A Study on Portfolio Analysis on Selected Securities with Reference to Angel One

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ABSTRACT

Portfolio analysis refers to analyzing the risk and return of each security in the portfolio.it is finding the balance between maximizing returns and minimizing risk by diversifying investment fund in different investment avenues (or) sectors. The term portfolio refers to any collection of financial assets such as stocks, bonds and cash. Portfolios may be held individual investors and/or managed by financial professionals, hedge funds, banks and other financial institutions. It is a generally accepted principle that a portfolio is designed according to the investor's risk tolerance, time frame and investment objectives. The monetary value of each asset may influence the risk/reward ratio of the portfolio and is referred to as the asset allocation of the portfolio. When determining a proper asset allocation, one aims at maximizing the expected return and minimizing the risk.

INTRODUCTION

A portfolio management refers to the science of analysing the strengths, weakness, **opportunities and threats** for performing wide range of activities related to the one's portfolio for maximining the return at a given risk. In its simplest form, **portfolio theory** is about finding the balance between maximizingreturn and minimizingrisk. The objective is to select your investments in such a way as to diversity your risks while not reducingexpected return. The term portfolio refers to any collection of financial assets such as stocks, bonds and cash. Portfolios may be held individual investors and/or managed by financial professionals, hedge funds, banks and other financial institutions. It is a generally accepted principle that a portfolio is designed according to the investor's risk tolerance, time frame and investment objectives. The monetary value of each asset may influence the risk/reward ratio of the portfolio and is referred to as the asset allocation of the portfolio. When determining a proper asset allocation, one aims at maximizing the expected return and minimizing the risk.

Definition

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. the management or administration of a portfolio of securities or the funds of the client.

Review of literature:

Mattei (2016) made an analysis on rebalancing strategies. The researcher worked on buy and hold strategy. The data employed consist of eight asset classes with 20 years returns. The methodology adopted for the comparison of risk-adjusted return of strategies includes the Return on investment, standard deviation and Sharpe ratio. The researchers concluded that if the investors find it difficult to rebalance the portfolio than there is a small difference between the risk adjusted return of buy and hold and rebalancing strategies.

Hilliard and Hilliard (2015) examined the buy and hold strategy using the portfolio of indices that were tracked through ETFs. The data collected was based on the monthly data ranged from 6-30-1992 until 10-31-2011. The researcher concluded that rebalancing the portfolio will beat the buy and hold strategy (no rebalancing) in all standard measures. This study is consistent with De Miguel et al. (2009) rebalancing strategies performed well than Markowitz strategy.

E. Hui, Yam, Wright, and Chan (2014) examined the buy and hold strategy for the real estate investment. The data of the six economies of Asia namely Hong Kong, China, Japan, Taiwan, Thailand and Malaysia has been analysed. The data collected was based on securitized real estate indices bloom Berg for the period 10 July, 1995 to 31 December, 2012, seventeen years" times" series data total of 4561 observations. The researchers concluded that the trading strategy would outperform the buy and hold strategy, whether the transaction cost is present or not

Ling et al. (2014), studied the buy and hold strategy in relation to risk and return trade-off theory. The data is collected from indices of Malaysia, Singapore, Hong Kong and Korea for the period 1990-2009. The methodology adopted by researcher is the average rolling return of the Indexes and standard deviation for measuring the total risk. The researchers concluded that buy and hold strategy will reduce the equity risk and volatility of stock returns. However, the results fail to identify the enhancement in the stock return.

E. C. Hui and Yam (2014) investigated the Buy and hold strategy in contrast to trading strategy. Securitized real estate indices of four countries: US, UK, Canada and Germany were considered. The data of US: S&P 500 Building Index, UK FTSE 350 Real Estate Index, Canada: S&P/TSX Real Estate Index, Germany: construction PERF Index with the period of observation Januray2, 1990 to April 28, 2009 was used. Trading strategy was build-up to analyse the built-up strategy on the four economies. The researcher concluded that buy and hold strategy underperforms than the trading strategy in case of low cost and vice versa.

Yam, Yung, and Zhou (2009) worked on the buying and hold strategy for buying the superior stock and sell the inferior stocks. . The selling of the stocks at the highest price over investment horizon are considered. The issue of selling and buying the stocks is catered by value of P-the probability of stock going up. The researchers found the three possible solutions for buying and holding the stock based on the value of P relating to stock prices: first P is greater than ½,

selling the stock at the last time, secondly p is equal to ½, selling the stock at the maximum selling price, lastly if the value of P is less than ½, at-once selling the stock is the best option.

Allaart and Monticino (2008) worked on Buy and Hold Strategy for commodities. Following the two trading strategies that falls into the two classes: first is buying and hold that was conservative and secondly the aggressive trading strategies that the continuous buy and selling of the commodities as the result of price variation. The data was collected from mutual funds based on 1000 companies-the Schwab 1000 index fund (SNFXF), from Dec 1, 2006 to Nov 30, 2007. The researchers found a lower variance in standard deviation in case of aggressive optimal strategies as compared to buy and hold strategies. Shiryaev, Xu, and Zhou (2008) investigated buying and selling of the stocks over the given investment horizon. It is appealing to sell the stocks at the time when the price of the stock is maximum over the period of its horizon, which seems impossible over the overall investment horizon. The researchers provided the workable approach in which stocks are sold at price when expected relative error between the maximum price and selling price is minimum. They got the solution and used the methodology based on "goodness index" of stock, considering as the ratio of excess rate of return and volatility rate at maximum, was used to access the stock's quality. The researchers concluded, a stock is good for investor, mathematically termed as when alpha is greater than or equal to ½.

Perold and Sharpe (1995b) have investigated the dynamic strategies for rebalancing and portfolio risk and return. The researcher analyses the hypothetical data ratio of 60/40 in stocks/bonds for measuring the effectiveness of dynamic rebalancing strategies. The methodology employed was the investing in the stocks if the stock market falls and vice versa. The researchers concluded that the best strategy would be the one based on investor risk tolerance and based on investor's circumstances and desires.

Forsyth and Vetzal (2017) designed the dynamic strategy for asset allocation. The portfolio consisted of risk-free bond and an equity index. The data collected from CPI from US Bureau of statistics, the major US stock Exchange"s monthly data on all the domestic stocks from the period 1926-2014. The researchers concluded that mean variance multi-period strategy would achieve the same expected terminal wealth goals as do the constant weight strategy.

Carroll, Conlon, Cotter, and Salvador (2017) investigated the dynamic correlation strategies

between the assets for providing better performance as compared to equally weighted portfolio. The portfolios are generated of various sizes ranging from 9 international markets to 197 individual stocks. The methodology employed is variance co-variance matrix ad focusing on the correlation between assets. The results show that rebalancing will help in the best performance for the correlation based dynamic strategies.

Li, Wei, and Xu (2017) explained the dynamic asset allocation and consumption pattern under the inflation. The researchers used the economic data of China specifically the inflation data of NBSC spanning from the third quarter of 2000 to the fourth quarter of 2011. The data showed that investors had differences in thoughts about inflation due to gap in the income, inequality in regions, measurement of inflation and differences in economic sector spending methods. The researchers concluded to provide the household investors with the channels for investing to cope with the inflation.

Chen, Ju, and Miao (2014) investigated the dynamic asset allocation in the scenarios of the predictability of ambiguous returns. The data collected from the US Stock Market over the time period of the 1927-2010 using the stock markets such as NASDAQ, NYSE and AMEX. The researchers concluded that there was the area in which the strategy of robustness allows the investors to have minimum stock allocation having the variables that were predictive.

Objectives of the study
➢ To study the risk and returns on selected stocks
➢ To rank the portfolio based on the risk and return of selected stocks

Need of the study:
Return and risk are fluctuating in the investments due to external and internal factors. The investors may invest funds based on fundamental and technical analysis the later analysis helps to select the best portfolios. This will guide the investor to invest funds in efficient portfolio to get maximum profit with minimum risk. Hence there is a need to conduct portfolio analysis on securities.

Scope of the study
The study covers the analysis of risk, return of selected securities vigi., HDFC., ICICI., WIPRO., TCS., BAJAJFINSERV., TECH MAHENDRA, in order to find out the best portfolio to investor for the period of 5 years from 2017 TO 2021.

Research Methodology
To study the portfolio analysis on selected securities data has been calculated from secondary sources like, I.e national stock exchange as well as newspapers, journals and magazines etc. five years yearly data i.e 2017-2021 has been analysed to know the portfolio performance, the tools used are average, standard deviation, correlation and covariance. The selected securities are Wipro, TCS, HDFC, SBI, Tech Mahindra And Bajaj FinServ

WEBSITES:
www.tcs.com
www.techmahindra.com

Data Analysis and Interpretation:
FORMULAS
➢ Average Returns = (Total returns) / (no. of years)
➢ Standard deviation (SD) = √variance

TABLE: WIPRO

YEARS	OPEN	CLOSE	RETURNS	(X-X)	(X-x)^2
2017	313.4	330.25	15.37	10.37	107.5729
2018	334.4	245.95	26.45	42.19	1780.723
2019	247	386.25	56.37	-40.62	1650.656
2020	385.85	715.2	85.35	-69.6	4845.379
2021	718.3	417.2	41.91	57.66	3325.445
Total			225.45		11709.78
AVEREGE			45.09		
SD			27.3356288		

Source: website

Interpretation:
The above table of Wipro it shows that average returns is225.45 Native, whereas variance is 45.09 and Standard Derivation is 27.3356288.

TABLE: TCS

YEARS	OPEN	CLOSE	RETURNS	(X-X)	(X-X) ^2
2017	2689.8	1893.55	29.6	-35.99	1295.66
2018	1905	2161.3	13.45	7.06	49.86
2019	2170	2870.2	32.26	25.87	669.48
2020	2879	3736.85	29.79	23.4	547.74
2021	3744	3221.65	-13.95	-20.34	413.89
Total			91.15		2976.63
AVEREGE			18.23		
SD			19.48174		

Source: website

Interpretation:
The above table of TCS it shows that average returns is 91.15Native, whereas variance is 18.23 and Standard Derivation is 19.48174.

TABLE: HDFC BANK

YEAR	OPEN	CLOSE	RETURNS	(X-X)	(X-X) ^2
2017	1873	2122.45	13.31	15.77	248.89
2018	2123	1271.8	-40.09	-37.63	1416.46
2019	1275	1436.75	12.68	15.14	229.35
2020	1438	1479.8	2.9	5.36	28.78
2021	1479.8	1463.4	-1.1	1.34	1.82
TOTAL			-12.3		1925.3
AVEREGE			-2.46		
SD			21.93461		

Interpretation:
The above table of HDFC BANK it shows that average returns is -12.3 Native, whereas variance is -2.46 and Standard Derivation is 21.93461.

TABLE: SBI BANK

YEARS	OPENING PRICE	CLOSING PRICE	RETURNS	(X-X)	(X-X) ^2
2017	253	310	59.6	22.57	6.72
2018	311	296	-15	-4.82	-20.66
2019	298	334	36	12.08	-3.76
2020	335	275	-60	-17.91	-33.75
2021	275	460	189	67.29	67.29
TOTAL			209.6		15.84
AVREGE			41.92		
SD			94.35005		

Source: website

Interpretation:
The above table of SBI BANK it shows that average returns is 209.6472 Native, whereas variance is 41.92 and Standard Derivation is 94.35005.

TABLE: TECH MAHINDRA

YEAR	OPEN	CLOSE	RETURNS	(X-X)	(X-X) ^2
2017	500	721.1	44.22	19.66	386.74
2018	715	762.6	6.65	-17.89	320.29
2019	764.5	973.05	27.27	2.72	7.42
2020	973.05	1790.55	84.01	59.46	3535.49
2021	1791.5	1085.65	-39.39	-63.95	4090.12
TOTAL			122.76		8340.06
AVEREGE			24.552		
SD			45.65778		

Source: website

Interpretation:

The above table of TECH MAHINDRA it shows that average returns is 122.7628 Native, whereas variance is 24.552 and Standard Derivation is45.65778.

TABLE: BAJAJ FINANCE

YEAR	OPEN	CLOSE	RETURNS	(X-X)	(X-X) ^2
2017	1776.8	2641.15	48.64	15.34	235.47
2018	2641.05	4235.1	60.35	27.05	731.98
2019	4235	5296	25.05	-8.24	68.03
2020	5317	6976.9	31.21	-2.08	4.33
2021	6976.9	7062.85	1.23	-32.06	1028.45
TOTAL			166.48		2068.26
AVEREGE			33.296		
SD			22.73727		

Source: website

Interpretation:

The above table of BAJAJ FINANCE it shows that average returns is 166.48 Native, whereas variance is 33.296 and Standard Derivation is22.73727.

Table: Average Returns &standard deviation

COMPANY NAME	AVERAGE RETURNS	RANK	SD	RANK
WIPRO	15.74825	3	48.39375	1
TCS	6.392785	2	24.39943	4
HDFC	-2.45823	1	19.62307	6
SBI BANK	15.842	4	39.2201	3
TE CH MAHINDRA	24.55417	5	40.84137	2
BAJAJ FINANCE	33.30138	6	20.33854	5

Interpretation:

The above table shows high returns issued Bajaj FinServ 33.30138, followed by the tech Mahindra 24.55417, SBI 15.842, Wipro 15.74825, TCS 6.392785 and least returns issued from HDFC -2.45823.

The table shows high risk issued Wipro 48.39375, followed by tech Mahindra 40.84137, SBI 39.2201, TCS 24.39943, and least risk issued from HDFC 19.62307.
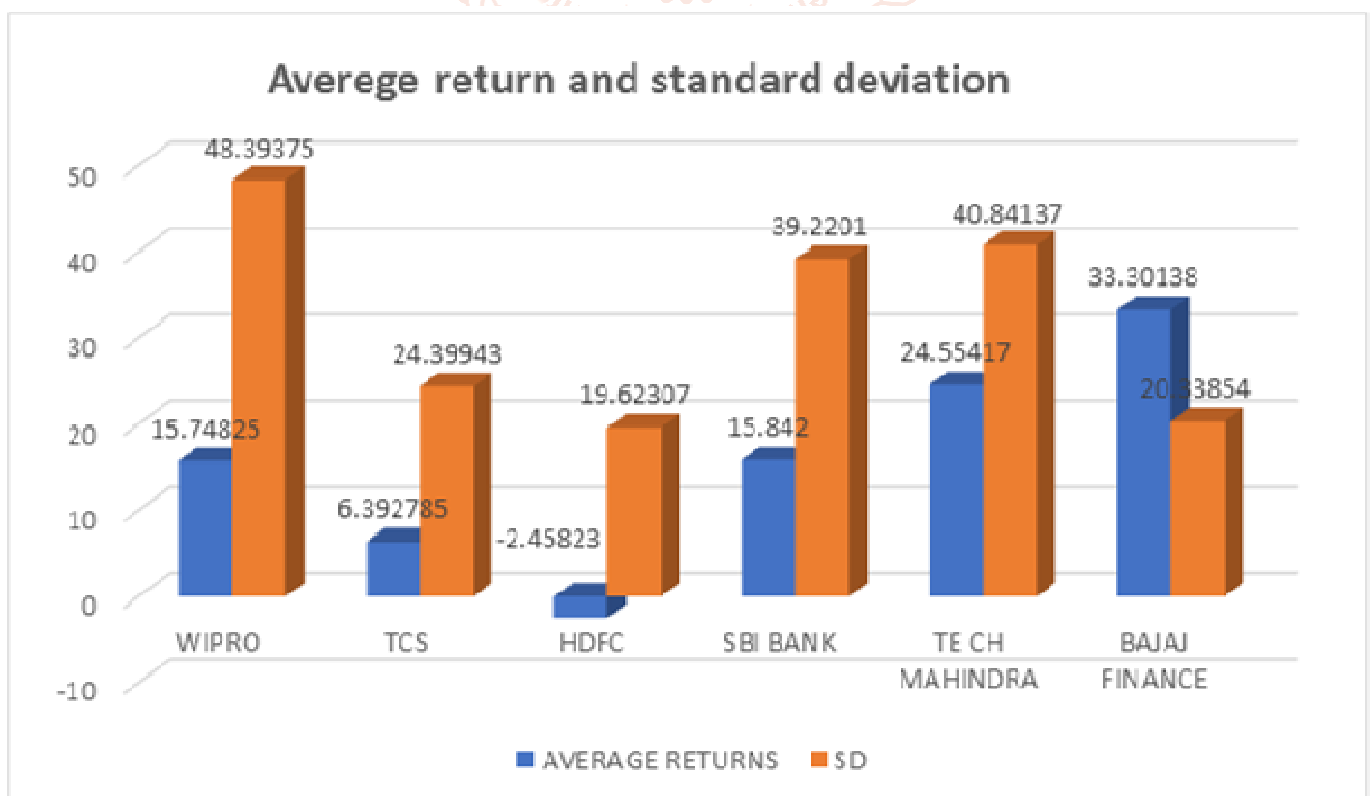
Correlation between the portfolio (1) and (2)

Portfolio (1)

company	return
HDFC	-2.46
tech Mahindra	24.55
SBI	41.92

Portfolio (2)

company	return
Wipro	45.09
Bajaj FinServ	33.29
TCS	18.23

Interpretation:

The correlation between portfolio (1) securities with (2) securities executing very highly negative relationship i.e., 98% it can be inferred that investors who are risk averters can choose this portfolio because risk would be balanced in case of losses in any one of the portfolios by compulsory with profits of another portfolio.

Portfolio (3)

company	return
Wipro	45.09
tech Mahindra	24.55
HDFC	-2.46

Portfolio (4)

company	Return
Bajaj FinServ	33.29
SBI	41.92
TCS	18.23

Interpretation:

the correlation between portfolio (3) and (4) portfolio receives the high positive correlation 68% therefore the investors wow is high risk bearing capacity may opt this (3) and (4) portfolios for the investment decision.

TABLE: COVARIANCE & CORRELATION COEFFICIENT WIPRO & HDFC

	WIPRO			HDFC			
YEAR	RETURNS (A)	AVERAGE RETURN(a)	RETUN(B)	AVERAGE RETURN(b)	a-A	b-B	(a-A) *(b-B)
2017	5.376516	15.74825	13.31820609	-2.45823	10.37173	-15.7764	-163.629
2018	-26.4504	15.74825	-40.09420631	-2.45823	42.19861	37.63598	1588.186
2019	56.37652	15.74825	12.68627451	-2.45823	-40.6283	-15.1445	615.295
2020	85.357	15.74825	2.906815021	-2.45823	-69.6088	-5.36505	373.4541
2021	-41.9184	15.74825	-1.108257873	-2.45823	57.66667	-1.34997	-77.8484
Total	78.74126		-12.29116857		-78.7413	12.29117	-967.822

Interpretation:

the above table shows returns of Wipro and HDFC in five years 2017,2019, and 2020 has positive returns i.e., 5.37,56.37,85.537 in the rest of the years 2018 and 2021 have a negative return i.e., -26.45, -41.91. the both securities 2018,2019 has negative returns.

TABLE: COVARIANCE & CORRELATION COEFFICIENT TECH MAHENDRA &SBI BANK

	tech Mahindra			SBI			
YEAR	RETURNS (A)	AVERAGE RETURN(a)	RETURNS (B)	AVERAGE RETURN(b)	a-A	b-B	(a-A) *(b-B)
2017	44.22	24.55417	22.57	15.842	-19.6658	-6.728	132.3117
2018	6.657342657	24.55417	-4.82	15.842	17.89683	20.662	369.7842
2019	27.2792675	24.55417	12.08	15.842	-2.7251	3.762	-10.2518
2020	84.01418221	24.55417	-17.91	15.842	-59.46	33.752	-2006.89
2021	-39.39994418	24.55417	67.29	15.842	63.95411	-51.448	-3290.31
total	122.7708482		79.21	15.842	-122.771	-63.368	7779.743

Interpretation:

the above table shows returns of tech Mahindra and SBI in five years 2017,2018, 2019, and 2020 has positive returns i.e.,44.22,6.65,27.27,84.01 in the rest of the years 2018 and 2021 have a negative return i.e., -39.39. in the both securities 2018 is positive returns.

TABLE: COVARIANCE & CORRELATION COEFFICIENT TCS &BAJAJ FINSERV

	TCS			BAJAJ FINANCERV			
YEAR	RETURNS (A)	AVERAGE RETURN(a)	RETURNS (B)	AVERAGE RETURN(b)	a-A	b-B	(a-A) * (b-B)
2017	-29.6026	6.392785	48.64644	33.30138	35.99536	-15.3451	51.34042
2018	13.45407	6.392785	60.35668	33.30138	-7.06128	-27.0553	19.99401
2019	32.26728	6.392785	25.05313	33.30138	-25.8745	8.248251	-34.1227
2020	29.7968	6.392785	31.21873	33.30138	-23.404	2.082648	-25.4867
2021	-13.9517	6.392785	1.231922	33.30138	20.34444	32.06946	-11.725
Total	31.96393		166.5069		-31.9639	-166.507	134.543

Interpretation:

the above table shows returns of TCS and BAJAJ FINSERV in five years 2018,2019, and 2020 has positive returns i.e.,13.45,32.26 and 29.79 in the rest of the years 2017 and 2021 have a negative return i.e., -29.60, -13.95. In the both securities are opposite returns.

Findings

➢ The above table of Wipro it shows that average return is 15.74825 Native, whereas variance is 2341.954986 and Standard Derivation is 48.39374945.

➢ The above table of TCS it shows that average return is 6.392785 Native, whereas variance is 595.3322899 and Standard Derivation is 24.39943216.

➢ The above table of HDFC BANK it shows that average return is -2.45823 Native, whereas variance is 385.0649596 and Standard Derivation is 19.62307213.

➢ The above table of SBI BANK it shows that average return is 23.7766 Native, whereas variance is 312.3922514 and Standard Derivation is 17.67462168

➢ The above table of TECH MAHINDRA it shows that average return is 24.55417

➢ Native, whereas variance is 1668.017846 and Standard Derivation is 40.84137419.

➢ The above table of BAJAJ FINANCE it shows that average return is 33.30138 Native, whereas variance is 413.656239 and Standard Derivation is 20.33854073.

CONCLUSION

It is very important for an investor to identity the risk associated with the returns of various securities. In order to manage the risk associated with the return one has to construct the portfolio. The correlation between portfolio (1) securities with (2) securities executing very highly negative relationship i.e., 98% it can be inferred that investors who are risk averters can choose this portfolio because risk would be balanced in case of losses in any one of the portfolios by compulsory with profits of another portfolio. the correlation between portfolio (3) and (4) portfolio receives the high positive correlation 68% therefore the investors wow is high risk bearing capacity may opt this (3) and (4) portfolios for the investment decision.

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