of ACC.

Year	(P0)	(P1)	D	(P1-P0)	D+(P1-P0)/ P0*100
2007-2008	188.20	490.60	20	302.40	171.3
2008-2009	490.60	548.00	20	57.40	15.77
2009-2010	548.00	890.45	20	342.45	66.14
2010-2011	890.45	688.75	17	-20.17	-20.74
2011-2012	688.75	9.5	1.45	1.45	1.958
TOTAL RETURN					**234.428**

Average Return = 234.428/5 = 46.885

Table 4: Average Return of ACC Hero Automobiles Limited.

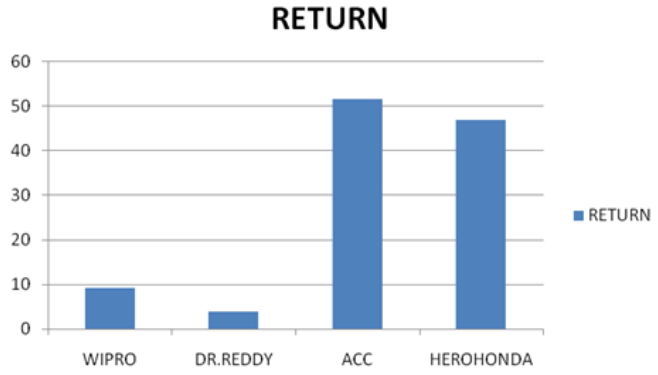

Figure 1: Diagrammatic representation of company and returns.

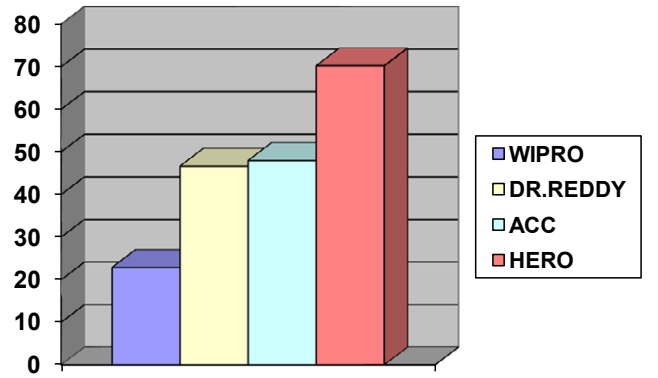

Figure 2: Diagrammatic representation of company and risk.

Calculation of portfolio risk

$$R_P = \sqrt{(sa * Wa)^2 + (sb * Wb)^2 + 2 * sa * sb * Wa * Wb * nab}$$

Calculation of portfolio risk of wipro and other companies

WIPRO (a) and DR.REDDY (b):

σa = 22.86

σb = 46.66

Wa = 0.78

Wb = 0.23

nab = -0184

$$R_P = \sqrt{(22.86 * 0.78.)^2 + (46.66 * 0.23)^2 + 2(22.86)(46.66)(0.78(0.23)(-0.184)}$$

$\sqrt{355.6}$ = 18.86%

WIPRO (a) and ACC (b):

σa = 22.86

σb = 47.27

Wa = 1.11

Wb = -0.11

nab = 0.25

$$R_P = \sqrt{(22.86 * 1.11)^2 + (47.27 * -0.11)^2 + 2(22.86)(47.27)(1.11)(-0.11)(0.25)}$$

$\sqrt{551.2}$ = 23.5%

WIPRO (a) and HERO (b):

σa = 22.86

σb = 70.23

Wa= 0.98

Wb=0.02

nab = 028

$$R_P = \sqrt{(22.86 * 0.98)^2 (70.23 * 0.02)^2 + 2(22.86)(70.23)(0.98)(0.02)(0.28)}$$

$\sqrt{525}$ = 22.85%

Calculation of portfolio risk of DR Reddy and other companies

DR. REDDY (a) and ACC (b):

σa = 46.7

σb = 47.3

Wa=0.52

Wb= 0.48

nab = 0.74

$$R_P = \sqrt{(46.7 * 0.52)^2 + (47.3 * 0.48)^2 + 2(46.7)(47.3) * (0.52) * (0.48) * (0.74)}$$

$\sqrt{1,922.80}$ = 43.85%

DR. REDDY (a) and HERO (b):

σa = 46.67

σb = 70.23

Wa = 1.48

Wb= -0.48

nab = 0.37

$$R_P = \sqrt{(46.67 * 1.48)^2 + (70.23 * -0.48)^2 + 2(46.67)(70.23) * (1.48) * (-048) * (0.37)}$$

$\sqrt{234.89}$ = 15.33%

Calculation of portfolio risk of ACC and other companies

ACC(a) and HERO (b):

σa = 47.3

σb = 70.23

Wa= 1.20

Wb = -0.20

nab = 0.79

$$R_P = \sqrt{(47.3 * 1.20)^2 + (70.23 * -0.20)^2 + 2(47.3))(70.23) * (1.20) * (-0.20) * (0.79)}$$

$\sqrt{1,764.84}$ = 42%

Calculation of portfolio return

Rp=(RA*WA) + (RB*WB)

Where Rp = portfolio return

RA= return of A WA= weight of A

RB= return of B WB= weight of B

Calculation of portfolio return of wipro and other companies

WIPRO (a) and DR.REDDY (b):

RA= 4.6 WA=0.77

RB=0.67 WB=0.23

Rp = (4.6*0.77) + (0.67*0.23)

Rp = (3.542 + 0.1541)

Rp = 3.6961%

WIPRO (a) and ACC (b):

RA= 4.6 WA=1.11

RB= 42.02 WB=-0.11

Rp = (4.6*1.11) + (42.02*-0.11)

Rp = (5.106+4.622)

Rp = 0.484

WIPRO (a) and HERO (b):

RA= 4.6 WA=0.98

RB= 32.498 WB=0.02

Rp = (4.6*0.9) + (32.498*0.02)

Rp = (4.508 + 0.6499)

Rp = 5.16%

Calculation of portfolio return of DR Reddy and other companies

DR. REDDY (a) and ACC (b):

RA= 0.67 WA=0.52

RB=42.02 WB=0.48

Rp = (0.67*0.52) + (42.02*0.48)

Rp = (.3487+20.139)

Rp = 20.5%

DR. REDDY (a) and HERO (b):

RA= 0.67 WA=1.48

RB=32.498 WB=-0.48

Rp (0.67*1.48) + (32.498*-0.48)

Rp (0.9916-15.599)

Rp -14.60%

Calculation of portfolio return of ACC and other companies

ACC (a) and HERO (b):

RA= 42.02 WA=1.20

RB=32.498 WB=-0.20

sRp = (42.02*1.20) + (32.498*-0.20)

Rp = (50.424-6.499)

Rp = 43.92%

Discussions

The analytical part of the study for the 6 years period reveals the following interpretations (Table 5).

Wipro with ACC

Portfolio weights for Wipro and ACC are (1.11) and (-0.11) respectively. This indicates that the investors who are interested to take more risk they can invest in this combination, and also can get high returns.

Dr. Reddy and Hero

In this combination as per the calculation & the study of portfolio weights of dr reddy and hero are (1.48) and (-0.48) respectively. Here the standard deviation of drreddy and hero are (46.66) and (70.23) respectively. Returns are (0.67) is for dr reddy (32.43) is for hero In this, position invest in hero is high risk as well as high returns also up to (32.43) when compared to dereddy.

Dr. Reddy and ACC

The portfolio of weights of the both (0.52)is drreddy (.048) is for acc. The standard deviation of dr reddy is (46.66) and (47.27) for acc. The returns of drreddy is (0.67) and (42.02) is acc. According to this combination investor can invest acc, this is more risk as well as more returns can get up to (42.02). If investor wants less risk he has to invest in acc.Dr reddy is a low risk as well as low returns also.

ACC and Hero

According to this combination of the portfolio weights are (1.20) in acc and (-0.20) is hero. The standard deviation of acc is less than hero 47.27>70.23. if the investor wants to take low risk, acc is the better option. And the return point of view hero is providing more returns that of acc.

According to this combination if the investor wants to get returns then he has to take the more risk. This is the good combination for investors for investing in the ACC and hero.

"Greater Portfolio Return with less Risk is always is an attractive combination" for the Investors. The investors who are risk averse can invest their funds in the portfolio combination of ACC, HERO AND WIPRO proportion. The investors who are slightly risk averse are suggested to invest in WIPRO, DR. REDDY, ACC as the combination is slightly low risk when compared with other companies. The analysis regarding the compaines ACC, HERO has howed a wise investment in public and in private sector with an increasing trend where as corporate

Combination	Correlation	Covariance	Portfolio return	Portfolio risk
WIPRO and DR.REDDY	-0.184	-196.72	3.7	18.9
WIPRO and ACC	0.247	267.69	0.49	23.5
WIPRO and HERO	0.28	449.7	5.0	22.9
DR.REDDY and ACC	.7434	1639.8	20.5	43.9
DR.REDDY and BHEL	0.7969	3047.7	-21.7	22.9
DR REDDY and HERO	0.705	1,124.1095	-14.6	15.3
ACC and BHEL	0.917	3,558.65	21.07	63.8
ACC and HERO	0.7873	2,613.7	43.9	42

Table 5: Display of all calculated values.

sector has recorded a decreasing trends income which denotes an increasing trend throught out the study period.

Conclusions

The analytical part of study for the 5 years reveals the following as for as follows As far as the average return of the company is concerned ACC,, HERO is high with an average return of 48.41%. WIPRO, DR.REDDY is getting low returns. HERO securities are performing at medium returns. As far as the correlation is concerned the securities DR.REDDY are high correlated with minimum portfolio risk. The investor who is risk averse will have to invest in this combination which gives good return with low risk. As the average return of securities, ACC, HERO and are HIGH, it is suggested that investors who show interest in these securities taking risk into consideration. As the risk of the securities ACC, HERO and BHEL are risky securities it suggested that the investors should be careful while investing in these securities. The investors who require minimum return with low risk should invest in WIPRO and DR.REDDY. It is recommended that the investors who require high risk with high return should invest in ITC and HERO. The investors are benefited by investing in selected scripts of Industries.

References

1. Donald E Fisher, Ronald J Jordan. Security analysis and Portfolio Management.
2. William F Sharpe, Gordon J Allexander, Jeffer V Baily (1990) Investments.
3. Strong RA Portfolio Management.
4. www.nseindia.com
5. www.bseindia.com
6. www.economictimes.com
7. www.answers.com
8. www.hdfc.com