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**School of Management and Social Sciences (Dept. of Business administration).**

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| **Course Title: Advance Corporate Finance** |  |

**Ans(1) Part (a)**

**What are Bonds?**

Bonds are issued by organizations generally for a period of more than one year to raise money by borrowing.

Organizations in order to raise capital issue bond to investors which is nothing but a financial contract, where the organization promises to pay the principal amount and interest (in the form of coupons) to the holder of the bond after a certain date. (Also called maturity date).Some Bonds do not pay interest to the investors, however it is mandatory for the issuers to pay the principal amount to the investors.

Maturity date refers to the final date for the payment of any financial product when the principal along with the interest needs to be paid to the investor by the issuer.

### Characteristics of a Bond

* A bond is generally a form of debt which the investors pay to the issuers for a defined time frame. In a layman’s language, bond holders offer credit to the company issuing the bond.
* Bonds generally have a fixed maturity date.
* All bonds repay the principal amount after the maturity date; however some bonds do pay the interest along with the principal to the bond holders.
* **Face value** is the money amount the bond will be worth at maturity; it is also the reference amount the bond issuer uses when calculating interest payments. For example, say an investor purchases a bond at a premium $1,090 and another investor buys the same bond later when it is trading at a discount for $980. When the bond matures, both investors will receive the $1,000 face value of the bond.
* **The coupon rate** is the rate of interest the bond issuer will pay on the face value of the bond, expressed as a percentage. For example, a 5% coupon rate means that bondholders will receive 5% x $1000 face value = $50 every year. Two features of a bond—[credit quality](https://www.investopedia.com/terms/c/creditquality.asp) and time to maturity—are the principal determinants of a bond's coupon rate.
* **Coupon dates** are the dates on which the bond issuer will make interest payments. Payments can be made in any interval, but the standard is semiannual payments.
* **The maturity date** is the date on which the bond will mature and the bond issuer will pay the bondholder the face value of the bond.
* **The issue price**is the price at which the bond issuer originally sells the bonds.

**Ans(2) Part (a)**

This section will focus on the various types of bonds that a company might issue.

Long term bonds traded in the Capital Markets includes **Long term Government Notes and Bonds, Municipal Bonds and Corporate Bonds.**

**The U.S Treasury issues notes and bonds**

The U.S Treasury issues notes and bonds to finance the national debt. The difference between note and a bond is that notes have an original maturity of 1 to 10 years while bonds have an original maturity of 10 to 20 years.

**Treasury Securities**

Bonds, bills, and notes issued by the U.S. government are generally called “Treasuries” and are the highest-quality securities available. They are issued by the U.S. Department of the Treasury through the Bureau of Public Debt. All treasury securities are liquid and traded on the secondary market. They are differentiated by their maturity dates, which range from 30 days to 30 years. One major advantage of Treasuries is that the interest earned is exempt from state and local taxes. Treasuries are backed by the full faith and credit of the U.S. government as to the timely payment of principal and interest, so there is little risk of default.

**Treasury bills**(T-bills) are short-term securities that mature in less than one year. They are sold at a discount from their face value and thus don’t pay interest prior to maturity.

Treasury notes (T-notes) earn a fixed rate of interest every six months and have maturities ranging from 1 to 10 years. The 10-year Treasury note is one of the most quoted when discussing the performance of the U.S. government bond market and is also used as a benchmark by the mortgage market.

**Treasury bonds** (T-bonds) have maturities ranging from 10 to 30 years. Like T-notes, they also have a coupon payment every six months.

**Treasury Inflation-Protected Securities (TIPS)** are inflation-indexed bonds. The principal value of TIPS is adjusted by changes in the Consumer Price Index. They are typically offered in maturities ranging from 5 to 20 years.

In addition to these Treasury securities, certain federal agencies also issue bonds. The Government National Mortgage Association (Ginnie Mae), the Federal National Mortgage Association (Fannie Mae), and the Federal Home Loan Mortgage Corp. (Freddie Mac) issue bonds for specific purposes, mostly related to funding home purchases. These bonds are also backed by the full faith and credit of the U.S. government.

**Municipal Bonds**

Municipal bonds (“munis”) are issued by state and local governments to fund the construction of schools, highways, housing, sewer systems, and other important public projects. These bonds tend to be exempt from federal income tax and, in some cases, from state and local taxes for investors who live in the jurisdiction where the bond is issued. Munis tend to offer competitive rates but with additional risk because local governments can go bankrupt.

Note that, in some states, investors will have to pay state income tax if they purchase shares of a municipal bond fund that invests in bonds issued by states other than the one in which they pay taxes. In addition, although some municipal bonds in the fund may not be subject to ordinary income tax, they may be subject to federal, state, and local alternative minimum tax, if an investor sells a tax-exempt bond fund at a profit, there are capital gains taxes to consider.

There are two basic types of municipal bonds. General obligation bonds are secured by the full faith and credit of the issuer and supported by the issuer’s taxing power. Revenue bonds are repaid using revenue generated by the individual project the bond was issued to fund.

**Corporate Bonds**

Corporations may issue bonds to fund a large capital investment or a business expansion. Corporate bonds tend to carry a higher level of risk than government bonds, but they generally are associated with higher potential yields. The value and risk associated with corporate bonds depend in large part on the financial outlook and reputation of the company issuing the bond.

Bonds issued by companies with low credit quality are high-yield bonds, also called junk bonds. Investments in high-yield bonds offer different rewards and risks than investing in investment-grade securities, including higher volatility, greater credit risk, and the more speculative nature of the issuer. Variations on corporate bonds include convertible bonds, which can be converted into company stock under certain conditions.

Regarding their maturity, corporate bonds are classified as follow

* Short-term bonds – with a five-year term or less
* Intermediate bonds – with maturity between 5 to 12 years
* Long-term bonds – more than 12 years

## Zero-Coupon Bonds

This type of bond (also called an “accrual bond”) doesn’t make coupon payments but is issued at a steep discount. The bond is redeemed for its full value upon maturity. Zero-coupon bonds tend to fluctuate in price more than coupon bonds. They can be issued by the U.S. Treasury, corporations, and state and local government entities and generally have long maturity dates.

**Mortgage Bonds**

A mortgage bond is secured by a mortgage, or a pool of mortgages, that are typically backed by real estate holdings and [real property](https://www.investopedia.com/terms/r/real-property.asp), such as equipment.

### Foreign Bonds

A **foreign bond**as per Investopedia definition is “ a bond issued in a domestic market by a foreign entity in the domestic market’s currency”. The two main characteristics are that the bond is traded on a foreign financial market and is denominated in a foreign currency.

For example, an investor has purchased Japanese bonds with a 5-year maturity at an exchange level of 1 Japanese yen to 0.009 US dollar, meaning the person paid 0.009 per bond.

### Convertible Bonds

As already mentioned, convertible bonds (also referred to as Cvs) are a type of corporate bonds that the holder can convert at any time to shares of the company issuer of the debt. The number of shares is predetermined.

### Non-Conventional Bonds

To understand non-conventional bonds, we have to explain what a conventional one is – their value, interest payment frequency, interest rate, and [maturity date](https://www.youtube.com/watch?v=OMXn8aqUn4U&t=2s) are fixed and specified.

Non-conventional ones, on the other hand, have rates and maturity which may vary and change with time.

### Junk Bonds

Junk bonds (also **high-yield bonds** or **speculative bonds**) are corporate bonds with the[lowest rating possible.](https://infoforinvestors.com/academy/bonds/bonds-rating/) Their names suggest that they are high-risk and high-return assets, offering several times higher interest rates than government bonds.

### ****Adjustment Bonds****

These are types of securities issued by a company due to the process of recapitalization or restructuring. The outstanding debt of the corporation is transferred to the adjustment bonds and they are given to bondholders. This is required because the company wants to change the terms of its obligations in order to be able to escape default. Adjustment bonds pay interest only when the company generates earnings

When a company files [bankruptcy under Chapter 11](https://infoforinvestors.com/money/debt/bankruptcy-101/), they ask their creditors for protection in order to make payments on their obligations. Creditors will spread among themselves the company’s value and liquidate it, but it won’t be the full amount of the loans. The corporation and the creditors will work together to recapitalize the company so that they will not go bankrupt and continue to make payments on their loans. Logically, the value the creditors receive will increase.

**Ans (3) Part (a)**

# Equity Financing

Equity financing is the process of raising capital through the sale of shares. Companies raise money because they might have a short-term need to pay bills or they might have a long-term goal and require funds to invest in their growth. By selling shares, they sell ownership in their company in return for cash, like stock financing.

[Equity](https://www.investopedia.com/terms/e/equity.asp) financing comes from many sources; for example, an entrepreneur's friends and family, investors, or an initial public offering (IPO). Industry giants such as Google and Facebook raised billions in capital through IPOs.

While the term equity financing refers to the financing of public companies listed on an exchange, the term also applies to private company financing.

OR

Equity finance is a method of raising fresh capital by selling shares of the company to public, institutional investors, or financial institutions. The people who buy shares are referred to as shareholders of the company because they have received ownership interest in the company.

**Ans (3) Part** (B**)**

# Common Stock

 Common stock is a residual form of ownership in that the claims of common stockholders on the firm’s earnings and assets are considered only after the claims of governments, debt holders, and preferred stockholders have been met. Common stock is considered a permanent form of long-term financing because, unlike debt and some preferred stock, common stock has no maturity date.

**Characteristics of Common Stock**

## Voting Rights

Attached voting privileges are a characteristic of most common stocks. Shareholders elect directors, who in turn choose managers who are responsible for the direction of the business. Often, if a corporation is involved in a merger or acquisition, shareholders express opinions on the deals by exercising voting privileges.

## Common Stock Value

Hypothetically, the value of stocks has no ceiling. Conversely, the value of a company's stock shares can fall to zero, making the shares worthless. One attractive characteristic of common stocks is the dividend payment. Many companies pay earnings to stockholders in regular dividends. This represents the owner's share of profits earned. In the event a company must liquidate or file bankruptcy, the owners receive only what is left over, if anything, after the company pays creditors and bondholders.

## Common Bond Characteristics

Corporations, government agencies, and municipalities issue common bonds that represent loans the bondholders make to a company or organization. The contract accompanying a bond issue details the obligations of the issuer to bondholders and outlines the particular characteristics of the issue, such as the rate of interest.

## Convertible and Callable

Some corporate bonds may have a conversion provision that permits the bondholder to exchange the bond for a specified number of shares of the company's stock. A bond may also be callable, meaning the issuer can force the bondholder to redeem before the maturity date.

## Bond Rates, Maturity and Value

Bond investors do not receive dividends in the form of company earnings, but instead earn a fixed return, called the coupon rate. Bonds have an expiration date, in investor words, a maturity date when the principal is returned to the investor. The principal is based on the par, or face value of the bond. Bond values are generally known beforehand when calculating future interest rate payments. However, bond values are subject to credit risk based on the financial condition of the issuer and affected by inflation and market interest rates.

**Ans(4) Part (a)**

**Basic concept of time value of money**

The [time value](https://www.investopedia.com/terms/t/timevalue.asp) of money (TVM) is the concept that money you have now is worth more than the identical sum in the future due to its potential [earning capacity](https://www.investopedia.com/terms/e/earning-potential.asp). This core principle of finance holds that provided money can earn interest, any amount of money is worth more the sooner it is received. TVM is also sometimes referred to as present discounted value.

## Understanding Time Value of Money (TVM)

The time value of money draws from the idea that rational investors prefer to receive money today rather than the same amount of money in the future because of money's potential to grow in value over a given period of time. For example, money deposited into a savings account earns a certain interest rate and is therefore said to be compounding in value.

KEY TAKEAWAYS

* Time value of money is based on the idea that people would rather have money today than in the future
* Given that money can earn compound interest, it is more valuable in the present rather than the future.
* The formula for computing time value of money considers the payment now, the future value, the interest rate, and the time frame.
* The number of compounding periods during each time frame is an important determinant in the time value of money formula as well.

## Calculating Future Value

FV=PV×(1+*i*)*n*

**where:**

FV=Future value

PV=Present value (original amount of money)

*i*=Interest rate per period

*n*=Number of periods​

## Present Value Basics

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​PV=

**where:**

PV=Present value (original amount of money)

FV=Future value

*i*=Interest rate per period

*n*=Number of periods​

**Ans(4) Part (**B**)**

[**Capital budgeting**](https://www.accountingtools.com/articles/what-is-capital-budgeting.html) is set of techniques used to decide which investments to make in projects. The traditional methods or non discount methods include: Payback period and Accounting rate of return method. The discounted cash flow method includes the NPV method, profitability index method and IRR.

**Net present Value (NPV) Method:**

* Companies often use net present value as a [capital budgeting method](https://www.thebalancesmb.com/capital-budgeting-and-its-importance-in-business-392912) because it's perhaps the most insightful and useful method to evaluate whether to invest in a new capital project. It is more refined from both a mathematical and time-value-of-money point of view than either the [payback period](https://www.thebalancesmb.com/payback-period-in-capital-budgeting-392916) or [discounted payback period](https://www.thebalancesmb.com/discounted-payback-period-as-a-capital-budgeting-method-392913) methods. It is also more insightful in certain ways than the ​[profitability index](https://www.thebalancesmb.com/the-profitability-index-392917) or internal rate of return calculations.​​
* This is one of the widely used methods for evaluating capital investment proposals. In this technique the cash inflow that is expected at different periods of time is discounted at a particular rate. The present values of the cash inflow are compared to the original investment. If the difference between them is positive (+) then it is accepted or otherwise rejected. This method considers the time value of money and is consistent with the objective of maximizing profits for the owners. However, understanding the concept of cost of capital is not an easy task.

**NPV(p) = CF(0) + CF(1)/(1 + i)t + CF(2)/(1 + i)t + CF(3)/(1 + i)t + CF(4)/(1 + i)t**

Where:

* i = firm's cost of capital
* t = the year in which the cash flow is received
* CF(0) = initial investment

## [Example: Calculation of Net Present Value](http://www.financeformulas.net/Net_Present_Value.html)

Project A is a four-year project with the following cash flows in each of the four years: $5,000, $4,000, $3,000, $1,000.

**NPV(A) = (-$10,000) + $5,000/(1.10)1 + $4,000/(1.10)2 + $3,000/(1.10)3 + $1,000/(1.10)4**

**= $788.20**

The NPV of Project A is $788.20, which means that if the firm invests in the project, it adds $788.20 in value to the firm's worth.