CHAPTER 16 : THE DEBT CONTRACT AND BOND

I. THE DEBT CONTRACT:

❖ Definition:

Par value: This is the initial value of the bond. The par value is sometimes referred to as the principal or face value. Most corporate bonds are initially traded in $1,000 units.

Coupon rate: The yield paid by a fixed income security, which is the annual coupon payments paid by the issuer relative to the bond's face or par value.

Maturity date: The date on which the principal amount of a note, draft, acceptance bond or another debt instrument becomes due and is repaid to the investor and interest payments stop.

❖ Security Provisions:

Secured debts have specific assets pledged to bondholders in the event of default.

- Mortgage agreement: real property is pledged as security for the loan. The mortgage agreement is a binding contract required for just about any basic mortgage loan for a home.
- After-acquired property clause requires any new property to be placed under the original mortgage.

Greater the protection offered, lower is the interest rate on the bond.

❖ Unsecured Debt:

Unsecured debt the issue debt that is not secured by a specific claim to asset.

- Debenture: Unsecured, long-term corporate bond with a general claim against the corporation.
- Subordinated debenture: Payment to the holder will occur only after the designated senior debenture holders are satisfied.

II. FORMS OF BOND FINANCING:

2.1 Zero-coupon bond:

Zero coupon bonds are bonds that are issued at a discount to their redemption value, but no interest is paid on them.

Borrower: can be used to raise cash immediately, and there is no cash repayment until redemption date.

The price of the bond tends to be highly volatile in relation to the changes in interest rate.

Create the tax-shield with the difference between the initial bond price and the maturity value over the life of the bond.

The increase in the value of bonds is taxable annually even though the bondholders does not get any cash flow until maturity.

- **Zero-coupon bond – bond has a coupon rate of 0**

$$PV = \frac{par}{(1+r)^t}$$

2.2 Floating rate bond

Floating rate notes (FRNs) are bonds that have a variable coupon, equal to a money market reference rate, like LIBOR or federal funds rate, plus a quoted spread (also known as quoted margin). The spread is a rate that remains constant. Almost all FRNs have quarterly coupons, i.e. they pay out interest every three months. At the beginning of each coupon period, the coupon is calculated by taking the fixing of the reference rate for that day and adding the spread.[1][2][3] A typical coupon would look like 3 months USD LIBOR +0.20%.

2.3 Convertible bond:

Convertible bond are bonds that give the holder the right to convert to other securities, normally ordinary shares, at a pre-determined price/rate and time.

2.4 Deep discount bond:

Deep discount bond are loan notes issued at a price which is at a large discount to the nominal value of the notes, and which will be redeemable at par (or above par) when they eventually mature.

2.5 Bond Prices, Yields, and Rating:

$$\textbf{Coupon rate} = \frac{\text{Stated interest payment}}{\text{Par value}}$$

$$\text{Current Yield} = \frac{\text{Stated interest payment}}{\textit{Current price of bond}}$$

❖ **Yield to maturity**

Yield to maturity (YTM) is the total return anticipated on a bond if the bond is held until it matures. Yield to maturity is considered a long-term bond yield, but is expressed as an annual rate. In other words, it is the internal rate of return (IRR) of an investment in a bond if the investor holds the bond until maturity and if all payments are made as scheduled

$$\text{Approprimate YTM} = \frac{\text{Annual interest payment} + \frac{\text{Principal payment} - \text{Price of the bond}}{\text{Number of years to maturity}}}{0.6 \times \text{Price of the bond} + 0.4 \times \text{Principal payment}}$$

Calculating YTM = r

If you are given the price of a bond (PV) and the coupon rate, the yield to maturity can be found by solving for r

$$\mathbf{PV} = \frac{cpn}{(1+r)^1} + \frac{cpn}{(1+r)^2} + \cdots + \frac{(cpn + par)}{(1+r)^t}$$

III. THE REFUNDING DECISION:

Step 1: Outflow Considerations

a. Payment of call premium:

Increase in cost means reducing the tax expense.

The First outflow is the 10 percent call premium on $10 million, or $1 million. This prepayment penalty is necessary to call in the original issue. Being an out-of-pocket tax-deductible expense, the $1 million cash expenditure will cost us only $650,000 on an aftertax basis.

Multiply the expense by (1 — Tax rate) to get the aftertax cost:

Net cost of call premium = $10,000,000 x 10% (1 - T) = $1,000,000 (1 - 0.35) **= $ 650,000**

b. Underwriting cost on new issue:

The second outflow is the $200,000 underwriting cost on the new issue.

The actual cost is somewhat less because the payment is tax-deductible, though the write-off must be spread over the life of the bond. While the actual $200,000 is being spent now, equal tax deductions of $10,000 a year will occur over the next 20 years (in a manner similar to depreciation). The tax savings from a noncash write-off are equal to the amount times the tax rate.

- For a company in the 35 percent tax bracket, $10,000 of annual tax deductions will provide $3,500 of tax savings each year for the next 20 years:

Each year tax saving caused by the underwriting costs = ($200,000 / 20)*35% **= $3,500**

- The present value of these savings is the present value of a $3,500 annuity for 20 years at 6 percent interest:

Total PV of the tax saving in 20 years = $3,500 X **11.470** (n = 20, i = 6%) **= $40,145**

The net cost of underwriting the new issue is the actual expenditure now, minus the

present value of future tax savings as indicated below.

Actual expenditure..... $200,000

-PV of future tax savings..... $40,145

Net cost of underwriting

expense on the new issue.....…$159,855

Step 2: Inflow Considerations

The major inflows in the refunding decision are related to the reduction of annual interest expense and the immediate write-off of the underwriting cost on the old issue.

a. Cost savings in lower interest rates:

The corporation will enjoy a 2.25 percentage point drop in interest rates, from 11.75 percent to 9.50 percent, on $10 million of bonds:

11.75% X $10,000,000..... $1,175,000

-9.50% X $10,000,000.....$950,000

Savings ..... **$ 225,000**

Since we are in the 35 percent tax bracket, this is equivalent to $146,250 of aftertax benefits per year for 20 years. We have taken the savings and multiplied by one minus the tax rate to get the annual aftertax benefits.

Each year, annual aftertax benefit = $225,000 (1 - T)

= $225,000 (1 - 0.35) = **$146,250**

Applying a 6 percent discount rate for a 20-years annuity:

Total PV of cost saving in lower interest rate =$146,250 X 11.470 (n = 20, i = 6%) **= $1,677,488**

b. Underwriting cost on old issue:

There is a further cost savings related to immediately writing off the remaining underwriting costs on the old bonds. Note that the initial amount of $125,000 was spent five years ago and was to be written off for tax purposes over 25 years at $5,000 per year. Since five years have passed, $100,000 of old underwriting costs have not been amortized as indicated in the following:

Original amount.....$125,000

-Written off over five years.....…...$25,000

Unamortized old underwriting costs = $100,000

A tax benefit is associated with the immediate write-off of old underwriting costs, which we shall consider shortly.

Note, however, that this is not a total gain. We would have gotten the $100,000 additional write-off eventually if we had not called in the old bonds. By calling them in now, we simply take the write-off sooner. If we extended the write-off over the remaining life of the bonds, we would have taken $5,000 a year for 20 years. Discounting this value, we show:

As calling the bond in now, each year we loose the cost saving for tax:

= ($125,000 / 25) = **$5,000**

The total PV of the cost saving (lost) in the remaining 20 years:

= $5,000 X 11.470 (n = 20, i = 6%) = **$57,350**

Thus, we are getting a write-off of $ 100,000 now, rather than a present value of future write-offs of $57,350. The gain in immediate tax write-offs is $42,650. The tax savings from a noncash tax write-off equal the amount times the tax rate. Since we are in the 35 percent tax bracket, our savings from this write-off are $14,928. The following calculations, which were discussed above, are necessary to arrive at $14,928.

Immediate write-off..... $100,000

PV of future write-off.....$57,350

Gain from immediate write-off..... $ 42,650

$42,650 x (T)

$42,650 x (35%) = $14,928

⇨ The Net gain from the underwriting on the old issue..... $ 14,928

Step 3: Net Present Value

Total NPV of cost saving in lower interest rate = Total PV of cash outflow – Total PV of cash inflow

Outflows		Inflows	
1. Net cost of call premium	$650,000	3. Cost savings in lower interest rates	$1,677,488
2. Net cost of underwriting expense on new issue	159,855	4. Net gain from underwriting cost on old issue	14,928
	$809,855		$1,692,416

Present value of inflows	$1,692,416
Present value of outflows	809,855
Net present value	$ 882,561

If NPV > 0: the firm should make decision

If NPV < 0: the firm should not

⇨ NPV= $882,561 >0 :The firm should make refunding decision in case that the interest rate fall to 9,5% during the next 20 years.

IV. ADVANTAGES AND DISADVANTAGES OF DEBT:

4.1 Benefit of Debt:

- Interest payments are tax-deductible. Because corporation
- The financial obligation is clearly specified and of a fixed nature (with the exception of floating rate bonds).
- In an inflationary economy, debt may be paid back with “cheaper dollars”.
- The use of debt, up to a prudent point, may lower the cost of capital to the firm. To the extent that debt does not strain the risk position of the firm, its low aftertax cost may aid in reducing the weighted overall cost of financing to the firm.

4.2 Drawback of Debt:

- Interest and principal payment obligations must be met regardless of the economic position of the firm.
- Indenture agreements may place burdensome restrictions on the firm, such as maintenance of working capital at a given level, limits on future debt offerings, and guidelines for dividend policy. Although bondholders generally do not have the right to vote, they may take virtual control of the firm if important indenture provisions are not met.
- Utilized beyond a given point, debt may depress outstanding common stock values.

4.3 Eurobond Market:

Eurobond – a bond payable in the borrower’s currency but sold outside thr borrower’s country.

The Eurobond is usually sold by an international syndicate of investment bankers and includes bonds sold by companies in Switzerland, Japan, the Netherlands, Germany, the United States, and Britain, to name the most popular countries. An example might be a bond of a U.S. company, payable in dollars and sold in London, Paris, Tokyo, or Frankfurt.

Disclosure requirements in the Eurobond market are less demanding than those of the Securities and Exchange Commission or other domestic regulatory agencies.

Examples of Eurobonds

	Rating	Coupon	Maturity	Amount Outstanding ($ millions)	Currency Denomination*
Petro-Canada	Baa1	9.25%	2021	300.0	U.S.$
Procter & Gamble Co.	Aa2	10.88%	2003	200.0	C$
Sony Corporation	Aa3	1.40%	2005	300.0	Yen
Telecom Corporation	Aa1	7.50%	2003	100.0	N Z$

V. LEASING AS A FORM OF DEBT:

❖ Capital Lease versus Operating Lease:

Not all leases must be capitalized and placed on the balance sheet. This treatment is necessary only when substantially all the benefits and risks of ownership are transferred in a lease. Under these circumstances, we have a capital lease, that also referred to as a financing lease and must respones one of the following conditions:

- The arrangement transfers ownership of the property to the lessee (the leasing party) by the end of the lease term.
- The lease contains a bargain purchase price at the end of the lease. The option price will have to be sufficiently low so exercise of the option appears reasonably certain.
- The lease term is equal to 75 percent or more of the estimated life of the leased property.
- The present value of the minimum lease payments equals 90 percent or more of the fair value of the leased property at the inception of the lease.

A lease that does not meet any of these four criteria is not regarded as a capital lease, but as an operating lease:

- An operating lease is usually short term and is often cancelable at the option of the lessee.

- The lessor may provide for the maintenance and upkeep of the asset, since he or she is likely to get it back.
- An operating lease does not require the capitalization, or presentation, of the full obligation on the balance sheet.
- Operating leases are used most frequently with such assets as automobiles and office equipment, while capital leases are used with oil drilling equipment, airplanes and rail equipment, certain forms of real estate, and other long-term assets.

❖ **Income Statement Effect:**

The capital lease calls not only for present-valuing the lease obligation on the balance sheet but also for treating the arrangement for income statement purposes as if it were somewhat similar to a purchase-borrowing arrangement.

Under the capital lease, the fixed asset account is amortized over the life of the lease; and the liability is also written off through regular amortization.

An operating lease, on the other hand, usually calls for an annual expense deduction equal to the lease payment, with no specific amortization.

❖ **Advantages of Leasing:**

Why is leasing so popular? It has emerged as a trillion-dollar industry, with such firms as Clark Equipment, GECapital, and U.S. Leasing International providing an enormous amount of financing. Major reasons for the popularity of leasing include the following:

- The lessee may lack sufficient funds or the credit capability to purchase the asset from a manufacturer, who is willing, however, to accept a lease arrangement or to arrange a lease obligation with a third party.
- The provisions of a lease obligation may be substantially less restrictive than those of a bond indenture.

- There may be no down payment requirement, as would generally be the case in the purchase of an asset (leasing allows for a larger indirect loan).
- The lessor may possess particular expertise in a given industry—allowing for expert product selection, maintenance, and eventual resale. Through this process, the negative effects of obsolescence may be reduced.
- Creditor claims on certain types of leases, such as real estate, are restricted in bankruptcy and reorganization proceedings. Leases on chattels (non-real estate items) have no such limitation.

There are also some tax factors to be considered. Where one party to a lease is in a higher tax bracket than the other party, certain tax advantages, such as depreciation write-off or research-related tax credits, may be better utilized. For example, a wealthy party may purchase an asset for tax purposes, then lease the asset to another party in a lower tax bracket for actual use. Also, lease payments on the use of land are tax-deductible, whereas land ownership does not allow a similar deduction for depreciation.

Finally, a firm may wish to engage in a sale-leaseback arrangement, in which assets already owned by the lessee are sold to the lessor and then leased back. This process provides the lessee with an infusion of capital, while allowing the lessee to continue to use the asset. Even though the dollar costs of a leasing arrangement are often higher than the dollar costs of owning an asset, the advantages cited above may outweigh the direct cost factors.