

RISK AND RETURN OF INDIVIDUAL SECURITIES

Megharaja.B*

Abstract

Investment is vital role in business and more important because value of money is reducing day by day due to inflation. Learning investment analysis is a journey into a wealth of knowledge that is an exciting mix of the practical and the analytical. It looks to technique to evaluate and to theory to explain. It is natural to feel a degree of trepidation at the start of such a journey. To help offset this we need to familiarize ourselves with the landscape and landmarks, to develop an overview of our route. Some of these landmarks may be familiar others may be new or be seen from a different perspective. In this paper to know the investor analysis of stock in the market index and to know the relation of return and risk, its types and procedure to calculating beta & alpha through formula.

Keyword: risk and return, introduction, types and formula through examples.

* Assistant Professor, Dept. of Studies & Research in Commerce, Vijayanagara Shri Khrushnadevaraya University, P.G Centre, Nandihalli, Sandur, Bellary

Introduction

Risk is an important concept in financial analysis, especially in terms of how it affects security prices and rates of return. Investment risk is associated with the probability of low or negative future returns.

Investment is an activity, it attract the people who have saving. Investment is made from savings or people invest their savings, but all savers are not an investor.

Rate of return and Risk in return represent the dimensions of expectation and uncertainty. The tradeoffs between them are real and faced by individuals and businesses frequently. The decision to Invest involves a choice among alternatives having both varying anticipated return and risk. Being Averse to risk, individuals and businesses choose the least risky investment for a given level of Anticipated return, or require a greater return when investments are riskier. The investor perspective With respect to risk tends to be one of concern with the degree to which returns might depart from the expected level.

Objectives of research Study

- To know the Expected Return of individual Securities.
- To examine the risk of individual securities.
- To know the procedure for identified suitable securities.
- To determine the risk & return of individual securities.
- To interpreted the result from calculated risk and return.

Investment Analysis

The purpose of this article is to teach the principles of investment analysis. So, what is investment analysis one definition that moves us a little way forward is that: “Investment analysis is the study of financial securities for the purpose of successful investing.” This definition contains within it a number of important points. Firstly, there are the institutional facts about financial securities: how to trade and what assets there are to trade. Secondly, there are analytical issues involved in studying these securities: the calculation of risks and returns, and

the relationship between the two. Then there is the question of what success means for an investor, and the investment strategies that ensure the choices made are successful. Finally, there are the financial theories that are necessary to try to understand how the markets work and how the prices of assets are determined.

SECURITIES

A security can be defined as: “A legal contract representing the right to receive future benefits under a stated set of conditions.” The piece of paper (e.g. the share certificate or the bond) defining the property rights is the physical form of the security. The terms security or asset can be used interchangeably. If a distinction is sought between them, it is that the term assets can be applied to both financial and real investments whereas a security is simply a financial asset. For much of the analysis it is asset that is used as the generic term.

Return = final value of investment – initial value of investment /initial value of investment ×100.

Measuring Rate of Return

Rate of Return (often referred to more simply as return) reflects the amount of income produced on an investment in relation to the investment itself. This ratio is usually expressed as a days rate. The expected return of the investment is the probability weighted average of all the possible returns.

$$\text{Mean} = \sum X_i p(X_i)$$

Given a probability distribution of returns, the **expected return** can be calculated using the following equation:

$$E[R] = \sum_{i=1}^N p_i R_i$$

Where

- $E[R]$ = the expected return on the stock,
- N = the number of states,
- p_i = the probability of state i , and
- R_i = the return on the stock in state i .

Investment Risk in Return

Risk is a measure of the uncertainty of achieving expected returns (which encompasses the Possibility of a complete loss of the investment itself). The most common measure of risk is the Standard deviation statistic which provides a means of quantifying the degree of likely variation of actual return relative to the return expected. The larger the standard deviation the greater the chance that the actual return will deviate from the expected return, either above or below it.

Types of Investment Risk

There are many different types of investment risk. The two general types of risk are:

- Losing money, which you can identify as investment risk
- Losing buying power, which is inflation risk

It probably comes as no surprise that there are several different ways you might lose money on an investment. To manage these risks, you need to know what they are. Most investment risk is described as either systematic or nonsystematic. While those terms seem intimidating, what they refer to is actually straightforward.

Systematic Risk

Systematic risk is also known as market risk and relates to factors that affect the overall economy or securities markets. Systematic risk affects all companies, regardless of the company's financial condition, management, or capital structure, and, depending on the investment, can involve international as well as domestic factors. Here are some of the most common systematic risks:

➤ **Interest-rate risk**

Interest rate risk that the value of a security will go down because of changes in interest rates. For example, when interest rates overall increase, bond issuers must offer higher coupon rates on new bonds in order to attract investors. The consequence is that the prices of existing bonds drop because investors prefer the newer bonds paying the higher rate. On the other hand, there's also interest-rate risk when rates fall because maturing bonds or bonds that are paid off before maturity must be reinvested at a lower yield.

- ### ➤ **Inflation risk** describes the risk that increases in the prices of goods and services, and therefore the cost of living, reduce your purchasing power. Let's say a can of soda increases

from Rs1 to Rs2. In the past, Rs2 would have bought two cans of soda, but now Rs2 can buy only one can, resulting in a decline in the value of your money. Inflation risk and interest rate risk are closely tied, as interest rates generally rise with inflation. Because of this, inflation risk can also reduce the value of your investments. For example, to keep pace with inflation and compensate for the loss of purchasing power, lenders will demand increased interest rates. This can lead to existing bonds losing value because, as mentioned above, newly issued bonds will offer higher interest rates. Inflation can go in cycles, however. When interest rates are low, new bonds will likely offer lower interest rates.

- **Currency risk** occurs because many world currencies float against each other. If money needs to be converted to a different currency to make an investment, any change in the exchange rate between that currency and yours can increase or reduce your investment return. You are usually only impacted by currency risk if you invest in international securities or funds that invest in international securities.

As with most risks, currency risk can be managed to a certain extent by allocating only a limited portion of your portfolio to international investments and diversifying this portion across various countries and regions.

- **Liquidity risk** is the risk that you might not be able to buy or sell investments quickly for a price that is close to the true underlying value of the asset. Sometimes you may not be able to sell the investment at all if there are no buyers for it. Liquidity risk is usually higher in over-the-counter markets and small-capitalization stocks. Foreign investments can pose liquidity risks as well. The size of foreign markets, the number of companies listed, and hours of trading may limit your ability to buy or sell a foreign investment.
- **Sociopolitical risk** is the possibility that instability or unrest in one or more regions of the world will affect investment markets. Terrorist attacks, war, and pandemics are just examples of events, whether actual or anticipated, that impact investor attitudes toward the market in general and result in system-wide fluctuations in stock prices. Some events, such as the September 11, 2001, attacks on the World Trade Center and the Pentagon, can lead to wide-scale disruptions of financial markets, further exposing investments to risks. Similarly, if you

are investing overseas, problems there may undermine those markets, or a new government in a particular country may restrict investment by non-citizens or nationalize businesses.

In a different phase of the cycle, those same investors might sell off bonds to buy stock, with just the opposite effect on stock and bond prices. If you owned both bonds and stocks in both periods, you would benefit from the strong returns on the asset class that was in greater demand at any one time. You would also be ready when investor sentiment changes and the other asset class provide stronger returns. To manage systematic risk, you can allocate your total investment portfolio so that it includes some stock and some bonds as well as some cash investments.

Nonsystematic Risk

Nonsystematic risk, in contrast to systematic risk, affects a much smaller number of companies or investments and is associated with investing in a particular product, company, or industry sector.

- **Management risk**, also known as company risk, refers to the impact that bad management decisions, other internal missteps, or even external situations can have on a company's performance and, as a consequence, on the value of investments in that company. Even if you research a company carefully before investing and it appears to have solid management, there is probably no way to know that a competitor is about to bring a superior product to market. Nor is it easy to anticipate a financial or personal scandal that undermines a company's image, its stock price, or the rating of its bonds.
- **Credit risk**, also called default risk, is the possibility that a bond issuer won't pay interest as scheduled or repay the principal at maturity. Credit risk may also be a problem with insurance companies that sell annuity contracts, where your ability to collect the interest and income you expect is dependent on the claims-paying ability of the issuer.

One way to manage nonsystematic risk is to spread your investment dollars around, diversifying your portfolio holdings within each major asset class—stock, bonds, and cash—either by owning individual securities or mutual funds that invest in those securities. While you're likely to feel the impact of a company that crashes and burns, it should be much less traumatic if that company's stock is just one among several your own.

Other Investment Risks

The investment decisions you make—and sometimes those you avoid making—can expose you to certain risks that can impede your progress toward meeting your investment goals. You can also increase your investment risk if you don't monitor the performance of your portfolio and make appropriate changes. For example, you should be aware of investments that have failed to live up to your expectations, and shed them when you determine that they are unlikely to improve, using the money from that sale for another investment.

Assessing Risk

It's one thing to know that there are risks in investing. But how do you figure out ahead of time what those risks might be, which ones you are willing to take, and which ones may never be worth taking? There are three basic steps to assessing risk:

- Understanding the risk posed by certain categories of investments
- Determining the kind of risk you are comfortable taking
- Evaluating specific investments

You can follow this path on your own or with the help of one or more investment professionals, including stockbrokers, registered investment advisers, and financial planners with expertise in these areas.

Measuring Investment Risk

When you invest, you take certain risks. With insured bank investments, such as certificates of deposit (CDs), you face inflation risk, which means that you may not earn enough over time to keep pace with the increasing cost of living. With investments that aren't insured, such as stocks, bonds, and mutual funds, you face the risk that you might lose money, which can happen if the price falls and you sell for less than you paid to buy. Just because you take investment risks doesn't mean you can't exert some control over what happens to the money you invest. In fact, the opposite is true.

If you know the types of risks you might face, make choices about those you are willing to take, and understand how to build and balance your portfolio to offset potential problems, you are managing investment risk to your advantage.

Alpha

Alpha is a measure of an investment's performance on a risk-adjusted basis. It takes the volatility (price risk) of a security or fund portfolio and compares its risk-adjusted performance to a benchmark index. The excess return of the investment relative to the return of the benchmark index is its alpha

It can be shown that in an efficient market, the expected value of the alpha coefficient is zero. Therefore the alpha coefficient indicates how an investment has performed after accounting for the risk it involved:

- $\alpha_i < 0$: the investment has earned too little for its risk (or, was too risky for the return)
- $\alpha_i = 0$: the investment has earned a return adequate for the risk taken
- $\alpha_i > 0$: the investment has a return in excess of the reward for the assumed risk

Beta

Beta, also known as the beta coefficient, is a measure of the volatility, or systematic, of a security or a portfolio in comparison to the market as a whole. Beta is calculated using regression analysis, and you can think of it as the tendency of an investment's return to respond to swings in the market. By definition, the market has a beta of 1 Individual security and portfolio values are measured according to how they deviate from the market.

A beta of 1.0 indicates that the investment's price will move in lock-step with the market. A beta of less than 1 indicates the investment will be less volatile than the market, and correspondingly, a beta of more than 1 indicates the investment's price will be more volatile than the market. For example, if a fund portfolio's beta is 1.2, it's theoretically 20% more volatile than the market.

The expected returns on stocks were calculated on the Expected Return . Given an asset's expected return, its variance can be calculated using the following equation:

$$\text{Var}(R) = \sigma^2 = \sum_{i=1}^N p_i (R_i - E[R])^2$$

where

- N = the number of states,
- p_i = the probability of state i ,

- R_i = the return on the stock in state i , and
- $E[R]$ = the expected return on the stock.

Problem on measuring risk and return in individual securities

Here researcher considers the daily prices of the ABC Company (Assuming name of company) stocks and the BSE INDEX for the period 5th January 2012 to 16th January 2012. The objectives of this example is only to illustrate the computation of Beta, usually Beta value have to be calculated from data of a fairly long period to minimize the sampling error

Following table shows the ABC Co. stocks values and its market (BSE Index) values.

Date	BSE Index	ABC Stocks(Shares)
5th January 2012	904	597
6th January 2012	845	570
7th January 2012	875	582
8th January 2012	847	559
9th January 2012	849	554
12th January 2012	835	545
13th January 2012	816	517
14th January 2012	843	560
15th January 2012	835	560
16th January 2012	839	597

To calculate the Beta, the returns have to be calculated then using formula the Beta and alpha Co-Efficient can be calculated

Solution

Step 1:- Calculating possible return or probable return

Formula: - Today price-Yesterday price/Yesterday price

Sl No	Market Index(BSE)	Probable Return(BSE Index)(X)	$(X)^2$	Company Index(ABC)	Probable Return(ABC Stocks)(Y)	$(Y)^2$	XY
1	845	-6.53	42.60	570	-4.52	20.45	29.52
2	875	3.55	12.60	582	2.11	4.43	7.47
3	847	-3.20	10.24	559	-3.95	15.62	12.65

4	849	0.24	0.06	554	-0.89	0.80	-0.21
5	835	-1.65	2.72	545	-1.62	2.64	2.68
6	816	-2.28	5.18	517	-5.14	26.40	11.69
7	843	3.31	10.95	560	8.32	69.18	27.52
8	835	-0.95	0.90	560	0.00	0.00	0.00
9	839	0.48	0.23	597	6.61	43.65	3.17
		$\sum X = -7.03$	$\sum X^2 = 85.47$		$\sum Y = 0.90$	$\sum Y^2 = 183.17$	$\sum XY = 94.48$

Given a stocks expected return, its variance can be calculated using the following equation:

Calculation of expected return

Given a probability distribution of returns, the expected return can be calculated using the following equation:

$$\text{Expected Return (Mean)} = \sum X_i P_i$$

Where

- $E[R]$ = the expected return on the stock,
- X_i = the weighted of investment i ,
- p_i = the return on the stock in state i .

Calculation of beta and alpha value through using the following equation:

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

$$\beta = \frac{9 * 94.48 - (-7.03)(0.9)}{9 * 85.47 - (-7.03 * -7.03)}$$

$$\beta = \frac{850.32 + 6.327}{769.23 - 49.42}$$

$$\beta = \frac{856.647}{719.81}$$

$$\beta = 1.19$$

$$\alpha = \hat{Y} - \beta \times \text{mean}$$

$$\hat{Y} = \sum y/n = 0.90/9 = 0.1$$

$$X_{\text{mean}} = \sum x/n = -7.03/9 = -0.78$$

$$\alpha = \hat{Y} - \beta \times \text{mean}$$

$$\alpha = 0.1 - (1.19 \times -0.78)$$

$$\alpha = 0.1 + 0.9282$$

$$\alpha = 1.03$$

A beta value of 1.19 indicates that one unit change in sensex will cause a 1.19 unit change in ABC return. This shows that the market and the ABC company stock move in unison. An upturn in the market will reward investor with a marginally higher return than market return. But a downwards trend has a negative effect on the return. If a boom period is anticipated, it is good investment. Otherwise, he has to reconsider his investment proposal.

Reference

- www.google.com
- Security analysis and portfolio management second edition written by Punithavathy pandian
- Kevin – Portfolio management