

# INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT

## BCOM 5<sup>TH</sup> SEMESTER

### **Introduction**

The term ‘investing’ could be associated with different activities, but the common target in these activities is to ‘employ’ the money (funds) during the time period seeking to enhance the investor’s wealth. Funds to be invested come from assets already owned, borrowed money and savings. By foregoing consumption today and investing their savings, investors expect to enhance their future consumption possibilities by increasing their wealth. However, it is always useful to make a distinction between real and financial investments. Real investments usually involve some kind of tangible assets, such as land, machinery, factories, etc. Financial investments involve contracts in paper or electronic form, such as stocks, bonds, etc.

#### **1.1.1 Definition of Investment**

“Investment analysis is the study of financial securities for the purpose of successful investing.” This definition contains the following important points:

There are institutional facts about the financial securities, how to trade and what assets are to be traded. •

There are analytical issues involved in studying these securities, the calculation of risks and returns, and the • relationship between the two.

There is the question of what success means for an investor, and the investment strategies that ensure that the • choices made are successful.

There are financial theories that are necessary to try to understand how the markets work and how the prices • of assets are determined.

It is clear that the more an investor understands, the less likely they are to make an expensive mistake. Note carefully that this is not saying that the more you know, the more you will earn. An explanation for this observation will be found in some of the theories that follow. These comments partly address the question “Can you beat the market?” Whether you can, depends on the view you may hold about the functioning of financial markets. One of the interpretations of investment analysis is that this is just not possible on a repeated basis. An alternative interpretation is that knowing the theory reveals where we should look for ways of beating the market.

#### **1.2 Characteristics of Investment**

Investment refers to investing money in financial physical assets and marketing assets. Major investment features are risk, return, safety, liquidity, marketability, concealability, capital growth, purchasing power, stability and the benefits.

## **Risk**

Risk refers to the loss of principal amount of an investment. It is one of the major characteristics of an investment. The risk depends on the following factors:

When investment maturity period is longer; investor will take larger risks. •

Government or Semi-Government bodies issue securities, which have lesser risks. •

In the case of the debt instrument or fixed deposit, the risk of above investment is less due to their secured and • fixed interest payable. For instance, debentures.

In the case of ownership instrument like equity or preference shares, the risk is more due to their unsecured • nature and variability of their return and ownership character.

The risk of degree of variability of returns is more in the case of ownership capital as compared to debt capital. • The tax provisions would influence the return of risk.

## **Return**

Return refers to expected rate of return from an investment. Return is an important characteristic of investment. Return is the major factor which influences the pattern of investment that is made by the investor. Investor always prefers high rate of return for his investment.

## **Safety**

Safety refers to the protection of investor principal amount and expected rate of return. Safety is also one of the essential and crucial elements of investment. Investor prefers his capital's safety. Capital is the certainty of return without loss of money or it will take time to retain it. If investor prefers less-risk securities, he chooses Government bonds. In cases, where investor prefers high rate of returns, investor will choose private securities, whose safety is low.

## **Liquidity**

Liquidity refers to investments ready to be converted into cash. In other words, it is available immediately in the cash form. Liquidity means that investment is easily realisable, saleable or marketable. When the liquidity is high, then the return may be low. For example, UTI units. An investor generally prefers liquidity for his investments and safety of funds through a minimum-risk and maximum-return investment.

## **Marketability**

Marketability refers to buying and selling of securities in market. Marketability means transferability or saleability of an asset. Securities listed in a stock market are more easily marketable than which are not listed. Public Limited Companies' shares are more easily transferable than those of private limited companies.

## **Concealability**

Concealability is another essential characteristic of the investment. Concealability means investment to be safe from social disorders, government confiscations or unacceptable levels of taxation. Property must be concealable and should leave no record of income received from its use or sale. Gold and precious stones have long been esteemed for these purposes, because they combine high-value with small bulk and are readily transferable.

## **Capital growth**

Capital growth refers to appreciation of investment. Capital growth has today become an important character of investment. Capital appreciation, also known as capital growth, refers to the increase in the value of an investment over time. It tells you how much profit you would pay taxes on, if you sold the investment that day. Investors and their advisers are constantly seeking 'growth stock' in the right industry; bought at the right time.

## **Purchasing power stability**

It refers to the buying capacity of investment in market. Purchasing power stability has become one of the import traits of investment. Investment always involves the commitment of current funds with the objective of receiving greater amounts of future funds

### **Stability of income**

It refers to constant return from an investment. Another major characteristic feature of the investment is the stability of income. Stability of income must look for different paths just as the security of the principal. Every investor must always consider stability of monetary income and stability of the purchasing power of income.

### **Tax benefits**

Tax benefit is the last characteristic feature of the investment. Planning an investment programme without considering the tax burden may be costly to the investor. There are actually two problems:

One concerned with the amount of income paid by the investment. •

Another is the burden of income tax upon that income. •

### **1.3 Need and Importance of Investments**

An investment is an important and useful factor in the context of present day conditions. Some factors are very important, while considering these investments. They are outlined below:

Longer life expectancy or planning for retirement •

Increasing rates of taxation •

High interest rates •

High rates of inflation •

Larger incomes •

Availability of a complex number of investment outlets •

#### **Longer life expectancy**

Investment decisions have become more significant as most people in India retire between the ages of 56 to 60. Investment decisions have to be planned to make wise saving decisions. Saving on their own does not increase wealth; the saving must be invested in such a way that the principal and income will be adequate for a greater number of retirement years. Longer life expectancy is one reason for effective savings and further investment activities that help the investment decisions.

#### **Increasing rates of taxation**

When tax rate is increased, it will focus on generating savings by the tax payer. When the tax payer invests their income in provident fund, pension fund, Unit Trust of India, Life Insurance, Unit Linked Insurance Plan, National Saving Certificates, Development Bonds, Post Office Cumulative Deposit Schemes, etc., it affects their taxable income.

#### **Interest rates**

Interest rate is one of the most important aspects of a sound investment plan. The interest rate differs from one investment to another. There may be changes between degree of risk and safe investments. They may also differ due to different benefit schemes offered by the institutions. A high rate of interest may not be the only factor favouring the outlet for investment. Stability of interest is an important aspect of receiving a high rate of interest.

#### **Inflation**

Inflation has become a continuous problem. It affects in terms of rising prices. Several problems are associated and coupled with falling standards of living. Therefore, investor's careful scrutiny of the inflation will make further investment process delayed. Investor ensures to check the safety of the principal amount and security of the investment. Both are crucial from the point of view of the interest gained from the investments.

#### **Income**

Income is another important element of the investment. When government provides jobs to the unemployed persons in the country, the ultimate result is ensuring income than saving the extra

income. More incomes and more avenues of investment have led to the ability and willingness of working people to save and invest their funds.

## **Investment channels**

The growth and development of the country leading to greater economic prosperity has led to the introduction of a vast area of investment outlets. Investment channels mean an investor is willing to invest in several instruments like corporate stock, provident fund, and life insurance, fixed deposits in the corporate sector and unit trust schemes.

### **1.4 Classification of Investment**

The classification of investments into various groups is explained in the paragraphs given below:

#### **On the basis of physical investments**

Physical investments are as follows:

House•

Land•

Building•

Gold and silver•

Precious stones•

#### **On the basis of financial investment**

Financial investments are further classified on the basis of:

Marketable and transferable investments•

Non-marketable investments•

Marketable investments are as follows:

Shares•

Debentures of Public Limited Companies, particularly the listed company in Stock Exchange•

Bonds of Public Sector Units•

Government Securities, etc. •

Non-marketable investments are as follows:

Bank deposits•

Provident and pension funds•

Insurance certificates•

Post office deposits•

National saving certificates•

Company deposits•

Private company shares, etc. •

### **1.5 Saving and Investment**

Investors are savers, but all savers cannot be good investors, as investment is a science and an art. Savings are sometimes autonomous and sometimes induced by the incentives like fiscal concessions or income or capital appreciation. The number of investors was estimated at about 50 million out of population of more than one billion in India. In the nineties, savers came from all classes except in the case of the population, who were below the poverty line. The growth of urbanisation and literacy has activated the cult of investment. More recently, since the nineties, the investment activity has become more popular with the change in the Government policies towards liberalisation and financial deregulation. The process of liberalisation and privatisation was accelerated by the Government policy changes towards a market-oriented economy, through economic and financial reforms started in July 1991. Investment Analysis and Portfolio Management

## 1.6 Investment Activity

Investment activity includes buying and selling of the financial assets, physical assets and marketable assets in primary and secondary markets. Investment activity involves the use of funds or saving for further creation of assets or acquisition of existing assets.

Accordingly, investment activity refers to acquisition of assets like:

Financial assets•

Physical assets•

Marketable assets from the primary and secondary market•

Financial assets are as follows:

Cash•

Bank deposits•

P.F.•

LIC schemes•

Pension scheme•

Post office certificates and deposits•

Physical assets are as follows:

House, land, building and flats•

Gold, silver and other metals•

Consumer durables•

Marketable assets are as follows:

Shares•

Bonds•

Government securities•

M.F schemes•

UTI units, etc.•

Investment activity involves the use of funds or saving for further creation of assets or acquisition of existing assets.

## 1.7 Measures of Return and Risk

These chapters will enable you to choose among alternative investment assets. This selection process requires that you estimate and evaluate the expected risk return trade-offs for the alternative investments available. Therefore, you must understand how to measure the rate of return and the risk involved in an investment accurately. To meet this need, the ways to quantify return and risk are examined. The presentation will consider how to measure both historical and expected rates of return and risk. The historical measures of return and risk are considered with numerous examples of historical average rates of return and risk measures for various assets. Understanding these presentations is very important. In addition, these historical results are often used by investors, when attempting to estimate the expected rates of return and risk for an asset class.

The first measure is the historical rate of return on an individual investment over the time period the investment is held (that is, its holding period). Next, how to measure the average historical rate of return for an individual investment over a number of time periods is considered. The average rate of return for a portfolio of investments is also dealt with. Given the measures of historical rates of return, the traditional measures of risk for a historical time series of returns (that is, the variance and standard deviation) are presented. By following the presentation of measures of historical rates of return and risk, the expected rate of return for an investment is estimated.7/JNU OLE

### 1.7.1 Measures of Historical Rates of Return

When you are evaluating alternative investments for inclusion in your portfolio, you will often be comparing investments with widely different prices or lives. As an example, you might want to compare a \$10 stock that pays no dividends to a stock selling for \$150 that pays dividends of \$5 a year. To properly evaluate these two investments, you must accurately compare their historical rates of returns.

When we invest, we defer current consumption in order to add to our wealth, so that we can consume more in the future. Therefore, when we talk about a return on an investment, we are concerned with the change in wealth resulting from this investment. This change in wealth can be either due to cash inflows, such as interest or dividends, or caused by a change in the price of the asset (positive or negative).

If you commit \$200 to an investment at the beginning of the year and you get back \$220 at the end of the year, what is your return for the period? The period during which you own an investment is called its holding period, and the return for that period is the Holding Period Return (HPR). In this example, the HPR is 1.10, calculated as follows:

This HPR value will always be zero or greater, that is, it can never be a negative value. A value greater than 1.0 reflects an increase in your wealth, which means that you received a positive rate of return during the period. A value, less than 1.0 means that you suffered a decline in wealth. This indicates that you had a negative return during the period. An HPR of zero indicates that you lost all your money (wealth) invested in this asset.

Although HPR helps us express the change in value of an investment, investors generally evaluate returns in percentage terms on an annual basis. This conversion to annual percentage rates makes it easier to directly compare alternative investments that have markedly different characteristics. The first step in converting an HPR to an annual percentage rate is to derive a percentage return, referred to as the Holding Period Yield (HPY). The HPY is equal to the HPR minus 1.

$$\text{HPY} = \text{HPR} - 1$$

For example:

$$\begin{aligned}\text{HPY} &= 1.10 - 1 = 0.10 \\ &= 10\%\end{aligned}$$

To derive an annual HPY, you compute an annual HPR and subtract 1.

Annual HPR is found by:

Where:

n=number of years the investment is held

### 1.7.2 Computing Mean Historical Returns

Now that we have calculated the HPY for a single investment for a single year, we want to consider mean rates of return for a single investment and for a portfolio of investments. Over a number of years, a single investment will likely give high rates of return during some years and low rates of return, or possibly negative rates of return, during others. Your analysis should consider each of these returns, but you also want a summary figure that indicates this investment's typical experience, or the rate of return you might expect to receive, if you owned this investment over an extended period of time. You can derive such a summary figure by computing the mean annual rate of return (it's HPY) for this investment over some period of time. Investment Analysis and Portfolio Management 8/JNU OLE

Alternatively, you might want to evaluate a portfolio of investments that might include similar investments (for example, all stocks or all bonds) or a combination of investments (for example, stocks, bonds and real estate). In this instance, you would calculate the mean rate of return for this portfolio of investments for an individual year or for a number of years. Given a set of annual rates of return (HPYs) for an individual investment, there are two summary measures of return performance. The first is the arithmetic mean return; the second is the geometric mean return. To find the arithmetic mean (AM), the sum ( $\Sigma$ ) of annual HPYs is divided by the number of years (n) as follows:

Where:

An alternative computation, the Geometric Mean (GM), is the nth root of the product of the HPRs for n years minus one.

Where:

$\pi$  = the product of the annual holding period returns as follows:  

$$() \times \dots$$

When rates of return are the same for all years, the GM will be equal to the AM. If the rates of return vary over the years, the GM will always be lower than the AM. The difference between the two mean values will depend on the year-to-year changes in the rates of return. Larger annual changes in the rates of return, that is, more volatility will result in a greater difference between the alternative mean values.

An awareness of both methods of computing mean rates of return is important, because most published accounts of long-run investment performance or descriptions of financial research will use both the AM and the GM as measures of average historical returns. Both will be used throughout this book with the understanding that the AM is best used as an expected value for an individual year, while the GM is the best measure of long-term performance, since it measures the compound annual rate of return for the asset being measured.

### **A portfolio of investments**

The mean historical rate of return (HPY) for a portfolio of investments is measured as the weighted average of the HPYs for the individual investments in the portfolio, or the overall percent change in value of the original portfolio. The weights used in computing the averages are the relative beginning market values for each investment; this is referred to as dollar-weighted or value-weighted mean rate of return. As shown, the HPY is the same whether you compute the weighted average return using the beginning market value weights or if you compute the overall percent change in the total value of the portfolio.

Although the analysis of historical performance is useful, selecting investments for your portfolio requires you to predict the rates of return you expect to prevail. We shall discuss how one measures this uncertainty, which is referred to as the risk of an investment.

### **Calculating expected rates of return**

Risk is the uncertainty that an investment will earn its expected rate of return. An investor who is evaluating a future investment alternative expects or anticipates a certain rate of return. The investor might say that he or she expects the investment to provide a rate of return of 10 percent, but this is actually the investor's most likely estimate, also referred to as a point estimate.



Pressed further, the investor would probably acknowledge the uncertainty of this point estimate return and admit the possibility that, under certain conditions, the annual rate of return on this investment might go as low as 10 percent or as high as 25 percent. The point is the specification of a larger range of possible returns from an investment reflects the investor's uncertainty regarding what the actual return will be. Therefore, a larger range of possible returns implies that the investment is riskier.

An investor determines how certain the expected rate of return on an investment is by analysing estimates of possible returns. To do this, the investor assigns probability values to all possible returns. These probability values range from zero, which means no chance of the return, to one, which indicates complete certainty that the investment will provide the specified rate of return. These probabilities are typically subjective estimates based on the historical performance of the investment or similar investments modified by the investor's expectations for the future.

As an example, an investor may know that about 30 percent of the time the rate of return on this particular investment was 10 percent. Using this information along with future expectations regarding the economy, one can derive an estimate of what might happen in the future. The expected return from an investment is defined as:

### **1.7.3 Measuring the Risk of Expected Rates of Return**

We have shown that we can calculate the expected rate of return and evaluate the uncertainty, or risk, of an investment by identifying the range of possible returns from that investment and assigning each possible return a weight based on the probability that it will occur. Although the graphs help us visualise the dispersion of possible returns, most investors want to quantify this dispersion using statistical techniques. These statistical measures allow you to compare the return and risk measures for alternative investments directly. Two possible measures of risk (uncertainty) have received support in theoretical work on portfolio theory, the variance and the standard deviation of the estimated distribution of expected returns. We shall demonstrate how variance and standard deviation measure the dispersion of possible rates of return around the expected rate of return. We will work with the examples discussed earlier. The formula for variance is as follows:

#### **Risk measures for historical returns**

To measure the risk for a series of historical rates of returns, we use the same measures as for expected returns (variance and standard deviation), except that we consider the historical Holding Period Yields (HPYs) as follows:

Where:

$N$  = the number of observations

The standard deviation is the square root of the variance. Both measures indicate how much the individual HPYs over time deviated from the expected value of the series.

### **1.8 Determinants of Required Rate of Return**

In this section, we continue our discussion of factors that must be considered when selecting securities for an investment portfolio. This selection process involves finding securities that provide a rate of return that compensates you for:

The time value of money during the period of investment. •

The expected rate of inflation during the period. •

The risk involved. •

The summation of these three components is called the required rate of return. This is the minimum rate of return that you should accept from an investment to compensate you for deferring consumption. Due to the importance of the required rate of return to the total investment selection process, this section contains a discussion of the three components and what influences each of them.

The analysis and estimation of the required rate of return are complicated by the behaviour of market rates over time.

First, a wide range of rates is available for alternative investments at any time. •

Second, the rates of return on specific assets change dramatically over time. •

Third, the difference between the rates available (that is, the spread) on different assets changes over time. •

### **1.9 Investing Versus Financing**

The term 'investing' could be associated with the different activities, but the common target in these activities is to 'employ' the money (funds) during the time period seeking to enhance the investor's wealth. Funds to be invested come from assets already owned, borrowed money and savings. By foregoing consumption today and investing their savings, investors expect to enhance their future consumption possibilities by increasing their wealth.

However, it is useful to make a distinction between real and financial investments. Real investments generally involve some kind of tangible asset, such as land, machinery, factories, etc. Financial investments involve contracts in paper or electronic form, such as stocks, bonds, etc. Corporate finance typically covers such issues as capital structure, short-term and long-term financing, project analysis and current asset management. Capital structure addresses the question of what type of long-term financing is the best for the company under current and forecasted market conditions; project analysis is concerned with the determining whether a project should be undertaken. Current assets and current liabilities management address how to manage the day-by-day cash flows of the firm. Corporate finance is also concerned with how to allocate the profit of the firm among shareholders (through the dividend payments), the government (through tax payments) and the firm itself (through retained earnings). However, one of the most important questions for the company is financing. Modern firms raise money by issuing stocks and bonds. These securities are traded in the financial markets and the investors have possibility to buy or to sell securities issued by the companies. Thus, the investors and companies, searching for financing, realise their interest in the same place in financial markets.

Corporate finance area of studies and practice involves the interaction between firms and financial markets and investments area of studies and practice involves the interaction between investors and financial markets. Investments field also differs from the corporate finance in using the relevant methods for research and decision-making. Investment problems in many cases allow for a quantitative analysis and modelling approach and the qualitative methods together with quantitative methods are more often used analysing corporate finance problems. The other very important difference is, that investment analysis for decision-making can be based on the large data sets available from the financial markets, such as stock returns, thus, the mathematical statistics methods can be used.

However, at the same time both corporate finance and investments are built upon a common set of financial principles, such as the present value, the future value, the cost of capital. Very often, investment and financing analysis for decision-making use the same tools, but the interpretation of the results from this analysis for the investor and for the financier would be different. For example, when issuing the securities and selling them in the market the company perform valuation looking for the higher price and for the lower cost of capital, but the investor using valuation search for attractive securities with the lower price and the higher possible required rate of return on his/her investments.

Together with the investment, the term speculation is frequently used. Speculation can be described as investment too, but it is related with the short-term investment horizons and usually involves purchasing the saleable securities with the hope that its price will increase rapidly, providing a quick profit. Speculators try to buy low and to sell high, their primary concern is with anticipating and profiting from market fluctuations. However, as the fluctuations in the financial markets are and become more and more unpredictable, speculations are treated as the investments of highest risk. In contrast, an investment is based upon the analysis and its main goal is to promise safety of principle sum invested and to earn the satisfactory risk.

There are two types of investors:

Individual investors•

Institutional investors•

Individual investors are individuals who are investing on their own. Sometimes, individual investors are called retail investors. Institutional investors are entities, such as investment companies, commercial banks, insurance companies, pension funds and other financial institutions. In recent years, the process of institutionalisation of investors can be observed. As the main reasons for this can be mentioned, the fact, that institutional investors can achieve economies of scale, demographic pressure on social security and the changing role of banks. One of important preconditions for successful investing both for individual and institutional investors is the favourable investment environment. The basic principles of investment management are applicable, both for individual and institutional investors.

### **1.10 Direct Versus Indirect Investment**

Investors can use direct or indirect type of investing. Direct investing is realised using financial markets and indirect investing involves financial intermediaries. The primary difference between these two types of investing is that applying direct investing, investors buy and sell financial assets and manage individual investment portfolio themselves. Consequently, investing directly through financial markets, investors take all the risks and their successful investing depends on their understanding of financial markets, its fluctuations and on their abilities to analyse and to evaluate the investments and to manage their investment portfolio.

Contrarily, using indirect type of investing, investors are buying or selling financial instruments of financial intermediaries (financial institutions) which invest large pools of funds in the financial markets and hold portfolios. Indirect investing relieves investors from making

decisions about their portfolio. As shareholders with the ownership interest in the portfolios managed by financial institutions (investment companies, pension funds, insurance companies, commercial banks, etc.), the investors are entitled to their share of dividends, interest and capital gains generated and pay their share of the institution's expenses and portfolio management fee. The risk for investor using indirect investing is related more with the credibility of chosen institution and the professionalism of portfolio managers. In general, indirect investing is more related with the financial institutions which are primarily in the business of Investment Analysis and Portfolio Management

investing in and managing a portfolio of securities (various types of investment funds or investment companies, private pension funds). By pooling the funds of thousands of investors, those companies can offer them a variety of services, in addition to diversification, including professional management of their financial assets and liquidity.

Investors can 'employ' their funds by performing direct transactions, bypassing both financial institutions and financial markets (for example, direct lending). However, such transactions are very risky, if a large amount of money is transferred only to one's hands, following the well known American proverb "don't put all your eggs in one basket." That turns to the necessity to diversify your investments. From the other side, direct transactions in the businesses are strictly limited by laws avoiding possibility of money laundering. All types of investing discussed above and their relationship with the alternatives of financing are presented in Table