CHAPTER - IV

RISK RETURN ANALYSIS

Concept of Risk & Return Analysis

The concept of risk and return analysis is integral to the process of investing and finance.\(^1\) All financial decisions involve some risk. One may expect to get a return of 15% per annum in his investment but the risk of "not able to achieve 15% return" will always be there. Return is simply a reward for investing as all investing involves some risk.

The greater the risk, the greater the return expected.

The objective of risk and return analysis is to maximize the return by creating a balance of risk. For example, in case of working capital management, the less inventory you keep, the higher the expected return as less of your money is locked as asset.; but you also have a increased risk of running out of raw material when you actually need it for production or maintenance. Which means you loose sale. Thus all companies tries very hard to maintain minimum inventory as possible without effecting smooth production. This is a very common example of risk return trade-off. In case

\(^1\) www.wikipedia.com
of an investment in shares/stocks, I as an investor accept to get a better return than fixed deposits but I am also ready to take risk of loosing my money in stock market. Hence important is to understand how much risk one can take and invest accordingly. A lay man shall ask himself:

1. **How much money I can put in stocks today, and even if I loose this money it will not affect my way of life?** If your answer is Rs1000 it means you are ready to take a risk for Rs1000.

2. **How much return I expect from stock in next one year?** If you want to make 12% per annum your expectation is real and you are taking a risk of Rs1000 to make 12% per annum. By doing this a lay man is calculating his risks and estimating a return on investment.

Infact, Risk and return are two key determinants of share prices. Greater the risk assumed higher will be the return. Investment which carry low risk such as government securities will offer a low rate of return. Any rational investor would analyse the risk associated with the particular stock and a thorough knowledge of risk helps him to plan his portfolio so as to minimize the risk associated with the investment. Return on investment may be because of income, capital appreciation or a positive hedge against inflation. The degree of risk depends upon the features of asset, investment instruments, mode of investment etc. the wider the range of possible outcomes, the greater the risk. The degree of risk in a particular situation is not absolute. It depends on the
level of information available with the entity facing the risk. When the complete information is available, the perception of the entity differs. Two different entities may interpret the same information differently or different expectations for the future which would lead to two different sets of probability distribution. Hence the same set of circumstances may translate into different levels of risk for different people. Further people do not make any distinction between risk and uncertainty. Though risk and uncertainty go together, but they differ in perception. Uncertainty refers to a situation about which the likelihood of possible outcome is not known. It can not be quantified. The concept of security analysis is based on risk and return. To earn return on investment, investment has to be made for some period which in turn implies passage of time. Dealing with the return to be achieved requires estimate of the return on investment on investment over the time period. Risk denotes deviation of actual return from the estimated return. The fact that the investors do not hold a single security which they consider most profitable is enough to say that they are interested not only in maximization of return but also minimization of risk. In fact, there is a positive relationship between the amount of risk and expected return, greater the risk, larger the return. One of the most difficult problems for an investor is to estimate the highest level of risk he is able to assume.

The principle that potential return rises with an increase in risk. Low levels of uncertainty (low risk) are associated with low potential returns, whereas
high levels of uncertainty (high risk) are associated with high potential returns. According to the risk-return tradeoff, invested money can render higher profits only if it is subject to the possibility of being lost. Because of the risk-return tradeoff, you must be aware of your personal risk tolerance when choosing investments for your portfolio. Taking on some risk is the price of achieving returns; therefore, if you want to make money, you can't cut out all risk. The goal instead is to find an appropriate balance - one that generates some profit, but still allows you to sleep at night.

**Importance of Risk-Return Relationship**

The relationship between risk and return is a fundamental financial relationship that affects expected rates of return on every existing asset investment. The Risk-Return relationship is characterized as being a "positive" or "direct" relationship meaning that if there are expectations of higher levels of risk associated with a particular investment then greater returns are required as compensation for that higher expected risk. Alternatively, if an investment has relatively lower levels of expected risk then investors are satisfied with relatively lower returns. This risk-return relationship holds for individual investors and business managers. 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 (or quantify the risk) and then we must be able to decide an appropriate price for the risk we are being asked to bear. The entire scenario of security analysis is built on two concepts of security: 

1. Return and risk. The risk and return constitute the framework for taking investment decision. Return from equity comprises dividend and capital appreciation. To earn return on investment, that is, to earn dividend and to get capital appreciation, investment has to be made for some period which in turn implies passage of time. Dealing with the return to be achieved requires estimated of the return on investment over the time period. Risk denotes deviation of actual return from the estimated return. This deviation of actual return from expected return may be on either side – both above and below the expected return. However, investors are more concerned with the downside risk.

The risk in holding security deviation of return deviation of dividend and capital appreciation from the expected return may arise due to internal and external forces. That part of the risk which is internal that in unique and related to the firm and industry is called ‘unsystematic risk’. That part of the risk which is external and which affects all securities and is broad in its effect is called ‘systematic risk’. The fact that investors do not hold a single security which they consider most profitable is enough to say that they are

---


203
not only interested in the maximization of return, but also minimization of risks. The unsystematic risk is eliminated through holding more diversified securities. Systematic risk is also known as non-diversifiable risk as this can not be eliminated through more securities and is also called ‘market risk’. Therefore, diversification leads to risk reduction but only to the minimum level of market risk. The investors increase their required return as perceived uncertainty increases. The rate of return differs substantially among alternative investments, and because the required return on specific investments change over time, the factors that influence the required rate of return must be considered.

Source: Wikipedia.com
It is now clear that even with the most conservative investments you face some element of risk. However, not investing your money is also risky. For example, putting your money under the mattress invites the risk of theft and the loss in purchasing power if prices of goods and services rise in the economy. When you recognize the different levels of risk for each type of investment asset, you can better manage the total risk in your investment portfolio. A direct correlation exists between risk and return and is illustrated below in Figure form. The greater the risk, the greater is the potential return. However, investing in securities with the greatest return and, therefore, the greatest risk can lead to financial ruin if everything does not go according to plan.

**Risk and Return**

![Risk and Return Diagram](Image)

*Source: Wikipedia.com*

Understanding the risks pertaining to the different investments is of little consequence unless you’re aware of your attitude toward risk. How much
risk you can tolerate depends on many factors, such as the type of person you are, your investment objectives, the dollar amount of your total assets, the size of your portfolio, and the time horizon for your investments. How nervous are you about your investments? Will you check the prices of your stocks daily? Can you sleep at night if your stocks decline in price below their acquisition prices? Will you call your broker every time a stock falls by a point or two? If so, you do not tolerate risk well, and your portfolio should be geared toward conservative investments that generate income through capital preservation. The percentage of your portfolio allocated to stocks may be low to zero depending on your comfort zone. If you are not bothered when your stocks decline in price because with a long holding period you can wait out the decline, your portfolio of investments can be designed with a higher percentage of stocks. Following figure illustrates the continuum of risk tolerance.

**Continuum of Risk Tolerance**

![Continuum of Risk Tolerance](image)

A wide range of returns is associated with each type of security. For example, the many types of common stocks, such as blue-chip stocks, growth stocks, income stocks, and speculative stocks, react differently.
Income stocks generally are lower risk and offer returns mainly in the form of dividends, whereas growth stocks are riskier and usually offer higher returns in the form of capital gains. Similarly, a broad range of risks and returns can be found for the different types of bonds. You should be aware of this broad range of risks and returns for the different types of securities so that you can find an acceptable level of risk for yourself.

**Risk-Return Trade-Off**

The risk/return tradeoff could easily be called the "ability-to-sleep-at-night test." While some people can handle the equivalent of financial skydiving without batting an eye, others are terrified to climb the financial ladder without a secure harness. Deciding what amount of risk you can take while remaining comfortable with your investments is very important. In the investing world, the dictionary definition of risk is the chance that an investment's actual return will be different than expected. Technically, this is measured in statistics by standard deviation. Risk means you have the possibility of losing some, or even all, of our original investment. Low levels of uncertainty (low risk) are associated with low potential returns. High levels of uncertainty (high risk) are associated with high potential returns. The risk/return tradeoff is the balance between the desire for the lowest possible risk and the highest possible return. This is demonstrated

---

3 www.investopedia.com
A common misconception is that higher risk equals greater return. The risk/return tradeoff tells us that the higher risk gives us the possibility of higher returns. There are no guarantees. Just as risk means higher potential returns, it also means higher potential losses. On the lower end of the scale, the risk-free rate of return is represented by the return on U.S. Government Securities because their chance of default is next to nothing. If the risk-free rate is currently 6%, this means, with virtually no risk, we can earn 6% per year on our money. The common question arises: who wants to earn 6% when index funds average 12% per year over the long run? The answer to this is that even the entire market (represented by the index fund) carries risk. The return on index funds is not 12% every year, but rather -5% one year, 25% the next year, and so on. An investor still faces substantially
greater risk and volatility to get an overall return that is higher than a predictable government security. We call this additional return the risk premium, which in this case is 6% (12% - 6%).

Determining what risk level is most appropriate for you isn't an easy question to answer. Risk tolerance differs from person to person. Your decision will depend on your goals, income and personal situation, among other factors. Further, the concept that every rational investor, at a given level of risk, will accept only the largest expected return. That is, given two investments at the exact same level of risk, all other things being equal, every rational investor will invest in the one that offers the higher return. The risk-return tradeoff is pervasive throughout economics and finance. It is the reason that riskier bonds pay higher coupons than other bonds. It is also the reason that bonds pay lower returns than most stocks because they are a less risky investment. In this context, The Markowitz Portfolio Theory attempts to mathematically identify the portfolio with the highest return at each level of risk. The history of the stock and bond markets shows that risk and reward are inextricably intertwined. Do not expect high returns without high risk. Do not expect safety without correspondingly low returns." -William Bernstein, "The Four Pillars of Investing" (2002). Investment research studies throughout the years have confirmed that the general investing public, or non-professional investors, have a pronounced tendency to focus on an investment's return. While risk is not necessarily ignored, it certainly
seems to play second fiddle to return in most individual investors' decision-making processes.

As applied to mutual funds, you will learn the importance of the risk-return relationship in selecting quality mutual funds. In addition, we will explain the importance of understanding the concept of total return, which is the key component of a fund's investment performance. We'll also identify and discuss the significance of a favorable risk-return profile as one of the more valuable investment qualities to be considered in selecting a mutual fund.

In the investing world, there are a number of highly technical, sophisticated metrics that are used to measure investment risk-return. The most commonly used of these indicators include alpha, beta, r-squared, standard deviation and the Sharpe ratio. It is safe to say that few, if any, non-professional investors, have the faintest idea how to calculate and/or interpret these measurements. That is the so-called bad news. The good news is that Morningstar and Value Line fund reports do all the statistical analysis for us and provide easy-to-understand risk and return evaluations. Essentially, these come in five different varieties: high, above-average, average, below-average, and low, or words to that effect. It is a universally accepted principle of investing that risk and return are commensurate. This fancy terminology simply tells us that the level of risk determines the level of return. As a result, it is unusual that a low-risk investment will produce a high return. Of course, the inverse of this relationship is also true.
Risk is an inherent part of investing. In order to get a reasonable return on an investment, risk has to be present. A riskless asset will produce little or no return. The intelligent investor manages risk by recognizing its existence, measuring its degree in any given investment and realistically assessing his or her capacity to take risk. There is nothing wrong with investing in a high-risk fund if the fund's return is equally high. The questions to ask are: Can I afford the loss if it occurs? Am I emotionally prepared to deal with the uncertainties of high-risk investments? Do I need to take this kind of risk to achieve my investment goals?

**Measurement of Risk and return**

The beta ratio measures and compares the fund’s return with that of the market benchmark to assess the extent to which the fund’s return is impacted by market factors. A beta of one means that the fund’s return will move up and down in tandem with the movement of the markets as indicated by the benchmark. A beta higher than one signifies an aggressive fund that will move up more than the benchmark, but will also more quickly fall. If a fund has a beta of 1.5 and the market rises by 10 per cent, the fund’s return is expected to go up by 15 per cent (10 per cent x 1.5) and vice-versa. The beta of a fund has to be seen in conjunction with the R-squared for understanding the risk of the fund. R-squared measures how much of the fund’s return can be explained by the market movements. It does this by measuring how
closely the fund’s performance tracks that of the benchmark index. The lower the R-squared, the less reliable is the beta. Standard Deviation (SD) is the ratio that measures how the stocks actual performance strays from the average returns over a period. So, it’s a measure of the consistency of stock returns. Further, the risk associated with a single asset is assessed from qualitative and quantitative point of view. Qualitative view of risk can be obtained by using sensitivity analysis and probability through standard deviation and coefficient of variations.