Short Topics

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1. **Real Assets:**

Real assets are tangible assets that have physical characteristics. For instance, land, house,
Equipment, car, wheat, fruits, cotton, computers, etc., are different kinds of real assets.

2. **Securities:**

Security, also known as a financial asset, is a piece of paper representing a claim on an asset.
Securities can be classified into two categories.

3. • **Direct Securities:** Direct securities include stocks and bonds. While valuing

Direct securities we take into account the cash flows generated by the
Underlying assets.
Discounted Cash Flow (DCF) technique is often used to determine the value of
a stock or bond.

4. • **Indirect Securities**: Indirect securities include derivatives, Futures and Options.

The securities do not generate any cash flow; however, its value depends on the
Value of the underlying asset.
While in this course, direct securities would be discussed at length, the indirect securities would only be skimmed through in the later chapters.

5. **Bonds:**

Bonds represent debt. The important features of bonds are given as under.
• Internationally, bonds are the most common way for companies to raise funds.
• A bond is a long-term debt contract (on paper) issued by the borrower (Issuer of the Bond i.e., accompany that wishes to raise funds) to the lenders (bondholders or Investors which may include banks, financial institutions, and private investors).
• Bonds issued by a company are usually shown on the liabilities side of the Balance Sheet.

• A Bond requires the borrower to pay a pre-determined amount of interest regularly to the lender (Bondholder). The interest rate or the rate of return on a bond can be Fixed or Floating. If an Investor purchases a bond which is offering a rate of 10 % for the life of the bond, the rate would be fixed at 10 percent. However, if the interest rate on the bond is tied to the market interest rates, the rate of interest would be floating. The floating rate implies that the interest rate would fluctuate with any change in the market interest rate.

Types of Bonds:

• Debentures: Unsecured – no asset backing
• Mortgage Bond: Secured by real property i.e. Land, house
• Others: Eurobond, Zeros, Junk, etc.

The details on these different types of bonds would be discussed in later lectures.

Stocks (or Shares):

Stocks (or Shares) are paper certificates representing ownership in a business. Therefore, if a company has issued 1 million shares and an investor owns 1 share only, he is a part owner (or shareholder) of the company. Stocks or shares are represented in the equity section of the balance sheet. A stock certificate is perpetuity, i.e., it lasts as long as the company does. Shareholders have a residual claim (last claim) on whatever net income (or profit) and assets are left over after the bondholders have been fully paid off. It is the most common source of raising funds under Islamic Shariah. Shares are traded in Stock market e.g. Karachi Stock Exchange (KSE), Lahore Stock Exchange (LSE) & Islamabad Stock Exchange (ISE).

Difference between Shares & Bonds:

The main difference between shares and bonds is that shares are representation of ownership in a company while bonds are not representative of ownership.

The second difference is that shares last as long as the company lasts where as bonds have limited life.

Another difference is that the return on a bond is predetermined, i.e., the investor knows in advance how much return he would get from a bond. However, a stockholder cannot be certain about the return on a stock investment, since the dividends may or may not be paid in a certain year or the percentage of dividends announced may vary.

Types of Stocks (or Shares):

- ## Common Stock:

Common shareholders receive dividends, or portion of the net income which the Management decides, NOT to reinvest into the company in the form of retained earnings.
Dividends are paid in proportion to the number of shares the stockholders own and are announced by the board of directors, who may opt not to announce a dividend in a particular year. Common Stockholders have voting rights to elect the board of directors.

Further details
(A security that represents ownership in a corporation Holders of common stock exercise control by electing a board of directors and voting on corporate policy. Common stockholders are on the bottom of the priority ladder for ownership structure. In the event of liquidation, common shareholders have rights to a company's assets only after bondholders; preferred shareholders and other debt holders have been paid in full)

If the company goes bankrupt, the common stockholders will not receive their money until the creditors and preferred shareholders have received their respective share of the leftover assets. This makes common stock riskier than debt or preferred shares. The upside to common shares is that they usually outperform bonds and preferred shares in the long run.

- ## Preferred Stock:

It is the stock with a predetermined or fixed dividend. In case, the board of directors announces Dividends, the preferred stockholders would have a priority claim on them, i.e., they would be paid Dividends before any dividends are paid to the common stockholders. However, if the board opts to retain earnings, the preferred stock would not yield a dividend, and thus cash flows from a preferred dividend are not as certain as income of the bondholders.

Dividends are paid out of net income. Shareholders get a part of the net profit of the company during the year, proportional to their shareholdings, and it is for the management to decide how much of the profit is to be distributed among the shareholders.

Now, we will see how these shares and bonds will appear on the face of a balance sheet. We will have to look at these shares and bonds from two aspects, the shares and bonds that the company issues and the shares and bonds that company invest in. The shares and bonds that a company purchases as an Investment will come on the asset side under the section of marketable securities. These shares and Bonds have been purchased by the company to generate extra income. On the other hand, those shares and bonds that the company issues to raise funds will appear on the liability side.
If the company has issued bonds, they will be classified as liability. But if the company has issued equity shares, they will appear under the section of common equity on liability side in the balance sheet. Where do bonds & stocks appear on the Balance Sheet?

Detail

A class of ownership in a corporation that has a higher claim on the assets and earnings than common stock. Preferred stock generally has a dividend that must be paid out before dividends to common stockholders and the shares usually do not have voting rights.

The precise detail as to the structure of preferred stock is specific to each corporation. However, the best way to think of preferred stock is as a financial instrument that has characteristics of both debt (fixed dividends) and equity (potential appreciation). Also known as "preferred shares"

What is Risk? And define kind of Risk?

The chance that an investment's actual return will be different than expected.

This includes the possibility of losing some or all of the original investment. Risk is usually measured by calculating the standard deviation of the historical returns or average returns of a specific investment.

Many companies now allocate large amounts of money and time in developing risk management strategies to help manage risks associated with their business and investment dealings. A key component of the risk management process is risk assessment, which involves the determination of the risks surrounding a business or investment.

Investopedia explains **Risk**

A fundamental idea in finance is the relationship between risk and return. The greater the amount of risk that an investor is willing to take on, the greater the potential return. The reason for this is that investors need to be compensated for taking on additional risk.

For example, a U.S. Treasury bond is considered to be one of the safest investments and, when compared to a corporate bond, provides a lower rate of return. The reason for this is that a corporation is much more likely to go bankrupt than the U.S. government. Because the risk of investing in a corporate bond is higher, investors are offered a higher rate of return.

What are the different types of risks?

There a number of differing types of risk that can affect your investments. While some of these risks can be reduced through a number of avenues - some of them simply have to be accepted and planned for in any investment decision. On a *macro* (large scale) level there are two main types of risk, these are *systematic risk* and *unsystematic risk*.

- **Systematic risk** is the risk that cannot be reduced or predicted in any manner and it is almost impossible to predict or protect you against this type of risk. Examples of this type of risk include *interest rate increases* or *government legislation changes.* The smartest way to account for this risk is to simply acknowledge that this type of risk will occur and plan for your investment to be affected by it.
- **Unsystematic risk** is risk that is specific to an assets features and can usually be eliminated through a process called *diversification (refer below)*.

Examples of this type of risk include employee strikes or management decision changes.

Macro Risk Levels

While these are the *macro* scale levels of risk, there are also some more important *micro* (small scale) types of risks that are important when talking about the valuation of a *stock* or *bond.* These include:

- **Business Risk -** The uncertainty of income caused by the nature of a companies business measured by a ratio of *operating earnings* (income flows of the firm). This means that the less certain you are about the income flows of a firm, the less certain the income will flow back to you as an investor. The sources of business risk mainly arises from a companies products/services, ownership support, industry environment, market position, management quality etc. An example of business risk could include a rubbish company that typically would experience stable income and growth over time and would have a low business risk compared to a steel company whereby sales and earnings fluctuate according to need for steel products and typically would have a higher business risk.
- **Liquidity Risk** – The uncertainty introduced by the secondary market for a company to meet its future short term financial obligations. When an investor purchases a security, they expect that at some future period they will be able to sell this security at a profit and redeem this value as cash for consumption - this is the *liquidity* of an investment, its ability to be redeemable for cash at a future date. Generally, as we move up the asset allocation table - the liquidity risk of an investment increases.
- **Financial Risk** - Financial risk is the risk borne by *equity* holders (refer Shares section) due to a firms use of debt. If the company raises capital by borrowing money, it must pay back this money at some future date plus the financing charges (interest etc charged for borrowing the money). This increases the degree of uncertainty about the company because it must have enough income to pay back this amount at some time in the future.

- **Exchange Rate Risk** - The uncertainty of returns for investors that acquire foreign investments and wish to convert them back to their home currency. This is particularly important for investors that have a large amount of over-seas investment and wish to sell and convert their profit to their home currency. If exchange rate risk is high - even though a substantial profit may have been made overseas, the value of the home currency may be less than the overseas currency and may erode a significant amount of the investments earnings. That is, the more volatile an exchange rate between the home and investment currency, the greater the risk of differing currency value eroding the investments value.
- **Country Risk** - This is also termed political risk, because it is the risk of investing funds in another country whereby a major change in the political or economic environment could occur. This could devalue your investment and reduce its overall return. This type of risk is usually restricted to emerging or developing countries that do not have stable economic or political arenas.
- **Market Risk** - The price fluctuations or volatility increases and decreases in the day-to-day market. This type of risk mainly applies to both *stocks* and options and tends to perform well in a bull (increasing) market and poorly in a bear (decreasing) market (see bull vs bear). Generally, the more volatility within the market, the more probability there is that your investment will increase or decrease.

Risk and Expected Return

There are a number of ways to calculate the investment return of an account. We discussed some of these (real return, total return and risk-adjusted return) in the Quantitative Methods section, and bond yields (yield-to-maturity, yield-to-call and the real interest rate) were discussed in the Fixed Income Securities section. You will not be tested on the actual formulas, so we have not included them here (other than those provided for clarity). In this section we'll focus on return measures.

Return Measures

- **Return on investment (ROI)** - this is the classic measure of performance, taking into account all cash flows (including dividends, interest, return of principal and capital gains). To calculate, simply divide the sum of all cash flows by the number of years the investment is held and then divide that amount by the original amount invested.

- **Risk premium** - the risk premium is the higher return that is expected for taking on the greater risk associated with investing in a growth stock, versus a stock from a more established company.

- **Risk-free rate of return** - the current rate for Treasury bills is typically used in calculations, such as risk-adjusted return and the Sharpe ratio.

- **Expected return** - since the expected return is the average of the probability of possible rates of return, it is by no means a guaranteed rate of return. However, it can be used to forecast the future value of a portfolio and also provides a guide from which to measure actual returns.

Detail

  - It is an integral component of the Capital Asset Pricing Model, which calculates the expected return based on the premium of the market rate over the risk-free return, as well as the risk of the investment relative to the market as a whole (beta).

- **Benchmark portfolios -** a common way to evaluate portfolio returns is to compare them to a benchmark, such as an index. These are the most common benchmarks:

  - **Standard & Poor's 500** - for large-cap stocks
  - **Russell 2000 -** for small-cap stocks
  - **Europe, Australia and Far East Index (EAFE) -** for international stocks

- **Holding period return** - this refers to the return for the period of time the investment was actually held. This can be more meaningful than an annualized rate of return, particularly for investments held short term. However, the standard deviation of returns depends on the holding period, since stock returns are more volatile over shorter periods of time. As a result:

    - the shorter the holding period, the greater the variability of the return

    - the longer the holding period, the smaller the variability of the return

- **Excess returns** - this is the amount of return over and above what is expected based on the beta of the stock or portfolio.

- **Internal rate of return (IRR)** - this is the interest rate that makes the net present value of a series of cash flows equal to zero. The internal rate of return can only be calculated by trial and error (or with a financial calculator) unless the investment has only a single cash flow, such as a zero-coupon bond. In that case the calculation is:

Internal rate of return = (Payoff/Investment) - 1

An example of this would be an investment of $1,000 that would return $1,100 in one year. The formula would produce (1100/1000) - 1, which equals 1.10 - 1, which equals 0.10 (10%).

Look Out!

The fact that internal rate of return presumes that the net present value of the inflows and outflows equals zero seems counterintuitive. It may be helpful to think of IRR as the discount rate at which

the expected returns equal the initial investment. However, on the exam, the "net present value equals zero" will be the correct answer.

Exam Tips and Tricks

Consider these sample exam questions:

1. **An investor owns a small-cap stock with very low trading volume. The investor has a high level of:**
    a. Business risk
    b. Market risk
    c. Liquidity risk
    d. Purchasing power risk

The correct answer is "c" - while there is also the potential of business risk, the best answer is liquidity risk because the question focuses on the low trading volume.

2. **Assuming that prices fluctuate throughout the investing period, the use of dollar-cost averaging results in a:**
    a. Lower average cost per share
    b. Higher average cost per share
    c. Lower market price per share
    d. Higher market price per share

The correct answer is "a" - when prices are lower, more shares are bought, which results in a lower average cost per share.

3. **The Sharpe ratio measures:**
    a. Risk-adjusted rate of return relative to portfolio volatility
    b. Level of portfolio volatility relative to a benchmark portfolio
    c. Level of investment return relative to the dollar amount invested
    d. Risk-adjusted rate of return relative to the risk-free rate of return

The correct answer is "a" - options "b" and "c" is clearly wrong. While "D" refers to the risk-free rate of return, which is a component of the Sharpe ratio, the definition is not correct.

4. **The method of evaluating investment returns that calculates the interest rate which discounts cash inflows and outflows to a present value of zero is called:**
    a. Inflation-adjusted return
    b. Internal rate of return
    c. Total return
    d. Net present value

The correct answer is "b". Answer "d" is incorrect because the method referred to incorporates the concept of net present value, but it is not a definition of that term.

What Does *Diversification* Mean?

A risk management technique that mixes a wide variety of investments within a portfolio. The rationale behind this technique contends that a portfolio of different kinds of investments will, on average, yield higher returns and pose a lower risk than any individual investment found within the portfolio.

Diversification strives to smooth out unsystematic risk events in a portfolio so that the positive performance of some investments will neutralize the negative performance of others. Therefore, the benefits of diversification will hold only if the securities in the portfolio are not perfectly correlated.

What Does Standard Deviation *Mean?*

1. A measure of the dispersion of a set of data from its mean. The more spread apart the data, the higher the deviation. Standard deviation is calculated as the square root of variance.

2. In finance, standard deviation is applied to the annual rate of return of an investment to measure the investment's volatility. Standard deviation is also

known as historical volatility and is used by investors as a gauge for the amount of expected volatility.

Investopedia explains Standard Deviation

Standard deviation is a statistical measurement that sheds light on historical volatility. For example, a volatile stock will have a high standard deviation while the deviation of a stable blue chip stock will be lower. A large dispersion tells us how much the return on the fund is deviating from the expected normal returns.

What Does *Coefficient Of Variation - CV* Mean?

A statistical measure of the dispersion of data points in a data series around the mean. It is calculated as follows:

$$\text{Coefficient of Variation} = \frac{\text{Standard Deviation}}{\text{Expected Return}}$$

The coefficient of variation represents the ratio of the standard deviation to the mean, and it is a useful statistic for comparing the degree of variation from one data series to another, even if the means are drastically different from each other.

Investopedia explains ***Coefficient Of Variation - CV***

In the investing world, the coefficient of variation allows you to determine how much volatility (risk) you are assuming in comparison to the amount of return you can expect from your investment. In simple language, the lower the ratio of standard deviation to mean return, the better your risk-return tradeoff.

Note that if the expected return in the denominator of the calculation is negative or zero, the ratio will not make sense.

What is efficient portfolio?

An efficient portfolio is one that lies on the efficient frontier.

An efficient portfolio provides the lowest level of risk possible for a given level of expected. If a portfolio is efficient, then it is not possible to construct a portfolio with the same, or a better level, of expected return and a lower volatility.

An efficient portfolio also provides the best returns achievable for a given level of risk. If a portfolio is efficient it is not possible to construct a portfolio with a higher expected return and the same or a lower level of volatility with the securities available in the market, excluding risk free assets. Adding the latter allows one to construct portfolios that lie on the securities market line.

The market portfolio is an efficient portfolio, and its risk and returns are those of the point where the securities market line touches the efficient frontier.

What is the Correlation Coefficient?

The correlation coefficient a concept from statistics is a measure of how well trends in the predicted values follow trends in past actual values. It is a measure of how well the predicted values from a forecast model "fit" with the real-life data.

The correlation coefficient is a number between 0 and 1. If there is no relationship between the predicted values and the actual values the correlation coefficient is 0 or very low (the predicted values are no better than random numbers). As the strength of the relationship between the predicted values and actual values increases so does the correlation coefficient. A perfect fit gives a coefficient of 1.0. Thus the higher the correlation coefficient the better.

What Does* Correlation *Mean?

In the world of finance, a statistical measure of how two securities moves in relation to each other. Correlations are used in advanced portfolio management.

Investopedia explains *Correlation*

Correlation is computed into what is known as the correlation coefficient, which ranges between -1 and +1. Perfect positive correlation (a correlation co-efficient of +1) implies that as one security moves, either up or down, the other security will

move in lockstep, in the same direction. Alternatively, perfect negative correlation means that if one security moves in either direction the security that is perfectly negatively correlated will move by an equal amount in the opposite direction. If the correlation is 0, the movements of the securities are said to have no correlation; they are completely random.

In real life, perfectly correlated securities are rare; rather you will find securities with some degree of correlation.

What Does *Call Provision* Mean?

A provision on a bond or other fixed-income instrument that allows the original issuer to repurchase and retire the bonds. If there is a call provision in place, it will typically come with a time window under which the bond can be called, and a specific price to be paid to bondholders and any accrued interest are defined.

Callable bonds will pay a higher yield than comparable non-callable bonds.

Call provision

Definition

A clause in a bond's indenture granting the issuer the right to buy back all or part of an issue prior to the maturity date.

***Investopedia explains* Call Provision**

A bond call will almost always favor the issuer over the investor; if it doesn't, the issuer will simply continue to make the current interest payments and keep the debt active. Typically, call options on bonds will be exercised by the issuer when interest rates have fallen. The reason for this is that the issuer can simply issue new debt at a lower rate of interest, effectively reducing the overall cost of their borrowing, instead of continuing to pay the higher effective rate on the borrowings