# A study on Risk and Return and their relation in various investments

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*Abstract:*
Predict return in the future is a complicated process as the future is uncertain, for predicting the return several factors has to be considered like the external and internal market conditions. The uncertainty can be quantified by measuring the risk. In the present various investment avenues are considered and their risk and return are analyzed and the relation between them is also understood.

*Keywords: Investment, Risk, Return.*

## 1. INTRODUCTION

Returns are the gains or losses from a security in a particular period and are usually quoted as a percentage. What kind of returns can investors expect from the capital markets? A number of factors influence returns. For investors, the basic definition of "risk" is the chance that an investment's actual return will be different from what was expected. One can measure risk in statistics by standard deviation. Because of risk, you have the possibility of losing a portion (or even all) of a potential investment. "Return," on the other hand, is the gains or losses one brings in as a result of an investment.

Generally speaking, at low levels of risk, potential returns tend to be low as well. High levels of risk are typically associated with high potential returns. A risky investment means that you're more likely to lose everything; but, on the other hand, the amount you *could* bring in is higher. The tradeoff between risk and return, then, is the balance between the lowest possible risk and the highest possible return. We can see a visual representation of this association in the chart below, in which a higher standard deviation means a higher level of risk, as well as a higher potential return.The following is the figure-1 shows the

relationship between risk and return of various investments.

**Figure 1  Risk-Return Trade off of various investments**
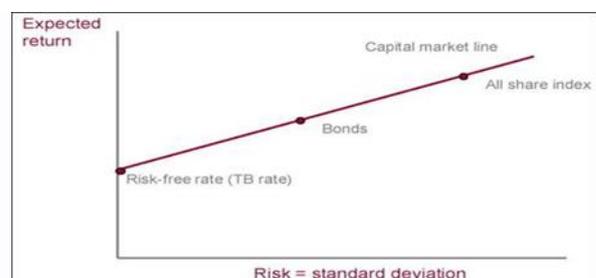


### Objectives of the study

The main objectives of this study is as follows

1. To find out the returns on various investments
2. to measure the Standard Deviation of s
3. To rank the companies based in Risk and Return
4. To study the coefficient of variation

## METHODOLOGY

There are two ways of collecting data, those are primary and secondary data. The primary data is collected directly from the respondents and the secondary is collected from sources like magazines, journals etc., In this study the data is collected from secondary sources mainly through online. In the present study the data is considered for the year 2019 and is collected from the data available online that is mainly secondary data.

## Measuring Risk and Return

The starting point in analysis of risk in investment decisions is dependency of its level on time.

## Return:

The rate of return on an investment for a period is defined as follows

Rate of Return = (Ending Price - Beginning Price) / Beginning Price

## Risk

The rate of Return from investments like equity shares, Real estate, silver and gold can vary rather widely. The Risk of an investment refers to the variability of its rate of return: how much do individual outcomes deviate from the expected value? A simple measure of dispersion is the range of values, which is simply the difference between the highest and lowest values. Other measures commonly used in finance are as follows:

**Variance:** this is the mean of squares of deviations of which individual returns around their average value.

**Standard Deviation:** This is the square root of variance

**Beta:** This reflects how volatile the return from an investment is, in response to market swings.

## Data Analysis:

The collected data is sorted out and analyzed to prepare the final report. The tools and techniques used in the analysis are

1) Risk = $\sqrt{\sum D^2 / (n-1)}$

2) Return = close price-previous price/previous price*100

3) Co-efficient of variation=Risk/Return

4) Difference = Return – Average Return

5) $D^2$ = Deviation * Deviation

**Risk and uncertainty in the investment decisions**

**Figure 2**
**The relationship between time and the level of risk**
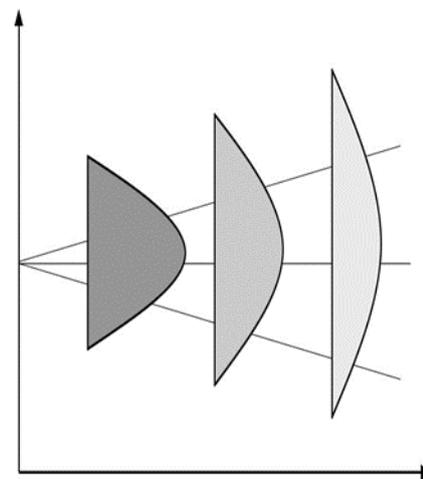


**Time**

**Level of Risk**

## DATA ANALYSIS & INTERPRETATION

Fortunately, data is available on the risk and return relationship of the three main asset classes:

• Equities

• Bonds

• Cash (i.e. money market).

Figure 3 shows the average annual returns and the standard deviations of the asset classes for a period of 108 years (1900-2007). The evidence is indisputable: higher returns are accompanied by higher risk (= dispersion around the mean return). This fits in well with Figure 3

**Figure 3**

## The relationship between risk and return of various investments



**Interpretation:** From the above Figure 3 it can be observed that when the risk is high the return is more, in the investments made in equities the risk is high
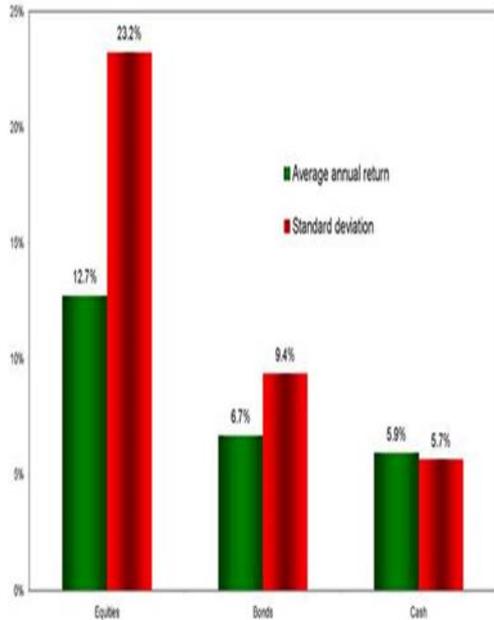
and the return is high, where as the investments of bonds the risk is less and the return is less. Similarly holding cash in hand the amount of risk is less and the return is also less.

### Coefficient of Variance

The following is the formula which is used for calculation of coefficient of variance

**COV=Risk/Return**

**Table 1 Statement of showing coefficient of variance**

| Investment Category | Arithmetic mean | Standard deviation | Coefficient of Variation | Rank |
|---|---|---|---|---|
| Common Stocks | 10.28% | 16.90% | 1.644 | 5 |
| Treasury Bills | 3.54% | 3.20% | 0.904 | 2 |
| Long-term Govt. Bonds | 5.10% | 6.40% | 1.255 | 3 |
| Long-term Corp. Bonds | 5.95% | 9.60% | 1.613 | 4 |
| Reas Estate | 9.49% | 4.50% | 0.474 | 1 |

### INTERPRETATION

From the above table 1 it can be observed that the coefficient of variance is 0,474 for the real estate and the standard deviation is 4.5% and it has been ranked as 1 this indicates that the risk is less in the real estate and the coefficient of variation indicates that the dispersion around mean is less., whereas the common stocks standard deviation is 16.9% which means the risk is high and the coefficient of variation is 1.644 that is the dispersion around the mean is high and the rank is 5. From the table1 it is

understood the risk is high in stocks than others and the investment has to be made carefully in this area.

### FINDINGS OF THE STUDY

The present is undertaken by considering various investment avenues and considering their risk and return. While making investments the investor has to observe that the if there is more risk there is high return but while building a portfolio it is better to have a combination of investments with various returns and risks. This is observed from the table 1 that the risk is high for stocks and less for other

investments while building a portfolio 60 percent has to be invested in stocks and other 40% investments should be made in less risks investments like bonds etc,, this helps in building a balanced portfolio.

## CONCLUSION

The study risk return investigation helps the investor to pick up the investments based on his choice and age. The study of this kind provides information about the performance of various investments avenues in terms of risk and return. This paper emphasizes on the market fluctuations relations to the prices, it is observed that the financial position and performance of the investment avenues are in correlation. However, we cannot say that one method is sufficient to analyze and interpret the investments but they help the investor to define the trends to some extent

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