A Study on Portfolio Management

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Annotation:
Portfolio Management is a very generic term used to refer to the management of different assets. In the financial markets, there are many assets available, such as stocks, bonds, and Treasury bill, commodities, currencies, etc., The main objective of portfolio management is to maximize the return and minimize the risk for that one should do the process of selection of portfolio, analysis of portfolio, revision of portfolio and evaluation of portfolio from time-to-time. India is developing country in which stock market is growing day by day. Indian stock markets have attracted huge Foreign Institutional Investors (FII) that is nearly 40% of investment. The study is to analysis risk, return of the selected to stocks, showing the best combination of portfolio using beta, sharp index value.

KEYWORDS: Risk, Return, Beta & Sharp Value

INTRODUCTION
Indian stock market Industry plays a positive role in the growth of the economy and prevents economic disasters of the country. In India most of the trading takes place only in two stock exchanges, those are Bombay stock exchange (BSE) and the National stock exchange (NSE). Portfolio Management is defined as the art and science of making decisions about the investment mix.

In general the portfolio is constructed based on the selection of different sectors stocks that yield high return and reduce the risk.

The companies selected for study
1. Reliance
2. SBI
3. TCS
4. L&T CO.,
5. DrReddy's LAB

Need of the study:
The study is to analyze the portfolio from time to time and reviewed and adjusted if needed. The evaluation of portfolio is to be done in terms of targets set for risk and returns.

Scope of the study:
The study covers the calculation of risk, return of securities in order to find out the best portfolio to investor. For a period of 3 years data. i.e. from January 2017 to December 2019.

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Objectives of the study:
- To analyze the Return of DrReddy's Lab, TCS, L&T, SBI &Reliance.
- To study the Risk of DrReddy's Lab, TCS, L&T, SBI &Reliance.
- To Rank the portfolio based on the returns and risk.

Research methodology:
The study is based on the secondary data collected from the internet, www.nseindia.com, www.moneycontrol.com

Limitations of the study;
Construction of Portfolio is restricted to two companies based on Markowitz model.

Very few and randomly selected scripts / companies are analyzed from NSE Listings.

HYPOTHESIS
H₀: There is no significant relationship between risk and return.
H₁: There is significant relationship between risk and return.

Data Analysis
The rate of return on any stock is calculated as,
\[ R = \frac{(p_1 - p_0)}{p_0} \]

Whereas;
\[ R = \text{expected rate of return during period t.} \]
\[ P_1 = \text{price of closing} \]
\[ P_0 = \text{price of opening.} \]
From the above returns Reliance 9.17, TCS 5.68 with lowest is DrReddys lab 0.048.

The rate of risk is calculated by standard deviation.

\[
\text{Variance} = \frac{1}{n} (R-R)^2
\]

\[
\text{Standard Deviation} = \sqrt{\text{Variance}}
\]

From the above table, SBI has highest risk 15.42, reliance 12.66 & L&T 8.63.

Beta: Beta is a measure of a stock's volatility in relation to the overall market. Beta with more than 1 (>1) shows that the stock will move twice as much as the market. Beta with less than 1 (<1) shows that the stock movement is less than the market movements. Beta with equals to 1 (1=1) shows that the stock will move along with the market.

\[
\beta = \frac{\sum xy}{n \sum x^2 - (\sum x)^2/n}\frac{\sum x^2 - (\sum x)^2/n}{\sum y^2 - (\sum y)^2/n}
\]

Correlation analysis is done by using Pearson’s correlation. The formula is

\[
r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2/n}[n \sum y^2 - (\sum y)^2/n]}
\]

Where;

\[x = \text{returns of individual stocks} A\]

\[y = \text{returns of individual stocks} B\]

Correlation analysis is a technique used to find out the relationship between two individual stocks. The Pearson correlation is done in SPSS software. The bivariate correlation is done in SPSS and the output is show below.

\[
\text{Sharpe Index} SP = \frac{(R_P - R)}{\text{S.D}}
\]

\[
\beta = \frac{\text{(I)JTSRD} \| \text{Unique Paper ID} = \text{IJTSRD33138} \| \text{Volume} - 4 \| \text{Issue} - 5 \| \text{July-August 2020} \| \text{Page} 1410
\]

From the Sharpe index the Reliance-TCS have high Sharpe ratio when compared with other combination. Then TCS-L&T, L&T-Reliance, and SBI-Reliance are followed respectively.
HYPOTHESIS
H₀: There is no significant relationship between risk and return.
H₁: There is significant relationship between risk and return.

Calculation of hypothesis paired T-Test using spss.

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In t-test if t(cal) value is greater than t(table) value we reject null hypothesis and accept alternative hypothesis and vice versa. Here, the T (cal) {T (cal) <T (table), (-1.983 < 1.833)} is less than the T (table) value, Hence we accept Null hypothesis (h₀) i.e., There is no significant relationship between risk and return.

Findings:
Individual returns on the selected stocks are DRREDYS LAB, TCS, Larsen and Toubro Ltd., SBI & RELIANCE are 0.048%, 5.67%, 3.12%, 3.18% & 9.16 respectively.

Individual risks on the selected stocks including DRREDYS LAB, TCS, Larsen and Toubro Ltd., SBI & RELIANCE are 9.34%, 11.3%, 8.63%, 15.42% & 12.66% respectively.

Portfolios Returns & Risk of the TCS & RELIANCE portfolio has highest returns i.e., 9.19 and with lowest risk with 0.19 which have given the maximum returns.

SBI & RELIANCE has highest risk i.e., 10.92 and moderate return of 5.40. TCS – L&T Conclusion:
Portfolio management is a process of encompassing many activities of investment assets and securities. It is a dynamic and flexible concept and involves regular and systematic analysis, judgment, and action. A combination of securities held together will give a beneficial result if they grouped in a manner to secure higher returns after taking into consideration the risk elements.

The main objective of the Portfolio management is to help the investors to make wise choice between alternate investments without a post trading shares. Any portfolio management must specify the objectives like Maximum returns, Optimum Returns, Capital appreciation, Safety etc, in the same prospectus.

References:
[1] www.moneycontrol.com