

PORTFOLIOMANAGEMENT IN SELECTED COMPANINES IN INDIA

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ABSTRACT

Portfolio management can be defined and used in many ways, because the basic meaning of the word is “combination of the various things keeping intact”. So I considered and evaluated this from the perspective of the investment part in the securities segment.

From the investor point of view this portfolio followed by him is very important since through this way one can manage the risk of investing in securities and thereby managing to get good returns from the investment in diversified securities instead of putting all the money into one basket. Now a day’s investors are very cautious in choosing the right portfolio of securities to avoid the risks from the market forces and economic forces. So this topic is chosen because in portfolio management one has to follow certain steps in choosing the right portfolio in order to get good and effective returns by managing all the risks.

This topic covers how a particular portfolio has to be chosen concerning all the securities individual return and there by arriving at the overall portfolio return. This also covers the various techniques of evaluation of the portfolio with regard to all the uncertainties and gives an edge to select the right one. The purpose of choosing this topic is to know how the portfolio management has to be done in arriving at the effective one and at the same time make aware the investor to choose the securities which they want to put their investment in the portfolio. This also gives an edge in arriving at the right portfolio in consideration to different securities rather than one single security. The project is undertaken for the study of my subject thoroughly while understanding of the investor and myself.

Key Words: - Risk and Return for selected companies, Combination of companies has provided risk and returns.

1. INTRODUCTION

This project deals with the different investment decisions made by different people and focuses on elements of risk & return in detail while investing in securities. It also explains how portfolio hedges the risk in investment and giving optimum return to a given amount of risk. It also gives an in depth analysis of portfolio creation, selection, revision and evaluation. The report also shows different ways of analysis of securities, different theories of portfolio management for effective and efficient portfolio construction. It also gives a brief analysis of how to evaluate a portfolio.

MEANING

A portfolio is a collection of securities, since it is rarely desirable to invest the entire funds of an Individual in single it is essential that every security be viewed in a portfolio context.

The expected rate of return should depend on expected return of each security contained in portfolio.

Investing in securities such as shares, debentures and bonds in portfolio as well as exciting. It is indeed rewarding, but involves a great deal of risk and calls for scientific knowledge as well as artistic skill.

It determines future risk and return in holding of individual security. Portfolio risk can be reduced by adding security with greater individual risk than another security in the portfolio. This is because; it depends on co-variance among returns of individual security.

2. OBJECTIVES

1. The basic objective is to minimize risk.
2. To determine standard deviation and variance of portfolios.
3. To determine co-efficient of correlation of portfolio's.
4. The purpose of study is to find out what percentage of investment should be invested between two companies on the basis of risk and return.
5. To help the investors regarding selection of securities to construct good portfolio.

6. To identify the best portfolio of securities.

3. LIMITATIONS

1. The data collected for a period of Five years i.e., from April 2007 to March 2012.
2. The study is restricted to portfolio consisting of only two companies which are analyzed and hence conclusions cannot be generalized for other companies.
3. The portfolio risk varies from company to company.
4. Time is one of the constraints to the study the duration of training was two months which was a short period of whole organization.
5. This study is restricted only to find out and comparison between the risk, return, average return, variance, correlation.
6. For the study purpose 5 companies have been taken for calculations.

4. RESEARCH METHODOLOGY

SOURCES OF DATA:

Depending upon the sources utilized whether the data has come from actual observations or frame records that are kept for normal purposes, Statistical data can be classified into two categories. These are

PRIMARY DATA:

- Data collected from brokers.
- Data collected by financial manager.

SECONDARY DATA:

- Data collected from various books and sites.
- Primary data collected from news papers & magazines.
- Data obtained from company journals.
- Data collected from internet.
- Companies Annual Reports
- Publication
- Information provided by Hyderabad Stock Exchange

METHODS ADOPTED WITH DETAILS PROCEDURE:

The study covers the Markowitz model and the calculation of correlation 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 the calculation of weights of individual securities involved in the portfolio.

5.DATA ANALYSIS

Return on Stock of Reliance

The following the presents the Return on Stock of Reliance during 2007-08 to 2011-12.

Table No. 4.1
Return on Stock of Reliance during 2007-08 to 2011-12

(₹)

Year	Opening Share Price (p ₀)	Closing Share Price (p ₁)	D=P ₁ -P ₀	R=D/P ₀ *100
2007-2008	828.8	1370.3	541.50	65.34
2008-2009	1313.95	2265.8	951.85	72.44
2009-2010	2345.25	1524.75	-820.50	-34.99
2010-2011	790.60	1074.25	283.65	35.88
2011-2012	1092.05	1049.1	-42.95	-3.93
Total Return				134.74
Average Return				26.95

Sources:www.nseindia.com

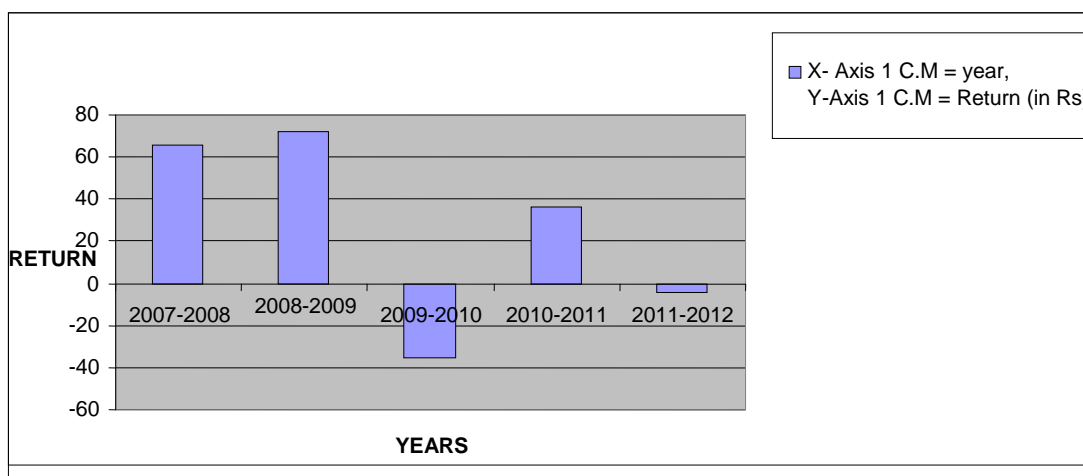


Fig.4.1:2: Return on Stock of Reliance during 2007-08 to 2011-12.

Analysis

From the above table it observed that the Reliance company ,in the year 2007-2008 the investor got Rs. 65.33 returns but it was increased in the year 2008-2009 Rs 72.44 .In the year2009-10 it reduced negative return at (-34.39 per cent) due to market correction. In the year 2010-11 increased to 35.88 (i.e., corporate Action) and the year 2011-12 it decreased negative returns -3.93. Furthermore it is also observed that the investors got return at an average rate 26.95 per cent during 2007-08 to 2011-12.

Return on Stock of Infosystech

The following the presents the Return on Stock of Infosystech during 2007-08 to 2011-12.

Table No. 4.1.1
Return on Stock of Infosystech during 2007-08 to 2011-12

(₹)

Year	Opening Share Price (p ₀)	Closing Share Price (p ₁)	D = P ₁ -P ₀	R=D/P ₀ * 100
2007-2008	1571.07	2018.05	446.98	28.45
2008-2009	1922.95	1439.9	-483.05	-25.12
2009-2010	1423.05	1323.9	-99.15	-6.96
2010-2011	1373.75	2615.95	1242.20	90.42
2011-2012	2670.45	3241.3	570.85	21.37
Total Return				108.16
Average Return				21.63

Sources: www.nseindia.com

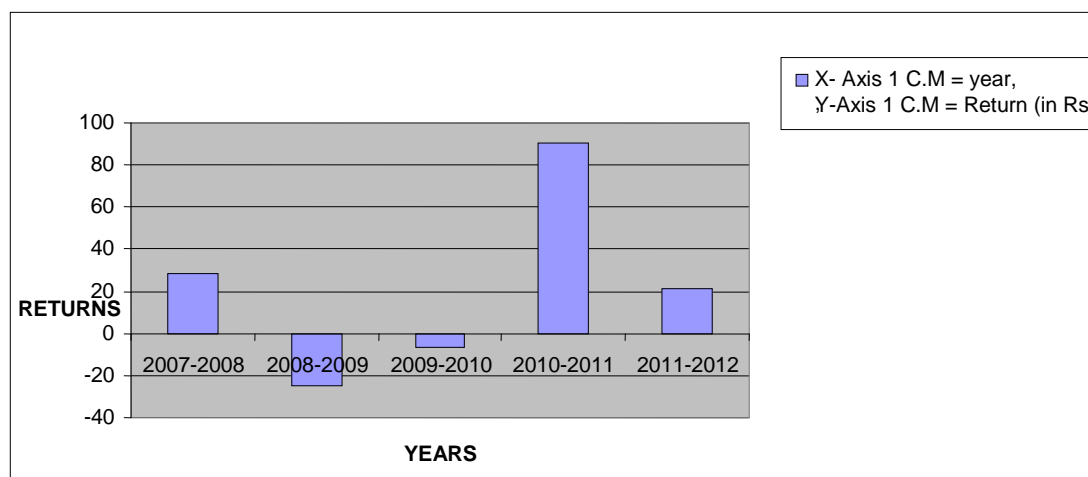


Fig.4.1: Return on Stock of Infosystech during 2007-08 to 2011-12

Analysis

From the above table it observed that the Infosystech company ,in the year 2007-2008 the investor got Rs 28.45returns but it was decreased in the year 2008-2009 negative returns -25.12 due to market fluctuations.2009-10 the returns are decreased -6.96. In the year of 2010-2011 increase the share value 90.42 and the year 2011-2012 it decreased the returns 21.37.

Return on Stock of ITC

The following the presents the Return on Stock of ITC during 2007-08 to 2011-12.

Table No. 4.1.2

Return on Stock of ITC during 2007-08 to 2011-12

(₹)

Year	Opening Share Price (p ₀)	Closing Share Price (p ₁)	D = P ₁ -P ₀	R=D/P ₀ * 100
2007-2008	199.25	151.15	-48.1	-24.14
2008-2009	146.80	206.25	59.45	40.49
2009-2010	210.60	184.85	-25.75	-12.22
2010-2011	184.35	263.05	78.7	42.69
2011-2012	132	182.1	50.1	37.95
Total Returns				84.77
Average Returns				16.95

Sources: www.nseindia.com

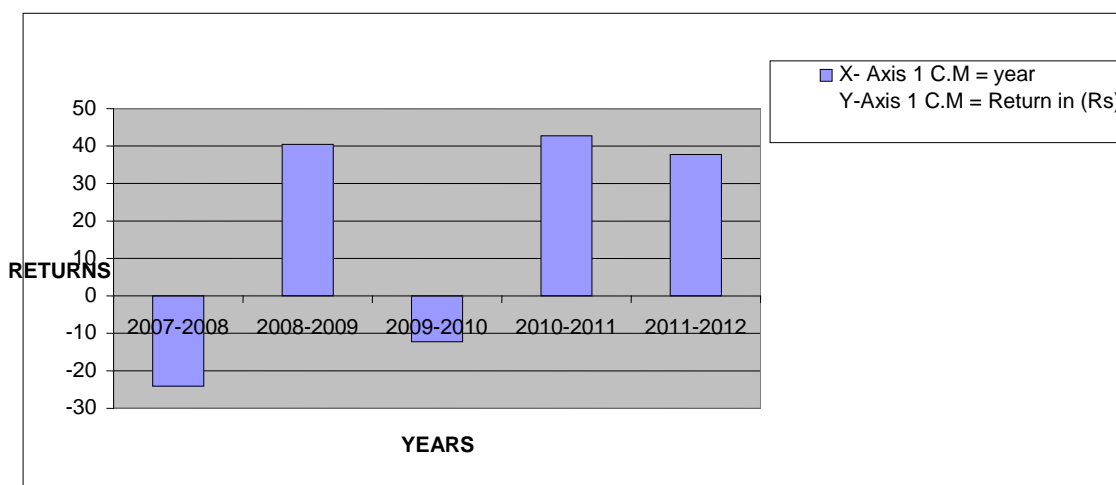


Fig.4.1.3: Return on Stock of ITC during 2007-08 to 2011-12

Analysis

From the above table it observed that the ITC company, in the year 2007-2008 the company got negative returns at -24.14 but it was increased in the year 2008-09 to 40.49. In the year 2009-10 it reduced the negative returns at (-12.22). In the year of 2010-11 to increase the Rs 42.69 (i.e., Corporate Action) and the year 2011-12 the company decreased the return was 37.95 because market fluctuations.

Return on Stock of HDFC

The following the presents the Return on Stock of HDFC during 2007-08 to 2011-12.

Table No. 4.1.3

Return on Stock of HDFC during 2007-08 to 2011-12

(₹)

Year	Opening Share Price (p ₀)	Closing Share Price (p ₁)	D = P ₁ -P ₀	R=D/P ₀ * 100
2007-2008	1340	1519.8	179.8	13.41
2008-2009	1434.75	2379.75	945	65.86
2009-2010	2361.95	1412.2	-949.75	-40.21
2010-2011	1505.80	2717.2	1211.4	80.44
2011-2012	601.80	701.2	99.4	16.51
Total Return				136.03
Average Return				27.20

Sources: www.nseindia.com

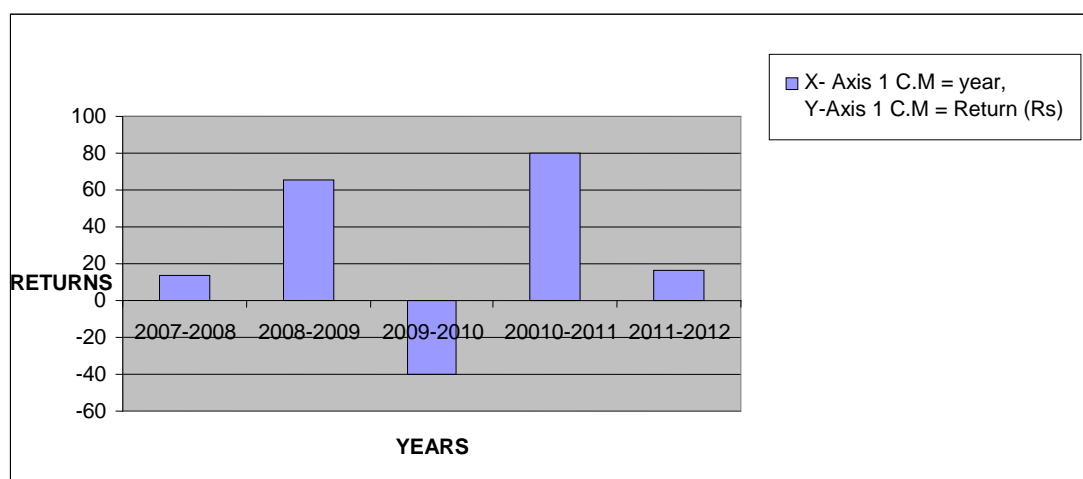


Fig.4.1.4: Return on Stock of HDFC during 2007-08 to 2011-12.

Analysis

From the above table it observed that, in the year 2007-2008 the investor got Rs13.41 returns but it was increased in the year 2008-2009 Rs 65.86. .In the year2009-10 it reduced negative return at (-40.21) .Due to market correction. In the year 2010-11 increased to 80.44 (i.e., corporate Action) and the year 2011-12 it decreased 16.51.

Return on Stock of L&T

The following the presents the Return on Stock of L & T during 2007-08 to 2011-12.

Table No. 4.1.4

Return on Stock of L & T during 2007-08 to 2011-12

(₹)

Year	Opening Share Price (p ₀)	Closing Share Price (p ₁)	D = P ₁ -P ₀	R=D/P ₀ * 100
2007-2008	2497.6	1620.1	-877.5	-35.13
2008-2009	1525.20	3035.95	1510.75	99.052
2009-2010	2897.45	671.4	-2226.1	-76.82
2010-2011	672.45	1630.85	958.4	142.52
2011-2012	1650.70	1651.9	1.2	0.072
Total Return				129.68
Average Returns				25.93

Sources: www.nseindia.com

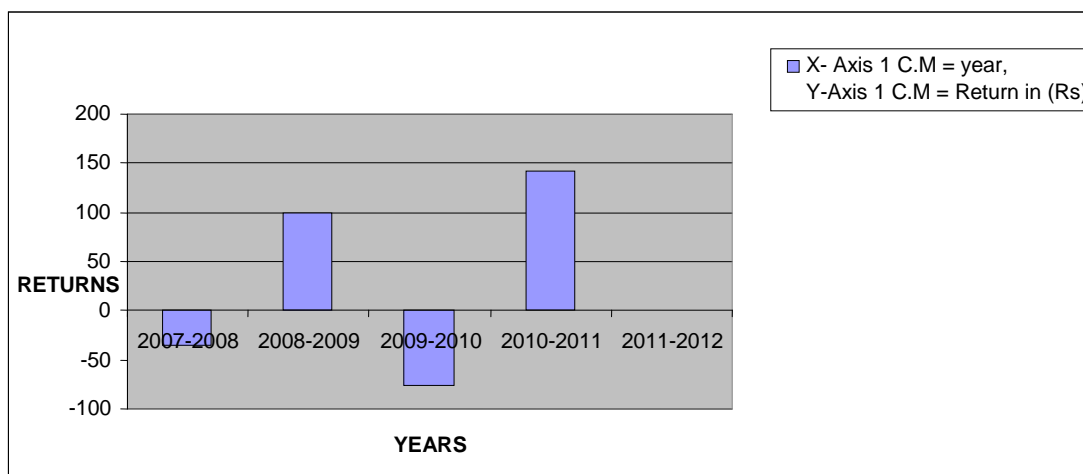


Fig.4.1.5: Return on Stock of L&T during 2007-08 to 2011-2012

Analysis

From the above table it observed that, in the year 2007-2008 the investor got negative returns at 35.13 Rs65.33 but it was increased in the year 2008-2009 Rs99.05. In the year 2009-10 it reduced negative return at (-76.82) .Due to market correction . In the year 2010-11 increased to 142.52 (i.e., corporate Action) and the year 2011-12 it decreased 0.072.

4.1.5 (a) Comparison of Average Returns For 5 Selected Companies.

Company Name	Average Returns
RELIANCE	26.94730669
INFOSYSTCH	21.63271111
ITC	16.95497149
HDFC	27.2077341
L & T	25.93745173

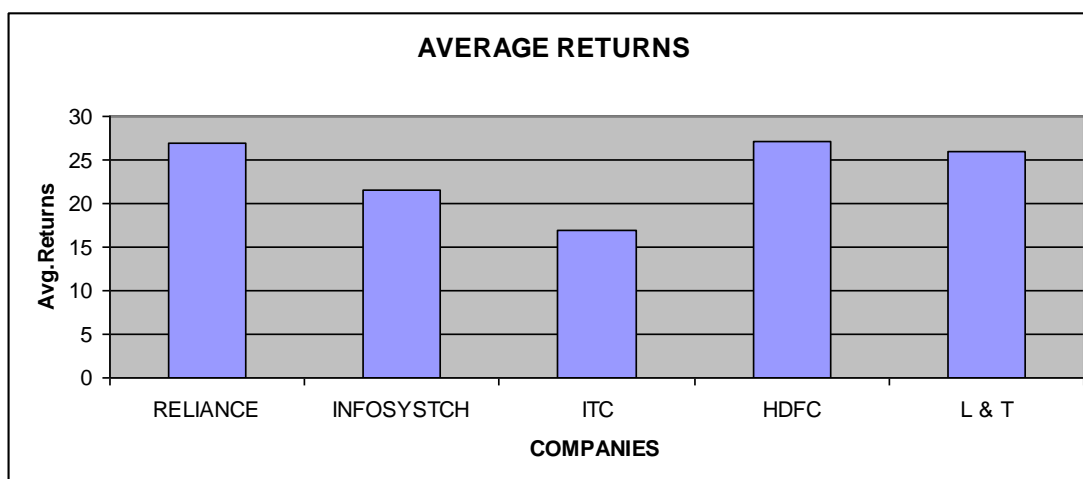


Fig.4.1.5 (a): Avg. Return on stock for 5 Companies

Analysis

From the above graph the HDFC Company got higher returns of 27.20 by observed with the other companies. The ITC Company got lowest returns of 16.95 for the analysis of five years. In longer time equity shares as high fluctuated products in financial market on the basis the companies returns were fluctuated. The RELIANCE Company got second highest returns

i.e. 26.94 and the L&T Company got 25.93 returns which were the third highest returns and INFOSYSTCH got 21.63 of returns for five years

4.2 Calculation of Standard Deviation.

Risk on Stock of Reliance

The following the presents the Risk on Stock of Reliance during 2007-08 to 2011-12.

Table No. 4.2.1

Risk on Stock of Reliance during 2007-08 to 2011-12

Year	Return(R)	AVG Return (\bar{R})	R- \bar{R}	(R- \bar{R}) ²	RISK
2007-2008	65.33	26.94	38.38	1473.64	38.38
2008-2009	72.44	26.94	45.49	2069.75	45.49
2009-2010	-34.98	26.94	-61.93	3835.68	61.93
2010-2011	35.87	26.94	8.93	79.75	8.93
2011-2012	-3.93	26.94	-30.88	953.59	30.88
Variance					1682.48
Standard Deviation					41.01

Sources: www.nseindia.com

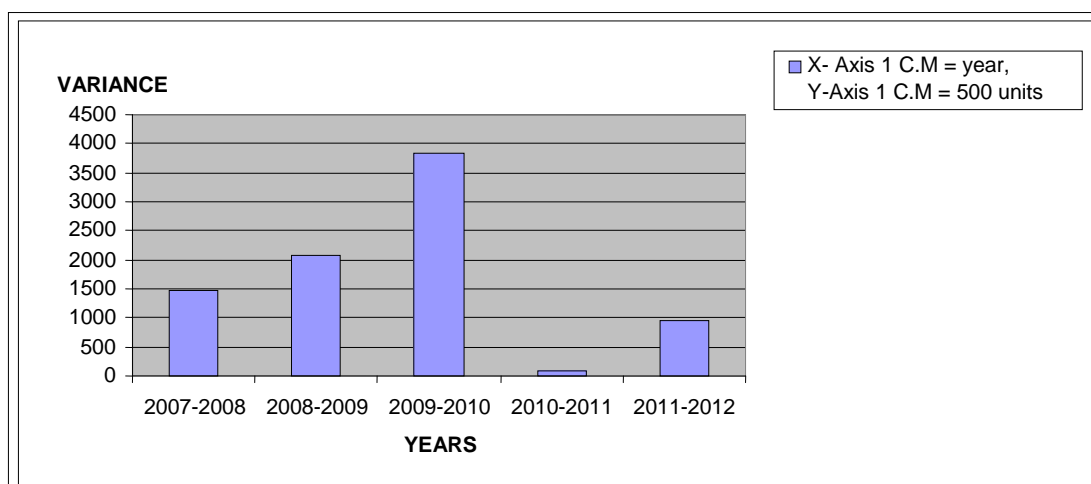


Fig. 4.2.1: Risk on Stock of Reliance during 2007-08 to 2011-12

Analysis

From the above table it observed that the year 2007-2008 the company faced risk 38.38. And the year 2008-09 increased risk 45.49. And the year 2009-10 the highest risk 61.93 and the year of 2010-11 decreased the risk 8.93 and 2011-12 to increase the risk 30.88

Risk on Stock of Infosystech

The following the presents the Risk on Stock of Infosystech during 2007-08 to 2011-12.

Table No. 4.2.2
Risk on Stock of Infosystech during 2007-08 to 2011-12

Year	Return (R)	AVG Return (-R)	R- -R	(R- -R) ²	RISK
2007-2008	28.45	21.63	6.81	46.48	6.81
2008-2009	-25.12	21.63	-46.75	2185.84	46.75
2009-2010	-6.967	21.63	-28.60	817.96	28.60
2010-2011	90.42	21.63	68.79	4732.24	68.79
2011-2012	21.37	21.63	-0.25	0.06	-0.25
Variance					1556.52
Standard Deviation					39.45

Sources: www.nseindia.com

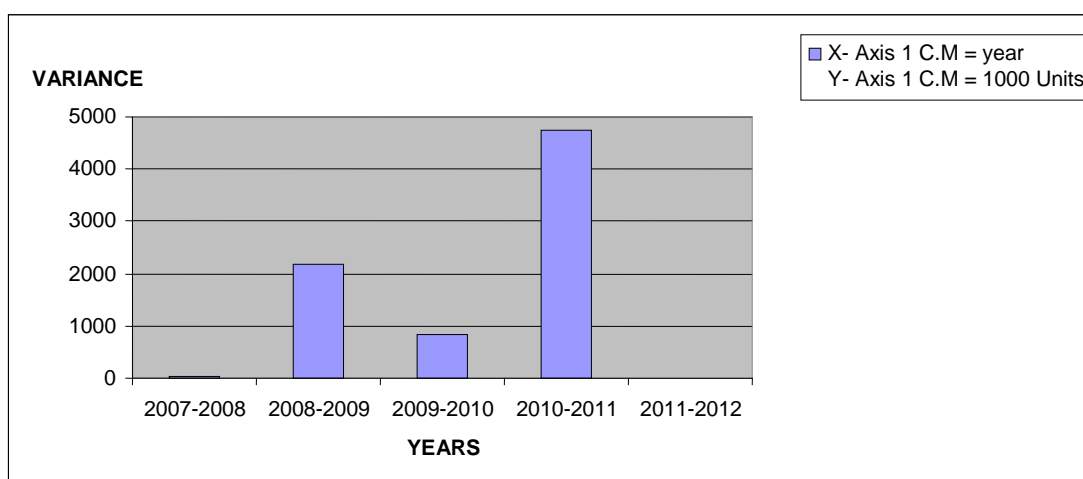


Fig. 4.2.2: Risk on Stock of Infosystech during 2007-08 to 2011-12

Analysis

From the above analysis it observed that in the year 2007-08 the company faced risk 6.81. And the year 2008-09 to increased the risk 46.75. In the year 2009-10 decreased the

risk 28.60. And the year 2010-11 the company faced highest risk 68.79. In the year 2011-12 the company faced low risk -0.25.

Risk on Stock of ITC

The following the presents the Risk on Stock of ITC during 2007-08 to 2011-12.

Table No. 4.2.3

Risk on Stock of ITC during 2007-08 to 2011-12

Year	Return (R)	AVG Return (-R)	R- -R	(R- -R) ²	RISK
2007-2008	-24.14	16.95	-41.09	1688.83	41.09
2008-2009	40.49	16.95	23.54	554.24	23.54
2009-2010	-12.26	16.95	-29.18	851.58	29.18
2010-2011	42.69	16.95	25.73	662.31	25.73
2011-2012	37.95	16.95	20.99	440.98	20.99
Variance					839.59
Standard Deviation					28.97

Sources: www.nseindia.com

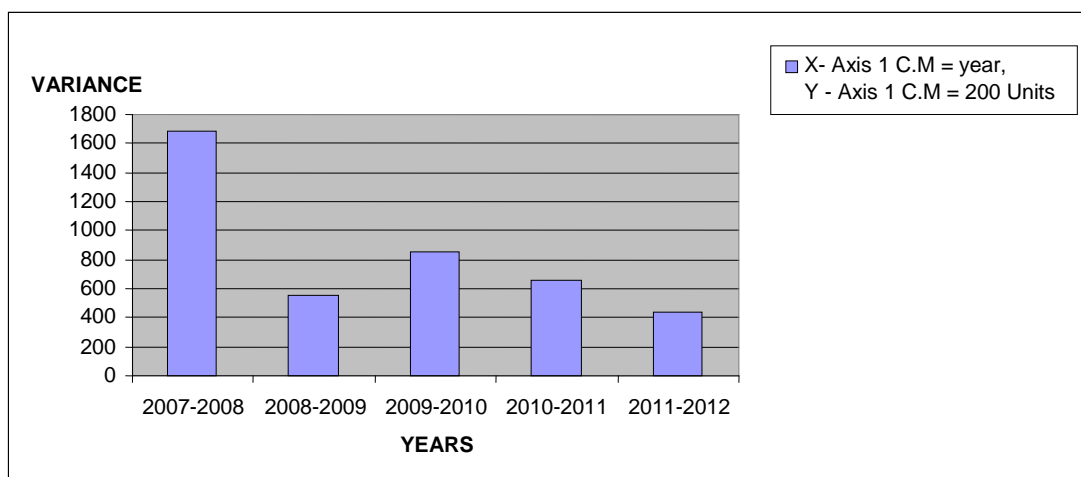


Fig. 4.2.3: Risk on Stock of ITC during 2007-08 to 2011-12

Analysis

From the above table it observed that in the year 2007-08 the company faced high risk 41.09. In the year 2008-09 the company decreased risk 23.54 the next year to increased

the risk 29.18. In the year 2010-11 to decreased risk. In the year 2011-12 the company faced low risk 20.99.

Risk on Stock of HDFC

The following the presents the Risk on Stock of HDFC during 2007-08 to 2011-12.

Table No. 4.2.4

Risk on Stock of HDFC during 2007-08 to 2011-12

Year	Return (R)	AVG Return (-R)	R- -R	(R- -R) ²	RISK
2007-2008	13.41	27.20	-13.78	190.15	13.78
2008-2009	65.86	27.20	38.65	1494.39	38.65
2009-2010	-40.21	27.20	-67.41	4545.20	67.41
2010-2011	80.44	27.20	53.24	2834.62	53.24
2011-2012	16.51	27.20	-10.69	114.28	10.69
Variance					1835.73
Standard Deviation					42.84

Sources: www.nseindia.com

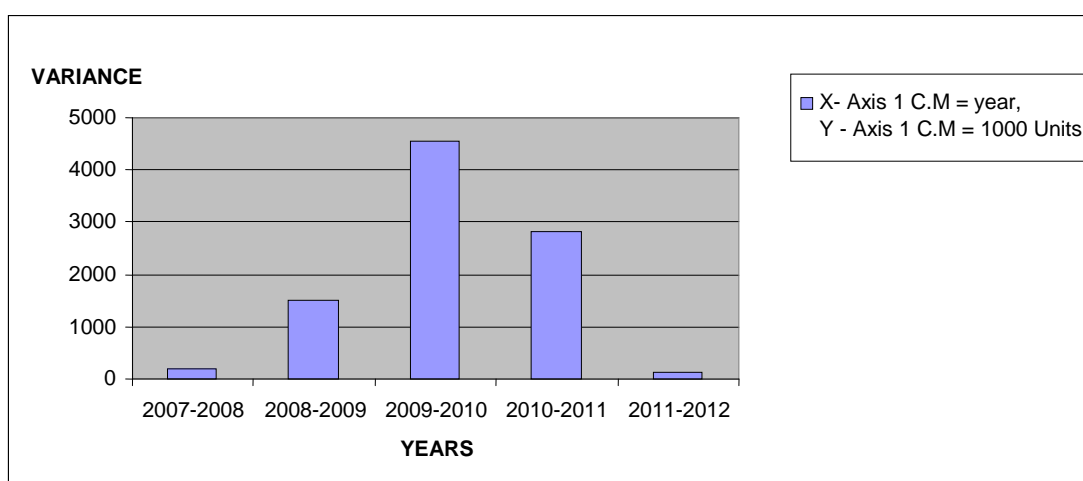


Fig. 4.2.4: Risk on Stock of HDFC during 2007-08 to 2011-12

Analysis

From the above analysis it observed that in the year 2009-10 the company faced high risk 67.41. in the year 2007-08 the company faced risk 13.78. in the 2008-09 the

company increased 38.65. in the year 2010-11 the risk 53.24. in the year 2011-12 the company faced low risk 10.69.

Risk on Stock of L & T

The following the presents the Risk on Stock of L&T during 2007-08 to 2011-12.

Table No. 4.2.5

Risk on Stock of L&T during 2007-08 to 2011-12

Year	Return (R)	AVG Return (-R)	R- -R	(R- -R) ²	RISK
2007-2008	-35.13	25.93	-61.07	3729.68	61.07
2008-2009	99.05	25.93	73.11	5345.82	73.11
2009-2010	-76.82	25.93	-102.76	10560.71	102.76
2010-2011	142.52	25.93	116.58	13592.33	116.58
2011-2012	0.072	25.93	-25.86	668.98	25.86
Variance					6779.50
Standard Deviation					82.33

Sources: www.nseindia.com

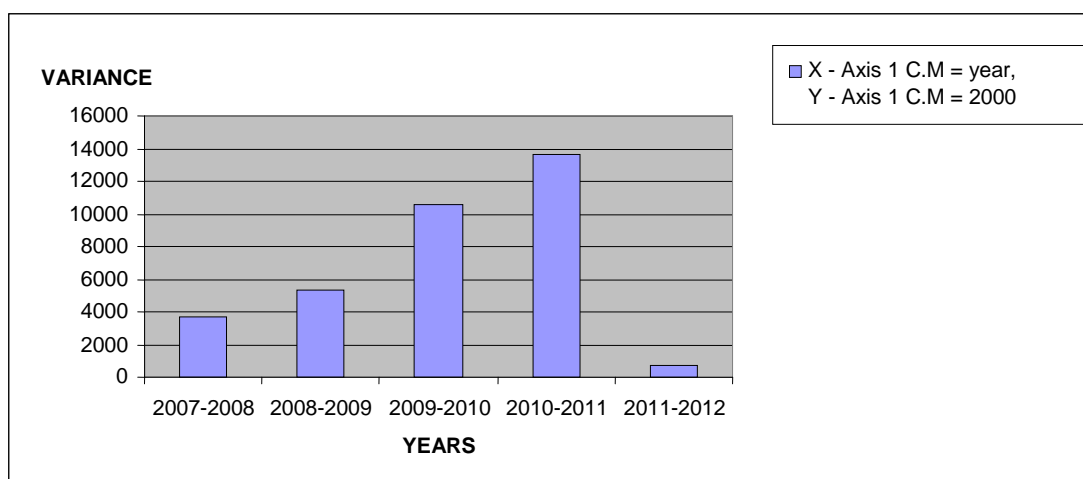


Fig. 4.2.5: Risk on Stock of L & T during 2007-08 to 2011-12

Analysis

In the above analysis it observed in year 2009-10 the company faced high risk 102.76. in the year 2007-08 the company faced risk 61.07. in the year 2008-09 increased the

risk 73.11. In the year 2010-11 the risk increased 116.58. in the year 2011-12 the company faced low risk 25.86.

4.2.5 (a) Comparison of Average Risks For 5 Selected Companies.

COMPANY NAME	AVERAGE RISK
RELIANCE	41.01813
INFOSYSTCH	39.45277
ITC	28.97574
HDFC	42.84548
L & T	82.3377

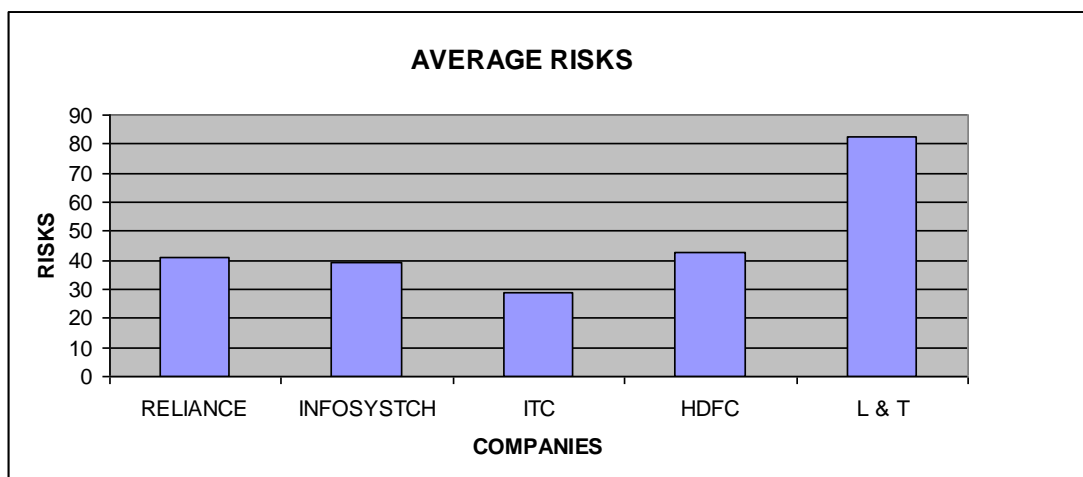


Fig.4.2.5 (a) Comparison of Average Risks For 5 Selected Companies

Analysis

From the above graph the L & T Company faced high risk than the other companies i.e. 82.33 and ITC Company faced low risk i.e. 28.97. The other Companies HDFC, Reliance & Infosystch faced medium risk i.e. 42.84, 41.01 & 39.77.

4.2.5 (b) Comparison of Risk & Return For 5 Selected Companies.

COMPANY	AVERAGE RISKS	AVERAGE RETURNS
RELIANCE	41.01813	26.94730669
INFOSYSTCH	39.45277	21.63271111
ITC	28.97574	16.95497149
HDFC	42.84548	27.2077341
L & T	82.33777	25.93745173

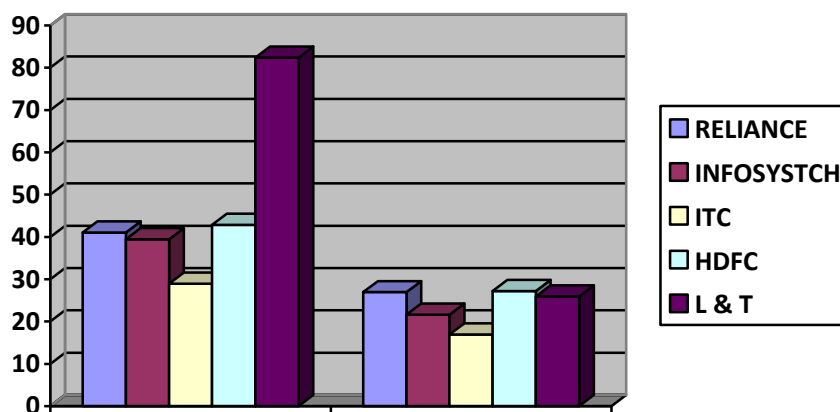


Fig.

4.2.5(b): Comparison of Risk & Return for 5 Selected Companies

Analysis

From the above graph the L & T Company faced high risk than other companies i.e. 82.33 and return was i.e. 25.93 and the ITC Company faced low risk i.e. 28.97 & return was 16.95. The other Companies HDFC, Reliance & Infosystch faced medium risk i.e. 42.84, 41.01 & 39.77 & returns were 27.20, 26.94 & 21.63.

4.3 Calculation of Covariance and Correlation for Selected Companies.

Formulas:-

$$1. \text{Co-Variance} = \frac{\sum [R_{I_t} - \bar{R}_I] [R_{J_t} - \bar{R}_J]}{N}$$

$$2. \text{Co-efficient of Co-relations} = \frac{\text{covI, J}}{\sigma_I * \sigma_J}$$

4.3.1 Correlation between Reliance & Infoystch.

Year	$R_{I_t} - \bar{R}_I$	$R_{J_t} - \bar{R}_J$	$(R_{I_t} - \bar{R}_I)(R_{J_t} - \bar{R}_J)$
2007-2008	38.388118	6.81796263	261.73
2008-2009	45.4945671	-46.75296905	-2,127.01
2009-2010	-61.9329159	-28.60014022	1,771.29
2010-2011	8.93050763	68.79131073	614.34
2011-2012	-30.8802768	-0.25616409	7.91

Co- Variance 105.6528977, Correlation 0.065287203

4.3.2 Correlation between Reliance &ITC

Year	$R_{I_t} - \bar{R}_I$	$R_{J_t} - \bar{R}_J$	$(R_{I_t} - \bar{R}_I)(R_{J_t} - \bar{R}_J)$
2007-2008	38.388118	-41.09549847	-1,577.58
2008-2009	45.4945671	23.54230371	1,071.05
2009-2010	-61.9329159	-29.18194205	1,807.32
2010-2011	8.93050763	25.73556282	229.83
2011-2012	-30.8802768	20.99957396	-648.47

Co-variance 176.4299635, Correlation 0.148443771

4.3.3 Correlation between Reliance &.HDFC.

Year	$R_{I_t} - \bar{R}_I$	$R_{J_t} - \bar{R}_J$	$(R_{I_t} - \bar{R}_I)(R_{J_t} - \bar{R}_J)$
2007-2008	38.388118	-13.78982365	-529.3653775
2008-2009	45.4945671	38.6573992	1758.701642
2009-2010	-61.9329159	-67.41815346	4175.402828
2010-2011	8.93050763	53.2411967	475.4709134
2011-2012	-30.8802768	-10.69061878	330.1292671

Co- Variance 1242.067855, Correlation 0.706747807

4.3.3 Correlation between Reliance & L&T.

Year	$R_{I-} - R_I$	$R_{J-} - R_J$	$(R_{I-} - R_I)(R_{J-} - R_J)$
2007-2008	38.388118	-61.07118011	-2344.407668
2008-2009	45.4945671	73.11513154	3326.341258
2009-2010	-61.9329159	-102.7653521	6364.557909
2010-2011	8.93050763	116.586156	1041.173556
2011-2012	-30.8802768	-25.8647553	798.710803

Co- Variance 1837.275171, Correlation 0.54400041

4.3.4 Correlation between Infosystch & ITC.

Year	$R_{I-} - R_I$	$R_{J-} - R_J$	$(R_{I-} - R_I)(R_{J-} - R_J)$
2007-2008	6.81796263	-41.09549847	-280.19
2008-2009	-46.75296905	23.54230371	-1,100.67
2009-2010	-28.60014022	-29.18194205	834.61
2010-2011	68.79131073	25.73556282	1,770.38
2011-2012	-0.25616409	20.99957396	-5.38

Co- Variance 243.7502454, Co- relation 0.213222515

4.3.5 Correlation between Infosystch &HDFC.

Year	$R_{I-} - R_I$	$R_{J-} - R_J$	$(R_{I-} - R_I)(R_{J-} - R_J)$
2007-2008	6.81796263	-13.78982365	-94.02
2008-2009	-46.75296905	38.6573992	-1,807.35
2009-2010	-28.60014022	-67.41815346	1,928.17
2010-2011	68.79131073	53.2411967	3,662.53
2011-2012	-0.25616409	-10.69061878	2.74

Co- Variance 738.414442, Co- rrelation 0.43683527

4.3.6 Correlation between Infosystch & L & T.

Year	$R_{I-} - R_I$	$R_{J-} - R_J$	$(R_{I-} - R_I)(R_{J-} - R_J)$
2007-2008	6.81796263	-61.07118011	-416.38
2008-2009	-46.75296905	73.11513154	-3,418.35
2009-2010	-28.60014022	-102.7653521	2,939.10
2010-2011	68.79131073	116.586156	8,020.11
2011-2012	-0.25616409	-25.8647553	6.63

Co- Variance 1426.2, Co- rrelation 0.439046689

4.3.7 Correlation between ITC & HDFC.

Year	$R_{I-} - R_I$	$R_{J-} - R_J$	$(R_{I-} - R_I)(R_{J-} - R_J)$
2007-2008	-41.09549847	-13.78982365	566.70
2008-2009	23.54230371	38.6573992	910.08
2009-2010	-29.18194205	-67.41815346	1,967.39
2010-2011	25.73556282	53.2411967	1,370.19
2011-2012	20.99957396	-10.69061878	-224.50

Co- Variance 917.9740558, Correlation 0.739419509

4.3.7 Correlation between ITC & L & T.

Year	$R_{I-} - R_I$	$R_{J-} - R_J$	$(R_{I-} - R_I)(R_{J-} - R_J)$
2007-2008	-41.09549847	-61.07118011	2,509.75
2008-2009	23.54230371	73.11513154	1,721.30
2009-2010	-29.18194205	-102.7653521	2,998.89
2010-2011	25.73556282	116.586156	3,000.41
2011-2012	20.99957396	-25.8647553	-543.15

Co- Variance 1435.490536, Correlation 0.601681565

4.3.8 Correlation between HDFC & L & T.

Year	$R_I - \bar{R}_I$	$R_J - \bar{R}_J$	$(R_I - \bar{R}_I)(R_J - \bar{R}_J)$
2007-2008	-13.78982365	-61.07118011	842.1608038
2008-2009	38.6573992	73.11513154	2826.440828
2009-2010	-67.41815346	-102.7653521	6928.250278
2010-2011	53.2411967	116.586156	6207.186464
2011-2012	-10.69061878	-25.8647553	276.5102388

Co- Variance 3416.109722, Correlation 0.968339609

4.4 Calculation of Portfolio Weights for Selected Companies.

Formulas:

$$W_I = \frac{\sigma_J^2 - n \text{Cov}_{I,J} * \sigma_I * \sigma_J}{\sigma_I^2 + \sigma_J^2 - 2n \text{Cov}_{I,J} * \sigma_I * \sigma_J}$$

$$\sigma_I^2 + \sigma_J^2 - 2n \text{Cov}_{I,J} * \sigma_I * \sigma_J$$

$$W_J = 1 - W_I$$

4.4.1 Calculation of Weight of Reliance and Infosystch:

$$W_I = \frac{(39.45277)^2 - 5(0.065287203) * 41.01813 * 39.45277}{(41.01813)^2 + (39.45277)^2 - 2 * 5 * (0.065287203) * 41.01813 * 39.45277}$$

$$W_I = 0.4712085$$

$$W_J = 1 - W_I$$

$$W_J = 1 - 0.4712085 = 0.528791$$

Reliance (W_I) = 0.4712085, **Infosystch** (W_J) = 0.528791.

4.4.2 Calculation of Weight of Reliance and ITC.

$$W_I = \frac{(28.97574)^2 - 5(0.148443771) * 41.01813 * 28.97574}{(41.01813)^2 + (28.97574)^2 - 2 * 5 * (0.148443771) * 41.01813 * 28.97574}$$

$$W_I = 0.0561592051937677$$

$$W_J = 1 - W_I$$

$$W_J = 1 - 0.0561592051937677 = 0.9438407948062323$$

Reliance (W_I) = 0.0561592051937677, **ITC** (W_J) = 0.9438407948062323.

4.4.2 Calculation of Weight of Reliance and HDFC.

$$W_I = \frac{(42.84548)^2 - 5(0.706747807) * 41.01813 * 42.84548}{(41.01813)^2 + (42.84548)^2 - 2 * 5 * (0.706747807) * 41.01813 * 42.84548}$$

$$W_I = 0.4913929283647594$$

$$W_J = 1 - W_I$$

$$W_J = 1 - 0.4913929283647594 = 0.5086070716352406$$

Reliance (W_I) = 0.4913929283647594, **HDFC** (W_J) = 0.5086070716352406.

4.4.3 Calculation of Weight of Reliance And L & T.

$$W_I = \frac{(82.33777)^2 - 5(0.54400041) * 41.01813 * 82.33777}{(41.01813)^2 + (82.33777)^2 - 2 * 5 * (0.54400041) * 41.01813 * 82.33777}$$

$$W_I = 0.2428540436281581$$

$$W_J = 1 - W_I$$

$$W_J = 1 - 0.2428540436281581 = 0.7571459563718419$$

Reliance (W_I) = 0.2428540436281581, **L & T** (W_J) = 0.7571459563718419.

4.4.4 Calculation of Weight of Infosystch and ITC.

$$W_I = \frac{(28.97574)^2 - 5(0.213222515) * 39.45277 * 28.97574}{(39.45277)^2 + (28.97574)^2 - 2 * 5 * (0.213222515) * 39.45277 * 28.97574}$$

$$W_I = 0.961036715702315$$

$$W_J = 1 - 0.961036715702315 = 0.161036715702315$$

Infosystch (W_I) = 0.961036715702315, **ITC** (W_J) = 0.161036715702315.

4.4.5 Calculation of Weight of Infosystch and HDFC.

$$W_I = \frac{(42.84548)^2 - 5(0.43683527) * 39.45277 * 42.84548}{(39.45277)^2 + (42.84548)^2 - 2 * 5 * (0.43683527) * 39.45277 * 42.84548}$$

$$W_I = 0.4650273192457942$$

$$W_J = 1 - 0.4650273192457942 = 0.5349726807542058$$

Infosystch (W_I) = 0.4650273192457942, **HDFC** (W_J) = 0.5349726807542058.

4.4.6 Calculation of Weight of Infosystch and L & T.

$$W_I = \frac{(82.33777)^2 - 5(0.439046689) * 39.45277 * 82.33777}{(39.45277)^2 + (82.33777)^2 - 2 * 5 * (0.439046689) * 39.45277 * 82.33777}$$

$$W_I = 0.05933055621856$$

$$W_J = 1 - 0.05933055621856 = 0.94066944378144$$

Infosystch (W_I) = 0.05933055621856, **L & T** (W_J) = 0.94066944378144.

4.4.7 Calculation of Weight OF ITC and HDFC.

$$W_I = \frac{(42.84548)^2 - 5(0.739419509) * 28.97574 * 42.84548}{(28.97574)^2 + (42.84548)^2 - 2 * 5 * (0.739419509) * 28.97574 * 42.84548}$$

$$W_I = 0.423425705$$

$$W_J = 1 - 0.423425705 = 0.576574295$$

$$\text{ITC } (W_I) = 0.423425705, \text{ HDFC } (W_J) = 0.576574295.$$

4.4.8 Calculation of Weight of ITC and L & T.

$$W_I = \frac{(82.33777)^2 - 5(0.601681565) * 28.97574 * 82.33777}{(28.97574)^2 + (82.33777)^2 - 2 * 5 * (0.601681565) * 28.97574 * 82.33777}$$

$$W_I = 0.059078984s$$

$$W_J = 1 - 0.059078984 = 0.940921016$$

$$\text{ITC } (W_I) = 0.059078984, \text{ L \& T } (W_J) = 0.940921016.$$

4.4.9 Calculation of Weight of HDFC and L & T.

$$W_I = \frac{(82.33777)^2 - 5(0.968339609) * 42.84548 * 82.33777}{(42.84548)^2 + (82.33777)^2 - 2 * 5 * (0.968339609) * 42.84548 * 82.33777}$$

$$W_I = 0.4032372671025416$$

$$W_J = 1 - 0.4032372671025416 = 0.5967627328974584$$

$$\text{HDFC } (W_I) = 0.4032372671025416, \text{ L \& T } (W_J) = 0.5967627328974584.$$

4.5 Calculation of Portfolio Risk for Selected Companies.

Formula:

$$R_P = \sqrt{\sigma_I^2 * W_I^2 + \sigma_J^2 * W_J^2 + 2nCov_{I, J} * \sigma_I * \sigma_J * W_I * W_J}$$

4.5.1 Calculation of R_p of Reliance and Infosys-tech.

$$R_p = \sqrt{(41.01813)^2 * (0.4712085)^2 + (39.45277)^2 * (0.528791)^2 + 2 * 5 * (0.065287203) * (41.01813) * (0.4712085) * (39.45277) * (0.528791)}$$

$$R_p = \sqrt{1072.065608464708}$$

$$R_p = 32.74241299087024$$

4.5.2 Calculation of R_p of Reliance and ITC.

$$R_p = \sqrt{(41.01813)^2 * (0.0561592)^2 + (28.97574)^2 * (0.943840)^2 + 2*5*(0.148443771) * (28.97574) * (41.01813) * (0.0561592) * (0.943840)}$$

$$R_p = \sqrt{5.306321252385851 + 747.9383979196058 + 93.51723615621867}$$

$$R_p = 29.09917447846606$$

4.5.3 Calculation of R_p of Reliance and HDFC.

$$R_p = \sqrt{(41.01813)^2 * (0.49139292)^2 + (42.84548)^2 * (0.5086070)^2 + 2*5*(0.706747807) * (41.01813) * (0.49139292) * (42.84548) * (0.5086070)}$$

$$R_p = \sqrt{406.2650886038299 + 474.8699536836299 + 3104.249124716083}$$

$$R_p = 63.12989915248988$$

4.5.4 Calculation of R_p of Reliance and L & T.

$$R_p = \sqrt{(41.01813)^2 * (0.2428540)^2 + (82.33777)^2 * (0.75714595)^2 + 2*5*(0.54400041) * (41.01813) * (0.2428540) * (82.33777) * (0.75714595)}$$

$$R_p = \sqrt{99.22982747158411 + 3886.488691954408 + 3378.306505106003}$$

$$R_p = 85.81389761881228$$

4.5.5 Calculation of R_p and Infosystch and ITC.

$$R_p = \sqrt{(39.45277)^2 * (0.96103671)^2 + (28.97574)^2 * (0.16103671)^2 + 2*5*(0.213222515) * (39.45277) * (0.96103671) * (28.97574) * (0.16103671)}$$

$$R_p = \sqrt{1437.589711436302 + 21.77302898233779 + 377.2332497463897}$$

$$R_p = 42.85552461661191$$

4.5.6 Calculation of R_p of Infosystch and HDFC.

$$R_p = \sqrt{(39.45277)^2 * (0.46502731)^2 + (42.84548)^2 * (0.5349726)^2 + 2*5*(0.43683527) * (39.45277) * (0.46502731) * (42.84548) * (0.5349726)}$$

$$R_p = \sqrt{336.5983004937627 + 525.3794764441715 + 1837.004444698893}$$

$$R_p = 51.95172972709212$$

4.5.7 Calculation of R_p of Infosystch and L & T.

$$R_p = \sqrt{(39.45277)^2 * (0.0593305)^2 + (82.33777)^2 * (0.9406694)^2 + 2*5*(0.439046689) * (39.45277) * (0.0593305) * (82.33777) * (0.9406694)}$$

$$R_p = \sqrt{6800.367900547135}$$

$$R_p = 82.46434320691055$$

4.5.8 Calculation of R_p of ITC and HDFC.

$$R_p = \sqrt{\frac{(28.97574)^2 * (0.423425)^2 + (42.84548)^2 * (0.576574)^2 + 2*5*(0.739419509) * (28.97574) * (42.84548) * (0.423425) * (0.576574)}{}}$$

$$R_p = \sqrt{150.5296543884893 + 610.2673482912481 + 224.1103966311565}$$

$$R_p = 31.38323436663108$$

4.5.9 Calculation of R_p of ITC and L & T.

$$R_p = \sqrt{\frac{(28.97574)^2 * (0.059078)^2 + (82.33777)^2 * (0.940921)^2 + 2*5*(0.601681565) * (28.97574) * (82.33777) * (0.059078) * (0.940921)}{}}$$

$$= \sqrt{2.930357729993774 + 6002.117928277989 + 797.95663065652}$$

$$R_p = 82.48033048348256$$

4.5.10 Calculation of R_p of HDFC and L & T.

$$R_p = \sqrt{\frac{(42.84548)^2 * (0.4032372)^2 + (82.33777)^2 * (0.596762)^2 + 2*5*(0.968339609) * (42.84548) * (82.33777) * (0.4032372) * (0.596762)}{}}$$

$$R_p = \sqrt{298.4909760277728 + 2414.351635701057 + 822.0411554595743}$$

$$R_p = 59.4548885053904$$

4.6 Calculations of Portfolio Returns For Selected Company's

Formula:

$$\text{Portfolio Return } (P_R) = [(R_I * W_I) + (R_J * W_J)]$$

4.6.1 Reliance and Infosystch.

$$P_R = [(R_I * W_I) + (R_I * W_J)]$$

$$P_R = 26.94730669 * 0.4712085 + 21.63271111 * 0.528791 = 24.13698290500288$$

4.6.2 Reliance and ITC.

$$P_R = 26.94730669 * 0.0561592 + 16.95497149 * 0.943840 = 17.51611947698665$$

4.6.3 Reliance and HDFC.

$$P_R = 26.94730669 * 0.49139292 + 27.2077341 * 0.5086070 = 27.07975973793333$$

4.6.4 Reliance and L & T.

$$P_R = 26.94730669 * 0.2428540 + 25.93745173 * 0.75714595 = 26.18269774958325$$

4.6.5 Infosystch and ITC.

$$P_R = 21.63271111 * 0.96103671 + 16.95497149 * 0.16103671 = 23.52020234042825$$

4.6.6 Infosystch and HDFC.

$$P_R = 21.63271111 * 0.46502731 + 27.2077341 * 0.5349726 = 24.61519370707607$$

4.6.7 Infosys and L & T.

$$P_R = 21.63271111 * 0.0593305 + 25.93745173 * 0.9406694 = 25.68204672289992$$

4.6.7 ITC and HDFC.

$$P_R = 16.95497149 * 0.423425 + 27.2077341 * 0.576574 = 22.86643088412665$$

4.6.8 ITC and L & T.

$$P_R = 16.95497149 * 0.059078 + 25.93745173 * 0.940921 = 25.40675882492955$$

4.6.9 HDFC and L & T.

$$P_R = 27.2077341 * 0.4032372 + 25.93745173 * 0.596762 = 26.44965608612678.$$

4.6(a) Comparison of Portfolio Risks & Returns.

S.No.	Name of Companies Combinations	Portfolio Weights (Investments) (W _I , W _J)	Portfolio Risk(R _P)	Portfolio Return(P _R)
1	Reliance & Infosystch	0.47 , 0.53	32.74	24.13
2	Reliance & ITC	0.05 , 0.95	29.09	17.51
3	Reliance & HDFC	0.49 , 0.51	63.12	27.07
4	Reliance & LT	0.24 , 0.76	85.81	26.18
5	Infosystch & ITC	0.96, 0.04	42.85	23.52
6	Infosystch & HDFC	0.46 , 0.54	51.95	24.61
7	Infosystch & LT	0.05 , 0.96	82.46	22.86
8	ITC & HDFC	0.42 , 0.58	31.38	22.86
9	ITC & LT	0.05 , 0.95	82.48	25.40
10	HDFC & LT	0.40 , 0.60	59.45	26.44

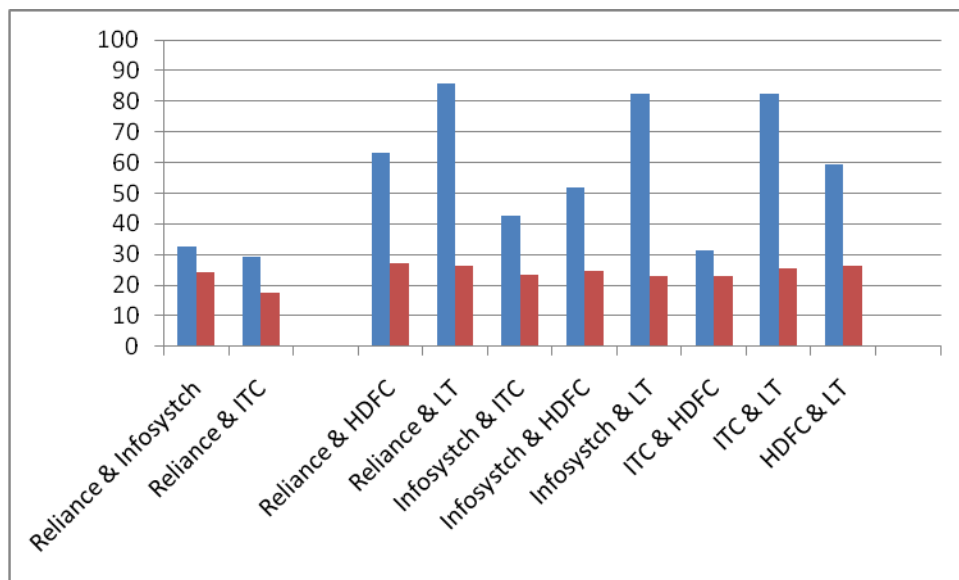


Fig.4.6 (a) Comparison of Portfolio Risks & Returns

Analysis

From the above table Reliance & HDFC Portfolio has high risk 63.12 and the returns are 27.07, it is best suggestion for the investor who takes high risk in investing that Portfolio combination. In the Reliance & Infosystch and ITC & HDFC both has low risk i.e., 32.74 and 31.38 and the returns are 24.13 and 22.86, these portfolio combinations are best for the investor who takes low risk to invest.

CONCLUSION

The portfolio management is the present competitive scenario every individual very much interest to invest their savings on market instrument which gives higher returns with minimum risk.

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