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RISK AND RETURN ANALYSIS (A STUDY WITH REFERENCE ON FIVE BLUE-CHIP COMPANIES IN INDIA)

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Abstract
Risk is a fundamental concept that has to be taken into account during any financial decision making process, Any rational investor, before investing his or her investible fund in the stock, analyses the risk associated with the particular stock. The actual return he receives from a stock may vary from his expected return and the risk is expressed in terms of variability of return. The risk of a stock may be caused by several factors, either common to all stocks or specific to a particular stock. Investor in general would like to analyse the risk factors. A thorough knowledge of the risk helps him to plan his portfolio in such a manner so as to minimize the risk associated with the investment.
Keywords:

Introduction
Investment planning is almost impossible without a though understanding of risk. Risk is the chance that the actual return from an investment may differ from what is expected. There is a risk trade off. The risk-return tradeoff is the relationship between the expected return's from an investments and the risk associated with them. The required return's from an investment increase as risk increase to provide an incentive for him or her to take higher risk i.e. in order to accept the higher risk the investors have to be compensated with higher returns.
Investors while analyzing securities are concerned with the return expected from holding a security and the corresponding risk associated with it. Standard deviation is the most common measure of an assets risk. it measures the dispersion of returns around an assets average or expected return, standard deviation is an absolute measure of risk. And thus can be used to compare the riskiness of competing investments with the same expected return. so risk may be defined as standard deviation of return.
Investor's attitudes toward risk or their risk return tradeoffs may be classified as one of the following:
Risk indifferent investors do not require a greater return in exchange for each unit of additional risk. Risk adverse investors require greater return in exchange for each unit of additional risk. The trade of here is positive return must increase as risk increases. Risk taking investors accept a lower return in exchange for greater risk. This tradeoff is negative such investors enjoy risk and are therefore willing to accept lower returns of or increasing levels of risk.
In general most investors are risk averse. They require increased returns from an investment as its risk increases. The risk preference of an investor is an important determinant of his her investment decisions, risk averse investors may not make speculative investments, while risk taking investors may. Thus an investment that is considered unsatisfactory by a risk taking investors may. Thus an investment that is considered unsatisfactory by a risk investor.
If the investor is conservatives the appropriate investment vehicles would be government securities.
If the investor is a moderate risk taker the appropriate investment vehicles include bonds preferred stocks convertible securities mutual funds and blue chip common stocks.
An aggressive investor can put his/ her money in investment vehicles such as volatile stocks, real estate, and speculative securities such as option and futures.

Significance of the Study:
Volatility is a fundamental concept that has to be taken into account in case of investment in shares. Any rational investor, before investing his or her investible find in the stock, analyses the volatility associated with the particular stock. The actual return he receives from a stock may vary from his expected return and the risk is expressed in terms of variability of return. The volatility of a stock may be caused by several factors, either common to all stocks or specific to a particular stock. The level of expected return from a stock depends on many internal characteristics of the investment and the external forces on the investment. Internal characteristics include the type of investment, the quality of management, the method by which the investment is financed, and the customer base of the issuer. External forces include war, monsoon failure, economic policies of the government, political stability, among others.
Investor in general would like to analyse the reasons for volatility. A thorough knowledge of the volatility movement of a stock helps an investor to plan his portfolio in such a manner as to minimize the risk associated with the investment.
An investor whose main objective is capital growth would make investments with higher risk, such as growth stocks, options, commodities and financial futures, gold, real estate, and other more speculative investments. High-income investors generally wish to defer taxes and earn investment returns in the form of capital gains.
Against this backdrop, the present study attempt to measure the volatility of stock market in bull and bear phase of market.

Scope and Coverage:
The scope of the study is restricted to the 5 bulechip Companies of the NIFTY. The study measures the volatility in terms of selected

1. Tata Consultancy Services (TCS) ,
2. Reliance Industries,
3. Oil and Natural Gas Corporation Limited (ONGC),
4. Imperial Tobacco Company of India Limited (ITC),
5. Infosys. It also examines the stability of beta.

Objectives of the Study
The objectives of the study are as follows:

- To bring out the profile of the study unit
- To evaluate the financial performance of the study unit in terms of selected performance indicators
- To quantify the risk complexion of the study unit through leverage analysis
- To find out the return of the company over Ten years from 2012-2021.
- To measure the systematic risk in terms Standard Deviation and Beta Coefficient

Risk Defined
In financial terms, risk is variability in return on an investment. It is the up and down movement of return. Risk is the reciprocal of return. Thus, the greater the uncertainty as to the exact return, the grater is the risk. An investor must be offered a higher rate of return for each unit of additional risk he is willing to assume. Risk may be measured in terms of the standard deviation. So a risk of stock may be defined as standard deviation of return from stock. A large standard deviation of the returns indicates greater riskiness associated with an investment.

Risks-Return Trade off Principle
Return and risk are joined at the hip. In other words, we cannot generate higher returns without taking on higher risk. The study of risk-return relationship is important for individual investors and business managers. If an investment has higher level of risk then the required returns from an investment also increases in order to provide an incentive to an investor to take higher risk. Alternatively, if an investment has relatively lower levels of risk then investors are satisfied with relatively lower returns. This risk return relationship has direct or a positive relationship. In general, risk and return increase together.
The risk return tradeoff is the *balance between the desire for the lowest possible risk* and the *higher possible return.* The risk/ return tradeoff could easily be called the "ability-to-sleep-at-night-test".
pricing the risk
Greater degrees of risk must be compensated for with greater returns on investment. Since investment returns reflects the degree of risk involved with the investment, investors need to be able to determine how much of a return is appropriate for a given level of risk. This process is referred to as "pricing the risk" in order to price the risk, we must first be able to measure the risk (quantify the risk) and then we must be able to decide an appropriate price for the risk we are being asked to bear.
Measurement of Risk-Individual Security
The risk and return individual security is measured by using the following statistical tools:

1. Variance and Standard Deviation
2. Coefficient of Variation
3. Co-variance
4. Correlation Coefficient

Variance and Standard Deviation
Standard deviation is the most common measure of an asset's risk. It measures the variation of returns around an investment's average or expected return. Standard deviation is an absolute measure of risk, and thus can be used to compare the riskiness of competing investments with the same expected return.
The coefficient of variation (CV) measures the dispersion of an asset's average or expected returns. Like standard deviation, the higher the CV, the higher the risk. CV differs from standard deviation because it is a relative measure of risk and can be used to compare the riskiness of competing investments with different expected returns.
The way measure risk is through variance and standard deviation. However, whether the standard deviation is large relative to the returns has to be examined with respect to other investment opportunities. Alternatively, probability analysis is a meaningful approach to capture greater understanding of the significance of a standard deviation figure.
Coefficient of Variation
It measures risk per unit of return and it is mostly used when having to compare between two or more projects.
CV= Standard deviation/ Expected return
Covariance
It is used to determine whether the prices of stocks move in the same or opposite direction.

- If the value of covariance is high there exists a high level of co-movement.
- If the value of covariance is positive, the price of the stock moves in the same direction or vice-versa

Correlation Coefficient
Correlation refers to the statistical measure of the relationship, if any between a series of numbers. The *Correlation* between asset returns is important when evaluating the effect of a new asset on the portfolio's overall risk. Once the correlation between asset returns is known, the investor can choose that, when combined, reduce risk.

- Returns on the different assets moving in the same direction are *positively correlated;* if they move together exactly, they are *perfectly positively correlated.*
- *Negatively correlated* returns move in opposite directions. Series that move in exactly opposite directions are *perfectly negatively correlated (*see Figure 5.1)
- *Uncorrelated returns* have no relationship to each other and have a correlation coefficient of close to zero

One way correlation is used in finance is to determine whether the prices f the stocks move in the same or opposite direction
r= -1 price of stocks move in opposite direction
r= 0 price of stocks move randomly
r= 1 price of stocks move in same direction
Coefficient of determination
The square of the correlation-co-efficient is the co-efficient of the determination. It gives the percentage of variation in the stock's return that is explained by the variation in the mark's return. For example, R^2=1.8, it indicates that 18% of variation is

explained by the variation of the market return and 82% is not explained by the market return.

Idea of separating Risk into Two parts

The risk of a stock can be decomposed into two parts *on the basis of the cause of the variation.* Dividing total risk into its two components, we have systematic risk and nonsystematic risk, which are additive. Modern investment analysis categories the total risk into the following two types as follows.

1. Systematic risk
2. Non Systematic risk-specific (issuer) component

Thus Total risk= Systematic risk+ Non Systematic risk

I. **Systematic risk**

Systematic risk is the risk that arises due to the factors external to the particular company and uncontrollable by the company. The systematic risk affects not only the particular company but also it affects the all companies in the market. It arises due to the overall movements in the macroeconomic factors. The systematic risk is often referred to as "Market risk". A general change in interest rates charged by banks is an example of systematic risk. The causes of systematic risks may be as follows.

- Economic policy changes
- Political changes
- Business cycle
- Inflation level changes
- Technological changes
- Sociological and other micro-level changes

Systematic risk affects the entire market as a whole and cannot be controlled or eliminated merely by diversifying one's portfolio. Virtually all securities have some systematic risk, whether bonds or stocks. The investor cannot escape this part of the risk because no matter how well he or she diversifies, the risk of the overall market cannot be avoided.

The Systematic risk is further sub-divided into the following:

Market Risk: Market risk is that portion of systematic risk caused by the alternating forces of bull and bear market. When the security index moves upward for significant period of time, it is known as *bull market.* In the bull market, the index moves from a low level to the peak. Bear market is just reverse to the bull market. In the bear market the index defines from peak to a market low point called trough for a significant period of time. During the bull and bear market more than 80 percent of the securities' prices rise or fall along the stock market indices.

Interest rate risk: The variability in the security's return resulting from changes in the level of interest rates is referred to as interest rate risk. Such changes generally affect securities inversely. Other things being equal, security prices move inversely to interest rates. The reason for this movement is tied up with the valuation of securities; interest rate risk affects bonds more directly than common stocks and is a major risk faced by all bondholders. As interest rates change, bond prices change in the opposite direction.

- Rising interest rates can make stocks less appealing and cause share prices to fall.
- Rising rates have an even more direct effect on existing bonds, nearly always causing them to decline in value.

Inflation (or) Purchasing Power Risk: A factor affecting all securities is purchasing power risk is also known as inflation risk. This is the chance that the purchasing power of invested rupees will decline. With uncertain inflation, the real (inflation-adjusted) return involves risk even if the nominal return is safe (e.g., a Treasury bond)

II. **Nonsystematic Risk**

Nonsystematic risk refers to the fluctuations in investment prices caused by factors that are applicable to the particular firm which are independent of the market. These risks are unique to a firm or industry.

Although all securities tend to have some nonsystematic risk, it is generally connected with common stocks. The following are the factors that contribute to non systematic risks.

- Management inefficiency
- Technological change in the production process
- Changes in consumer preferences
- Productivity of Labour
- Litigation and industrial dispute
- Financial leverage

The nature and magnitude of the above mentioned factors differ from industry to industry and company to company. They have to be analyzed separately for each industry and company. Non-systematic risks are controllable by nature and can be considerably reduced by sufficiently diversifying one's portfolio. An investor can construct a diversified portfolio and eliminate part of the total risk. The unsystematic risk is further sub-divided in to the following

Business risk: Business risk is concerned with the degree of uncertainty associated with an investment's earnings and the investment's ability to pay investors interest, dividends, and other returns owned them. Business risk is usually related to the firm's line of business.

Financial risk: Financial risk is the risk associated with the mix of debt and equity (capital structure) used to finance the firm. The greater the firm's debts and interest obligations, the greater is financial risk.

ABOUT BLUE CHIP COMPANIES

"Blue Chip Companies" are the companies that have stable earnings and do not have extensive liabilities. The stocks of these blue chip companies, referred to as 'blue chip stocks', pay regular dividends even during the bad time of the organisation. As per market capitalization, the leading blue chip companies of India are Tata Consultancy Services (TCS), Reliance Industries, Oil and Natural Gas Corporation Limited (ONGC), Imperial Tobacco Company of India Limited (ITC), Infosys, Housing Development Finance Corporation Limited (HDFC) Bank, Coal India, Sun Pharmaceutical Industries Limited, State Bank of India (SBI) and Industrial Credit and Investment Corporation of India Limited (ICICI) Bank.

Five blue chip companies in India

1. Tata Consultancy Services (TCS),
2. Reliance Industrial Limited, (RIL),
3. Oil and Natural Gas Corporation Limited (ONGC),
4. Imperial Tobacco Company of India Limited (ITC),
5. Infosys.

SUMMARY OF FINDINGS

The analysis of financial statements plays an important role in determining the financial strengths and weaknesses of a company relative to that of other companies in the same industry. A thorough knowledge of the risk helps to plan the portfolio in such a manner so as to minimize the risk associated

with the investment. The market return is typically measured by the average return of all stocks in the market.
The evaluation is conducted against the following parameters.

- Measurement of the risk Complexion of the business
- Measurement of Systematic Risk

MEASUREMENT OF SYSTEMATIC RISK OF TSC

- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2021 the beta value is 0.045643109. It indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2020 the beta value is -0.063675788. It indicates low risk
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2019 the beta value is 0.204330963. it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2018 the beta value is 0.131047498. it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2017 the beta value is -0.199293891 it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2016 the beta value is 0.207505048 it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2015 the beta value is 0.133744372 it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2014 the beta value is -0.152700609 it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2013 the beta value is 0.010284349 it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2012 the beta value is 0.343555 it indicates low risk.

MEASUREMENT OF SYSTEMATIC RISK OF RIL

- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2021 the beta value is -0.10726. It indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2020 the beta value is 0.208475. It indicates low risk
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2019 the beta value is -0.13401. it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2018 the beta value is 0.17239. it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2017 the beta value is -0.163 it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2016 the beta value is 0.165177 it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2015 the beta value is 0.630859 it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2014 the beta value is -0.152700609 it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2013 the beta value is 0.474662522 it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2012 the beta value is 0.241329974 it indicates low risk.

MEASUREMENT OF SYSTEMATIC RISK OF ONGC

- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2021 the beta value is 0.019606. It indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2020 the beta value is 0.267882. It indicates low risk
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2019 the beta value is -0.26355. it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2018 the beta value is 0.107897. it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2017 the beta value is 0.241329974. It indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2016 the beta value is 0.073171. It indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2015 the beta value is 0.161786 it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2014 the beta value is 0.023313. It indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2013 the beta value is 0.149355. It indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2012 the beta value is -0.09423. It indicates low risk.

MEASUREMENT OF SYSTEMATIC RISK OF ITC

- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2021 the beta value is 0.1784. It indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2020 the beta value is 0.0662. It indicates low risk
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2019 the beta value is -0.2043. it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2018 the beta value is -0.0980. it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2017 the beta value is 0.0444 it indicates low risk.

- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2016 the beta value is 0.0577674 it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2015 the beta value is -0.0266 it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2014 the beta value is 0.002726 it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2013 the beta value is 0.006699 it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2012 the beta value is 0.240897It indicates low risk.

MEASUREMENT OF SYSTEMATIC RISK OF INFOSIS

- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2021 the beta value is 0.15392. It indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2020 the beta value is 0.32363. It indicates low risk
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2019 the beta value is -0.5608. it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2018 the beta value is 0.05831. it indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2017 the beta value is -0.04849. It indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2016 the beta value is 0.33691. It indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2015 the beta value is 0.13578026. It indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2014 the beta value is 0.05629228. It indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2013 the beta value is 0.014036. It indicates low risk.
- It measures systematic risk of the company to index if it is less than one the risk is less. In this year 2012 the beta value is -0.14149. It indicates low risk.

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