

RISK AND RETURN

MEANING OF RISK

Every investor expects to get some return from the investment in the future. But, as future uncertain, so is the future expected return. We can distinguish between the expected return and the realized return from an investment.

- The expected return is the uncertain future return on an investment
- The realized return, on the contrary, is certain that an investor actually obtains from his investment at the end of the holding period.

The realized return may not correspond to the expected return. There is a possibility of variation of the actual return from the expected return. This possibility of variation is termed as risk.

RISK DEFINED

1. Risk can be defined as “potential for variability in returns”.
2. Risk can be defined as “the probability that the expected return from the security will not materialize”.

ELEMENTS OF RISK

Variation in returns is caused by a number of factors. These factors, we call as elements or sources of risk. Elements of risk may be classified broadly into two categories or groups.

- Systematic risk
- Unsystematic risk

The above two categories of risk form total risk.

Total risk = Systematic risk + Unsystematic risk

Systematic risk: Systematic risk affects the entire market. This risk is caused because of the changes occur in social, economic and political systems. These factors are beyond the control of a corporation and an investor. The investor cannot avoid this risk.

Virtually all securities have some systematic risk, whether bonds or stocks, because systematic risk directly encompasses interest rate, market, and inflation risks. 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. If the stock market declines sharply, most stocks will be adversely affected; if it rises strongly, most stocks will appreciate in value. These movements occur regardless of what any single investor does. Clearly, market risk is critical to all investors.

Unsystematic Risk: Systematic risk is for the market as a whole, while unsystematic risk is specific to an industry or the company individually. The variability in a security's total returns not related to overall market variability is called the non- systematic risk. This risk is unique to a particular security and is associated with such factors as business and financial risk as well as

liquidity risk. Although all securities tend to have some non-systematic risk, it is generally connected with common stocks.

Remember the difference: Systematic risk is attributable to broad macro factors affecting all securities. Non-systematic risk is attributable to factors unique to security.

Systematic risk is sub-divided into the following groups:

- Market risk
- Interest rate risk
- Purchasing power risk

1. Market Risk: This risk arises from the variability in the market returns resulting from alternating bull and bear market forces. When security index rises fairly consistently from a low point to peak, over a period of time, this upward trend is called a bull market. The bull market ends when the market index reaches a peak and starts a downward trend. The period during which the market declines to the next trough is called a bear market.

The variability in a security's returns resulting from fluctuations in the aggregate market is known as market risk. The forces that affect the stock market can be either:

- Tangible
- Intangible

Tangible events: Tangible events are real events such as recessions, wars, earthquakes, political uncertainty, structural changes in the economy, and changes in consumer preferences.

Intangible events: Intangible events are related to **market psychology**. Such psychology is affected by real events. However, reactions to tangible events become over-reactions and push the market either upward or downward.

For example, a political event or economic event may lead to rise or fall in the price of a security, which can be accentuated by the over-reactions of herd-like behavior of investors.

2. Interest Rate Risk: The variability in a 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; that is, 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 that all bondholders face. As interest rates change, bond prices change in the opposite direction.

For example, A bond having a face value of Birr 100 issued with a coupon rate of 10%. If the market interest moves up to 12.5%, no investor will buy the bond with 10% interest bond unless the holder of the bond reduces the price of the bond.

- When interest rate rises, the prices of the older bonds or securities go down.
- When interest rate declines, the prices of the older bonds or securities go up.

Indirect impact on common stocks:

- Most stock traders trade in the stock market with borrowed funds with a small margin. The increase in the interest rates dampens the spirit of speculative traders and thus they may sell their securities. The fall in demand leads to fall in the stock prices and index.
- Most corporations use borrowed funds. If interest rates increase, they have to pay more interest on borrowings out of the profits. This leads to a reduction in the earnings per share, and thus shares prices may fall.

3. Purchasing Power Risk: It refers to the variation in investor returns caused by inflation. Inflation results in lowering the purchasing power of money. Because of inflation, an investor experiences a decline in purchasing power of his investments and return on investments.

Real rate of return:

For example, if an investor gets a return of 12% on his investment and the inflation rate is 6.8%, then the real value would be

$$\text{Real rate of return} = \frac{1.0 + r}{1.0 + \text{IR}} - 1$$

Where, r = return; IR = inflation rate

$$= \frac{1.0 + 0.12}{1.0 + 0.068} - 1$$

$$\begin{aligned} &= \frac{1.0 + 0.12}{1.068} - 1 \\ &= 1.0486 - 1 \\ &= 0.0486 = 4.86\% \end{aligned}$$

This shows that his actual rate of return is only 4.86%. The purchasing power has not increased by 12% according to his earnings because of inflation prevailed in the market at 6.8%.

Unsystematic Risk: The returns from a security may sometimes vary because of certain factors affecting only the company issuing such security. Examples are raw material scarcity, labor strike, management inefficiency etc. When variability of returns occurs because of such firm – specific factors, it is known as unsystematic risk. This risk is unique or peculiar to a company or industry and affects it in addition to the systematic risk affecting all securities.

The unsystematic or unique risk affecting specific securities arises from two sources:

- a) The operating environment of the company, and
- b) The financing pattern adopted by the company.

The two types of unsystematic risk are referred to as **business risk** and **financial risk** respectively.

1. Business risk: Business risk is that portion of unsystematic risk caused by the operating environment of the business. Variations in the expected operating income reflect business risks. Variations that occur in the operating environment are reflected in the operating incomes and expected dividends. Business risks arise from the inability of a firm to maintain its competitive edge and the growth or stability of the earnings. Business risks can be divided into internal business risk and external business risk. Internal risk is caused due to improper allocation fixed and variable costs, improper product mix, non-availability of raw materials, incompetence to face competition, absence of strategic management etc. External risks arise from operating conditions imposed on the firm by circumstances beyond its control. The external environments in which it operates exerts some pressure on the firm. These could be social and regulatory factors like monetary and fiscal policies of government, business cycles or the general economic environment in which a firm or an industry operates. For example, a government policy (like tax relaxations, controls on imports and exports) that favors an industry will lead to a rise in the stock prices of the particular industry and vice versa.

2. Financial risk: Financial risk is associated with the capital structure of the company. This structure consists of equity funds and borrowed funds. The presence of debt and preference capital results in a commitment of paying interest or pre-fixed rate of dividend. The residual (remaining) income alone is available to the equity holders. The interest payment affects the payments that are due to the equity investors. Debt financing increased the variability of the returns to the common stockholders and affects their expectations regarding the return. The use of debt with own funds to increase the return to shareholders is known as financial leveraging.

Debt financing enables companies to have funds at a low cost and offer financial leverage to the shareholders. As long as the earnings of a company are higher than the cost of borrowed funds, shareholders earnings go up. At the same time, when the earnings are low, it may lead to bankruptcy for equity holders.

The financial risk is an avoidable risk. Proper planning and other financial adjustments by the management enables a company avoid the financial risk.

Return: Return is the primary motivating force that drives investment. It represents the reward for undertaking investment. Since the game of investing is about returns (after allowing risk), measurement of realized (historical) returns is necessary to assess how well the investment manager has done. In addition, historical returns are often used as investment input in estimating future (prospective or expected) returns.

The return of an investment consists of two components:

Current return: Current return is the periodic income such as dividend or interest, generated by the investment. It is measured as periodic income in relation to the beginning price of the investment.

Capital return: The second component of return is reflected in the price change called capital return. It is measured simply the price appreciation (depreciation) over the beginning price of the asset.

Thus the total return of a security is defined as:

Total return = Current return + Capital return

Measuring historical return:

$$\text{Total return} = (R) = \frac{I + [P_E - P_B]}{P_B}$$

Where R = Rate of return

I = Income received during the period

P_E = Price of the investment at the end of period

P_B = Price of the investment at the beginning of the period

Illustration:

- Price of a stock at the beginning of the year is Birr 60.00
- Dividend received on the stock at the end of the year is Birr 2.40
- Price of the stock at the end of the year is Birr 69.00

The total return on this stock is calculated as follows:

$$\text{Total return} = (R) = \frac{I + [P_E - P_B]}{P_B}$$

$$= \frac{2.40 + [69.00 - 60.00]}{60.00}$$

$$= 0.19 \text{ or } 19 \text{ percent}$$

It is helpful to split the rate of return into two components, viz., current yield and capital gain/loss.

The total return of 19 percent, in the above illustration, may be broken down as follows:

$$\text{Rate of return} (R) = \frac{I}{P_B} + \frac{P_E - P_B}{P_B}$$

$$= \frac{2.40}{60.00} + \frac{69.00 - 60.00}{60.00}$$

$$= 4\text{percent} + 15 \text{ percent} = 19 \text{ percent}$$

Measuring historical risk: Expressing the risk of a stock in quantitative terms makes possible comparisons with other stocks. Measurement provides an approximate quantification of risk but not 100 percent accurate because risk is caused by numerous factors like social, political, economic and managerial.

Historical risk (Ex-post risk):

Ex-post risk (past events) or historical risk is measured by taking the past returns of a security over a period of time. It helps the investor in analyzing the variability in the returns over a period of time. It is also helpful to measure the ex-ante risk (expected risk).

The most commonly used statistical measures in measuring historical risk are **variance or standard deviation**.

$$\text{Variance } (\sigma^2) = \frac{\sum(R - \bar{R})^2}{N}$$

$$\text{Standard deviation } (\sigma) = \sqrt{\sigma^2} = \sqrt{\text{Variance}}$$

Where: \sum = Summation
 R = Returns
 \bar{R} = Mean return
 N = No. of years