

R24 Non-Current (Long-Term) Liabilities

1. Introduction	2
2. Bonds Payable & Accounting for Bond Issuance.....	2
2.1 Accounting for Bond Issuance.....	2
3. Accounting for Bond Amortization, Interest Expense, and Interest Payments	5
4. Current Market Rates and Fair Value Reporting Option.....	9
5. Derecognition of Debt.....	9
6. Debt Covenants	10
7. Presentation and Disclosure of Long-Term Debt	10
8. Leases.....	10
8.1 Examples of Leases.....	11
8.2 Advantages of Leasing.....	11
8.3 Lease Classification as Finance or Operating	11
8.4 Financial Reporting of Leases.....	11
8.5 Lessee Accounting—IFRS	12
8.6 Lessee Accounting—US GAAP	13
8.7 Lessor Accounting.....	14
9. Introduction to Pensions and Other Post-Employment Benefits	16
10. Evaluating Solvency: Leverage and Coverage Ratios	18
Summary	19
Practice Questions	23

This document should be read in conjunction with the corresponding reading in the 2022 Level I CFA® Program curriculum. Some of the graphs, charts, tables, examples, and figures are copyright 2021, CFA Institute. Reproduced and republished with permission from CFA Institute. All rights reserved.

Required disclaimer: CFA Institute does not endorse, promote, or warrant the accuracy or quality of the products or services offered by IFT. CFA Institute, CFA®, and Chartered Financial Analyst® are trademarks owned by CFA Institute.

Version 1.0

1. Introduction

Non-current liabilities are long-term liabilities that are due after one year or more in the future. They are on the right-hand side of the balance sheet. Common non-current liabilities include bonds payable, notes payable, leases, pension liabilities, and deferred tax liabilities. This reading focuses on bonds payable, leases and pension liabilities.

2. Bonds Payable & Accounting for Bond Issuance

2.1 Accounting for Bond Issuance

Bonds are contractual promises made by an entity to pay cash in the future to its lenders (bondholders) in exchange for receiving cash in the present. In simple terms, bonds are a form of long-term borrowing. The terms of a bond contract are defined in a document called an **indenture**. Bonds usually make two types of payments: principal repayment (face value) and periodic interest payments.

Some of the common terms associated with a bond are described below:

- **Face value or par value:** This is the amount of cash payable by the bond-issuing entity to the bondholders when the bond matures.
- **Coupon rate:** This is the interest rate promised in the contract based on which periodic interest payments are calculated.
- **Coupon payment:** The periodic interest payment is known as the coupon payment. The coupon amount is based on the face value and the coupon rate. Consider a bond with a face value of 1,000 which makes annual payments. If the coupon rate is 10%, the annual coupon amount will be 10% of 1,000 = 100.
- **Effective interest rate:** It is the market interest rate (or the rate demanded by investors) when a bond is issued. This rate is not documented on the bond indenture. If the effective interest rate is equal to the coupon rate, a bond is issued at par value. This scenario is illustrated below.

Relationship between coupon rate and effective interest rate

- A bond is issued at face value when coupon rate = effective interest rate.
- A bond is issued at a discount if coupon rate < effective interest rate.
- A bond is issued at a premium if coupon rate > effective interest rate.

We will now look at examples for each of the three cases.

Example (Bonds issued at face value)

The terms of a bond (issuer's obligations) are given below:

Face value (par value) = 100

Issue Date = 1 January, 2016

Maturity Date = 31 December, 2018

Coupon rate = 10% paid annually

If the investor's required return at issuance (effective interest rate) is 10%, then calculate the sales proceeds. State how the bond issuance is reflected in the financial statements.

Solution:

Let us start with the cash flow which is illustrated below throughout the bond's life:



The bond's tenure is 3 years. The effective interest rate or the market interest rate is 10%. The cash flow at the end of Year 1 is calculated as coupon rate * face value = $0.1 * 100 = 10$. Similarly, the cash flow at the end of Year 2 and Year 3 is also 10. At the end of Year 3 (bond's life), there is an additional cash flow of 100 equal to the face value of the bond.

To calculate the amount the investor pays now, the cash flows at the end of each period are discounted at the required rate of return (effective interest rate) of 10%. Using a financial calculator, calculate the present value as:

$$N = 3; I = 10; PMT = 10; FV = 100; CPT PV = 100.$$

I = 10 is the required rate of return. In this case, coupon rate = required rate of return.

The investor must pay the company 100 to earn 10% on the bond over 3 years.

Effect of bond issuance on the financial statements:

Balance sheet: Cash goes up by 100; Bond payable goes up by 100.

Cash flow statement: Issuance of the bond is shown as cash flow from financing.

Income statement: Initially, there is no effect on the income statement.

Example (Bonds issued at a discount)

The terms of a bond (issuer's obligations) are given below:

Face value (par value) = 100

Issue date = 1 January, 2016

Maturity Date = 31 December, 2018

Coupon rate = 10% paid annually

When the bond is issued, the investor's required return is 11%. What are the sales proceeds? How is the issuance reflected in the financial statements?

Solution:

Let us understand why investors require a return of 11% here, which is higher than the coupon rate. Investors demand a higher return if they perceive the company to be risky. The cash flows are the same as in the previous example.



The present value can be calculated as:

$$N = 3; I = 11; PMT = 10; FV = 100; \text{CPT PV} = 97.56.$$

In order to receive a higher return, an investor pays less than the face value, in this case 97.56 compared to 100, to earn 11% return.

Effect of bond issuance on the financial statements:

Balance sheet: Cash goes up by 97.56; Bond payable goes up by 97.56.

Cash flow statement: Cash inflow of 97.56. Issuance of the bond is shown as cash flow from financing.

Income statement: Initially, there is no effect on the income statement.

Example (Bonds issued at a premium)

The terms of a bond (issuer's obligations) are given below:

Face value (par value) = 100

Issue Date = 1 January, 2016

Maturity Date = 31 December, 2018

Coupon rate = 10% paid annually

When the bond is issued, the investor's required return is 9%. What are the sales proceeds? How is the issuance reflected in the financial statements?

Solution:

The cash flow is the same as in the previous two cases. Investors earn coupon amount based on coupon rate. Since investors will receive a higher rate of return than the market rate, they are willing to pay more.

The present value can be calculated as:

$$N = 3; I = 9; PMT = 10; FV = 100; \text{CPT PV} = 102.53$$

Effect of bond issuance on the financial statements:

Balance sheet: Cash goes up by 102.53; Bond payable goes up by 102.53.

Cash flow statement: Cash inflow of 102.53. Issuance of the bond is shown as cash flow from financing.

Income statement: Initially, there is no effect on the income statement.

3. Accounting for Bond Amortization, Interest Expense, and Interest Payments

In this section, we look at how the bond is shown on the balance sheet, and how the coupon payments are accounted for.

Amortization of a Bond

When a bond is issued, most companies report the historical cost and amortize the discount/premium over the life of the bond. The amortized cost is reported on the balance sheet, which is the historical cost plus or minus the cumulative amortization.

Accounting Treatment for Bonds at Issuance

Initially, bonds are reported as a liability on the balance sheet. This amount on the balance sheet is known as the carrying value or book value of the bond.

Issuance costs include printing, legal fees, commissions, and other types of charges incurred when bonds are issued. Under IFRS and U.S. GAAP, the initial bond liability on the balance sheet (the proceeds from issuing the bond) is reduced by the amount of issuance costs.

Before 2016, under U.S. GAAP, companies used to capitalize these issuance costs as an asset (a deferred charge) which were then amortized on a straight-line basis over the life of the bonds. The treatment of issuance costs has now converged. However, companies under U.S. GAAP are still permitted to report debt issuance costs for lines of credit as an asset.

Under both U.S. GAAP and IFRS, cash outflows associated with bond issuance costs are usually netted against the cash inflows associated with the bond proceeds and reported on the cash flow statement as a financing cash flow.

Example (Amortizing a bond discount)

Terms of the bond are given below:

Face value (par value) = 100

Issue Date = 1 January, 2016

Maturity Date = 31 December, 2018

Coupon rate = 10% paid annually

When the bond is issued, investors require a return of 11%. Show the following:

1. Interest Payments
2. Interest Expense
3. Reported Bond Value

How are the above numbers reflected in the financial statements?

Solution:

To identify if a bond was sold at par, premium, or discount, one needs to know the prevailing market interest rate when the bond was issued. Since the market interest rate/required

return 11% is greater than the coupon rate, the bond was sold at a discount. Let us see how the values for each item are arrived at for 2016:

Carrying amount = Present value of the bond or the amount the investor pays initially. We calculated this to be 97.56 in the earlier example.

Interest expense = Carrying amount * required return = $97.56 * 0.11 = 10.73$

Interest payment = Face value * coupon rate = $100 * 0.1 = 10$

Amortization of discount = Interest expense – interest payment = $10.73 - 10 = 0.73$

Carrying amount (end) = Beginning carrying amount + amortization of discount = $97.56 + 0.73 = 98.29$

Year	Carrying Amount (Begin)	Interest Expense	Interest Payment	Amortization of Discount	Carrying Amount (End)
2016	97.56	10.73	10	0.73	98.29
2017	98.29	10.81	10	0.81	99.10
2018	99.10	10.90	10	0.90	100.00

Effect on financial statements:

Balance Sheet: The carrying amount in the beginning for the bond is 97.56. At the end of Year 1, the liability is 98.29, 99.10 at the end of Year 2 and 100.00 at the end of Year 3.

Income Statement: The interest expense is shown in the income statement which is 10.73 for Year 1, and 10.81 and 10.90 for the subsequent years. Though the actual interest paid is only 10, the required return of 11% should be shown on the income statement.

Cash Flow Statement: The actual cash flow for each year is 10. Under US GAAP, interest paid must be classified as CFO. IFRS allows interest paid to be treated as either CFO or CFF. Amortization of discount is a non-cash item. It only affects the taxable income.

Example (Amortizing a bond premium)

Terms of the bond are given below:

Face value (par value) = 100

Issue Date = 1 January, 2016

Maturity Date = 31 December, 2018

Coupon rate = 10% paid annually

When the bond is issued, investors require a return of 9%. Show the following:

1. Interest Payments
2. Interest Expense
3. Reported Bond Value

How are the above numbers reflected in the financial statements?

Solution:

Since the required return is less than the coupon rate, the bond is sold at a premium. The individual items are calculated the same way as for a discount bond.

Year	Carrying Amount (Begin)	Interest Expense	Interest Payment	Amortization of Premium	Carrying Amount (End)
2016	102.53	9.23	10	-0.77	101.76
2017	101.76	9.16	10	-0.84	100.92
2018	100.92	9.08	10	-0.92	100.00

Based on the above example, we can infer the following points:

Bonds Issued at Par:

- Periodic interest expense is equal to the periodic interest payment to bondholders.

Bonds Issued at a Premium:

- Initially, the carrying amount of the bonds is greater than the face value and as the premium is amortized, the carrying amount decreases to the face value.
- Interest expense will be less than the coupon payment.
- Interest expense = interest payment - amortization of premium

Bonds issued at a Discount:

- Initially, the carrying amount of the bonds is less than the face value and as the discount is amortized, the carrying amount increases to the face value.
- Interest expense will be higher than the coupon payment.
- Interest expense = interest payment + amortization of discount

Amortization of a Zero-Coupon Bond

A zero-coupon bond is a type of a discount bond that does not make any coupon or periodic interest payments. A lump sum amount is paid on maturity which includes principal and the accrued interest payments. Zero-coupon bonds are always issued at a discount to face value i.e. at a price much lower than the par/face value of the bond.

Example (Amortizing a zero-coupon bond)

Terms of the bond are described below:

Face value (par value) = 100

Issue Date = 1 January, 2016

Maturity Date = 31 December, 2018

No coupon payments are made.

When the bond is issued, investors require a return of 10%. Show the following:

1. Reported Bond Value.
2. Interest Expense.

How are the above numbers reflected in the financial statements?

Solution:

The present value can be calculated as:

$$N = 3; I = 10; PMT = 0; FV = 100; CPT PV = 75.13$$

Year	Carrying Amount (Begin)	Interest Expense	Interest Payment	Amortization of Discount	Carrying Amount (End)
2016	75.13	7.51	0	7.51	82.64
2017	82.64	8.26	0	8.26	90.91
2018	90.91	9.09	0	9.09	100.00

Effect on financial statements:

Balance Sheet: The carrying amount is shown on the balance sheet.

Income Statement: The interest expense is shown on the income statement which is 7.51 for year 1, and 8.26 and 9.09 for the subsequent years.

Cash Flow Statement: As there is no periodic interest payment, there is no cash flow.

Issuance Costs

A company incurs costs like underwriter's fee, legal, commissions, etc. when it issues a bond. Publicly sold debt is usually done through an underwriter, i.e., the company may sell the bond issue to an underwriter who will then sell it to investors. US GAAP and IFRS treat the issuance costs differently.

US GAAP: Issuance costs are shown as an asset which is amortized on a straight-line basis over the life of the bond. In other words, under US GAAP, issuance costs are capitalized.

IFRS: Issuance costs reduce the carrying value of the debt.

Cash outflows are shown as a financing cash flow under both US GAAP and IFRS.

Miscellaneous Points

- Effective interest rate does not change during the life of the bond. For example, assume the market rate when the bond is issued is 10%. Through the life of the bond, the market interest rate may change but the effective interest rate is the market rate when the bond was issued; in this example, it stays constant at 10% over the life of the bond.
- Book value of the bond rises for a discount bond while it falls for a premium bond. In our earlier examples, the book value of a discount bond increased from 97.56 to 100.00, while the book value of the premium bond fell from 102.53 to 100.00.

Two Methods of Amortization

There are two methods of amortizing the premium/discount of bonds:

- Effective interest method: Required under IFRS and preferred under US GAAP. What we saw until now for amortization in all the examples was the effective interest

method. This method uses the market interest rate in effect when the bond was issued to the current amortized cost of the bond to calculate the interest expense.

Amortization premium/discount = interest expense – interest payment

- Straight-line method: Under this method, amortization of premium or discount is evenly distributed over the life of the bond. This is analogous to straight-line depreciation of long-lived assets.

4. Current Market Rates and Fair Value Reporting Option

We have so far focused on reporting bonds at amortized historical costs. This method reflects the market rate at the time the bonds were issued. When market rates change, the bond's fair value diverges from carrying value. When market rates decline, the fair value of a bond with a fixed coupon rate increases, and vice versa.

Companies have the option to report financial liabilities at fair value. A company selecting this option will report gains/losses when market rates increase/decrease. Fair value of a liability can also change due to changes in the credit quality of the issuing company. Hence, companies are required to separately report the portion of the change in the liability's fair value resulting from changes in their own credit risk.

5. Derecognition of Debt

Once bonds are issued, a company may leave the bonds outstanding until maturity or redeem the bonds before maturity. If the bonds remain outstanding until maturity, the company pays bondholders the face value of the bonds at maturity. However, if a company decides to redeem (retire) bonds before maturity, a gain or loss is recognized which is calculated as:

Gain or loss = Redemption price – Book value of the bond liability at the reacquisition date

If the redemption price is higher than book value, a loss will be reported. For example, if redemption price = 1,020,000 and book value = 990,000, the loss will be 30,000. If the redemption price is lower than the book value, a gain will be reported. A gain or loss on the extinguishment of debt must be reported in the income statement as a separate line item, if the amount is significant. The cash used to retire the debt is classified under financing cash flow. Additional detail about the extinguished debt is provided in MD&A or notes to financial statements.

Treatment of Bond Issuance Costs

IFRS: No write-off because issuance cost is included in book value of bond liability.

US GAAP: Unamortized bond issuance costs must be written off and included in gain/loss calculations.

6. Debt Covenants

The terms of borrowing between investors and the company issuing the bond are defined in a document called the **bond indenture**. Indenture often contains restrictions called debt covenants. **Covenants** are restrictions imposed by the creditor (bondholder/lender) on the issuer (borrower) to protect the creditor's interest. The benefit of including debt covenants is that they reduce the default risk for investors and lower the interest costs of borrowing for the borrower.

Affirmative covenants require the borrower to take certain actions. For example, making interest payments on time, maintaining a certain level of working capital, or that it will maintain minimum acceptable financial ratios.

Negative covenants restrict the borrowing company's actions. For example, the borrowing company may not be allowed to take on additional debt, pay dividends, sell assets, or any action that may affect the company's ability to pay interest and principal to its investors.

Technical default occurs when the borrower violates a debt covenant (affirmative or negative).

7. Presentation and Disclosure of Long-Term Debt

The total amount of a company's long-term debt (debt that is due after one year) is combined into a single line item and shown under the non-current liabilities section of the balance sheet. The portion of the long-term debt that is due within one year is shown as a current liability. Additional information on a company's debt is disclosed in the notes to financial statements. They include:

- The nature of the liabilities.
- Maturity dates.
- Stated and effective interest rates.
- Call provisions and conversion privileges.
- Restrictions imposed by creditors.
- Assets pledged as security.
- Amount of debt maturing in each of the next five years.

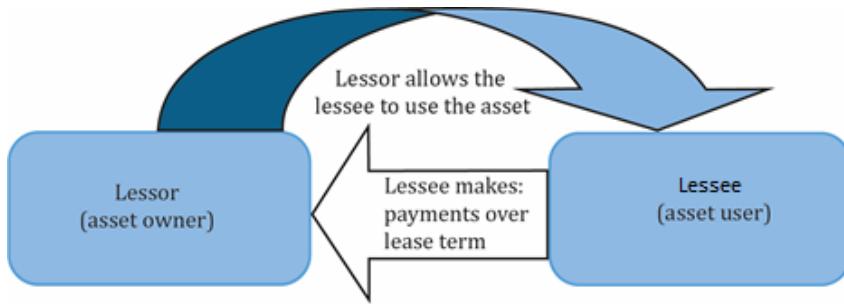
In addition to this, MD&A provides other details about a company's capital resources, including debt financing and off-balance-sheet financing.

8. Leases

A lease is a contract in which a lessor grants the lessee the exclusive right to use a specific underlying asset for a period of time in exchange for payments.

Below is a pictorial representation of what constitutes a lease. An asset's owner is called a lessor. The entity or person wishing to use the asset is called the lessee. The lessor allows the lessee to use the asset for a pre-determined period. In return, the lessee makes periodic

payments to the lessor over the period for the right to use the asset. This period can be as long as 20 years, or as short as a month.



8.1 Examples of Leases

Not testable

8.2 Advantages of Leasing

Following are some of the advantages to leasing an asset compared to purchasing it.

- Less cash is needed upfront. Leases typically require little to no down payment.
- Since leases are a form of secured borrowing, they generally have low interest rates.
- Lower risks associated with ownership such as obsolescence.

8.3 Lease Classification as Finance or Operating

Leases are classified as finance or operating. A finance lease is similar to purchasing an asset while an operating lease is similar to renting an asset.

A lease is classified as a finance lease if any of the following five criteria are met.

1. The lease transfers ownership of the underlying asset to the lessee.
2. The lessee has an option to purchase the underlying asset and is reasonably certain it will do so.
3. The lease term is for a major part of the asset's useful life.
4. The present value of the sum of the lease payments equals or exceeds substantially all of the fair value of the asset.
5. The underlying asset has no alternative use to the lessor.

If none of the criteria are met, then the lease is classified as an operating lease.

8.4 Financial Reporting of Leases

The financial reporting of leases depends on:

- Whether the party is the lessee or lessor
- Whether the party reports with IFRS or US GAAP
- Whether the lease is a finance or operating

US GAAP and IFRS share the same accounting treatment for lessors but differ for lessees.

IFRS has a single accounting model for both operating leases and finance lease lessees, while US GAAP has different accounting models for each.

8.5 Lessee Accounting—IFRS

Under IFRS, there is a single accounting model for both finance and operating leases for lessees.

- At inception, recognize a lease liability and corresponding right-of-use (ROU) asset on the balance sheet, both equal to the present value of lease payments.
- The lease liability is subsequently reduced by each lease payment using the effective interest method. Each lease payment is composed of:
 - Interest expense = Lease liability x discount rate
 - Principal repayment = Lease payment – Interest expense
- The right-of-use asset is amortized, often on a straight-line basis, over the lease term.
(Although the lease liability and ROU begin with the same carrying value, their balance sheet values tend to diverge over time because of the differences in the calculation of principal repayments that reduces the lease liability and the amortization expense that reduces the ROU asset.)

The following list shows how the lease transaction affects the financial statements.

- Balance sheet: The lease liability is reported net of principal repayments and the ROU asset is reported net of accumulated amortization
- Income statement: Interest expense and amortization expense are shown separately.
- Cash flow statement: The principal repayment component is reported as cash outflow under financing activities. The interest expense can be reported under either operating or financing activities.

Example: Lessee Accounting - IFRS

(This is based on Example 11 from the curriculum.)

A company is offered the following terms to lease a machine: five-year lease with an implied interest rate of 10% and an annual lease payment of EUR100,000 per year payable at the end of each year. PV = EUR379,079. The asset will be amortized over the five-year lease term on a straight-line basis. The company reports under IFRS.

What would be the impact of this lease on the company's:

1. balance sheet at the beginning of the year?
2. income statement during the following year?
3. statement of cash flows during the following year?

Solution to 1:

The company will report a lease liability and a ROU asset of EUR379,079.

Solution to 2:

In Year 2, the company will report an interest expense of EUR31,699 and an amortization expense of EUR 75,816.

The calculations are shown in the tables below:

	Lease Payment	Interest Expense (10% × Lease Liability)	Principal Repayment (Payment – Interest)	Lease Liability
	FO.1	FO.2	FO.3	FO.4
Year 0				379,079
Year 1	100,000	37,908	62,092	316,987
Year 2	100,000	31,699	68,301	248,685
Year 3	100,000	24,869	75,131	173,554
Year 4	100,000	17,355	82,645	90,909
Year 5	100,000	9,091	90,909	0
Total	500,000	120,921	379,079	

	Amortization Expense	ROU Asset
	Straight-Line F.1	F.2
Year 0		379,079
Year 1	75,816	303,263
Year 2	75,816	227,447
Year 3	75,816	151,631
Year 4	75,816	75,816
Year 5	75,816	0
Total	379,079	

Solution to 3:

In Year 2, principal repayment of EUR68,301 will be reported as a cash outflow under financing activities. The interest expense of EUR31,699 may be reported under operating or financing activities depending on the company's reporting policies.

8.6 Lessee Accounting—US GAAP

Under US GAAP, there are two accounting models for lessees: one for finance leases and another for operating leases.

The finance lease accounting model is the same as the lease accounting model for IFRS.

The operating lease accounting model is different:

- At inception, recognize a lease liability and corresponding right-of-use asset on the balance sheet, both equal to the present value of lease payments.
- As with the previous method, the lease liability is subsequently reduced by each lease payment using the effective interest method
- But the amortization of the right-of-use asset is different, it is calculated as the lease payment less the interest expense.

(Since the principal repayment and amortization are calculated in the same way, the lease liability and the ROU asset will always equal each other)

The following list shows how the lease transaction affects the financial statements.

- Balance sheet: The lease liability is reported net of principal repayments and the ROU asset is reported net of accumulated amortization
- Income statement: Interest expense and amortization expense are shown together as a single operating expense on the income statement. They are not reported separately.
- Cash flow statement: The entire lease payment is reported as cash outflow under operating activities. The interest and principal components are not reported separately.

For a US GAAP company classifying a lease as an operating lease instead of a finance lease affects the financial ratios as shown below:

Ratio	Formula	Impact of Using an Operating Lease Instead of a Finance Lease
EBITDA margin	$\frac{\text{EBITDA}}{\text{Total revenues}}$	Lower: Lease expense is classified as an operating expense rather than interest and amortization.
Asset turnover	$\frac{\text{Total revenues}}{\text{Total assets}}$	Lower: Total assets are higher under an operating lease because the ROU asset is amortized at a slower pace in initial years.
Cash flow per share	$\frac{\text{Cash flow from operations}}{\text{Shares outstanding}}$	Lower: Cash flow from operations is lower because the entire lease payment is included in operating activities versus solely interest expense for a finance lease.

8.7 Lessor Accounting

The accounting for lessors is identical under IFRS and US GAAP. However, the accounting differs based on whether the lease is a finance lease or an operating lease.

Finance lease lessors (IFRS and US GAAP)

- At inception, recognize a lease receivable asset equal to the present value of future lease payments and de-recognize the leased asset, simultaneously recognizing any

difference as a gain or loss.

- The lease receivable is subsequently reduced by each lease payment using the effective interest method.

The following list shows how the lease transaction affects the financial statements.

- Balance sheet: Lease receivable net of principal proceeds is reported on the balance sheet.
- Income statement: Interest income is reported on the income statement, typically as revenue.
- Cash flow statement: The entire cash receipt is reported under operating activities.

Operating lease lessors (IFRS and US GAAP)

- The lease contract is treated as a rental agreement.

The following list shows how the lease transaction affects the financial statements.

- Balance sheet: The balance sheet is not affected. The lessor continues to recognize the underlying asset and depreciate it.
- Income statement: Lease revenue is recognized on a straight-line basis on the income statement. The depreciation expense continues to be recognized.
- Cash flow statement: The entire cash receipt is reported under operating activities.

Example: Lessor Accounting

(This is based on Example 13 from the curriculum.)

Let's examine the previous example from the perspective of the lessor. Assume that the carrying value of the asset immediately prior to the lease is EUR350,000, accumulated depreciation is zero, and the lessor elects to depreciate it on a straight-line basis over five years.

How would the lessor's financial statements be affected by the classification of the lease as a finance or operating lease?

Solution:

Balance sheet: The difference on the balance sheet is material. The present value of lease payments is well above the carrying value of the asset. The finance lease classification therefore results in a significant increase in assets.

Balance Sheet	Year 1	Year 2	Year 3	Year 4	Year 5
<i>Finance lease:</i>					
Lease receivable, net	316,987	248,685	173,554	90,909	0
<i>Operating lease:</i>					

Property, plant, and equipment, net	280,000	210,000	140,000	70,000	0
-------------------------------------	---------	---------	---------	--------	---

Income statement: The difference on the income statement is also material.

Income Statement	Year 1	Year 2	Year 3	Year 4	Year 5
<i>Finance lease:</i>					
Interest revenue	37,908	31,699	24,869	17,355	9,091
<i>Operating lease:</i>					
Lease revenue	100,000	100,000	100,000	100,000	100,000

Cash flow statement: The cash flow statement is the same under both options.

Statement of Cash Flows	Year 1	Year 2	Year 3	Year 4	Year 5
<i>Finance lease:</i>					
Cash flows from operating activities	100,000	100,000	100,000	100,000	100,000
<i>Operating lease:</i>					
Cash flows from operating activities	100,000	100,000	100,000	100,000	100,000

9. Introduction to Pensions and Other Post-Employment Benefits

Instructor's Note: Pensions are discussed in great detail at Level II.

One common post-employment benefit offered by companies to their employees is pension. Pensions and other post-employment benefits give rise to non-current liabilities reported by many companies. When companies promise its employees certain benefits after a certain period of time, they are obligated to fulfill that promise.

The accounting treatment of pensions depends on the type of pension plan. There are primarily two types of pension plans:

1. **Defined contribution plan:** Under this plan, a company contributes an **agreed-upon** amount to the plan. This contribution is recognized as a pension expense on the income statement and an operating cash outflow. Since there is no future payout or obligation, no liability is reported on the balance sheet. A liability is recognized on the balance sheet if some prior agreed-upon amount is not paid by the end of the fiscal year.
2. **Defined benefit plan:** Under this plan, a company promises to pay a certain amount in the future to the employees. The amount of future obligation is based on a lot of assumptions such as retirement age of its employees, last drawn salary before retirement, mortality rate, etc. For example, a company may promise an employee an annual pension payment equal to 60% of his last salary at retirement, until death. The pension obligation is the present value of future payments the company expects to make. A company fulfills this obligation by setting up a pension fund (also known as plan

assets) and making payments to this fund. The ongoing pension obligations are paid from this fund. The amount in the fund remains invested until it has to be paid to the retirees.

Disclosures for Defined Benefit Plans

Since the future obligation of defined benefit pension fund cannot be determined with certainty, accounting is more complicated than the defined contribution plan. Listed below are a few rules for you to remember for a defined benefit plan:

- If the fair value of plan assets > present value of estimated pension obligation, the plan is overfunded (has a surplus). It is called net pension asset.
- If the present value of estimated pension obligation > fair value of plan assets, the plan is underfunded. It is called net pension liability.

Under both IFRS and US GAAP, the net pension asset or liability is reported on the balance sheet. An underfunded defined benefit pension plan is reported as a non-current liability on the balance sheet.

For each period, the change in net pension asset or liability is recognized either in profit or loss or in other comprehensive income.

Under IFRS, the change in net pension asset or liability has three components:

- Employee service costs and past service costs: Recognized as pension expense in the income statement.
- *Service cost is the present value of the benefit earned by an employee for one additional year of service. It is the sum of past service costs and present value of the increase in pension benefit earned by working for one more year.*
- Net interest expense or income accrued on the beginning net pension asset or liability represents the change in value of the net defined benefit pension asset or liability: Recognized as pension expense in the income statement.
- *Net interest expense = net pension asset or liability x discount rate used to estimate the present value of the pension obligation.*
- Remeasurements: Recognized in other comprehensive income on the balance sheet.
- *Remeasurements = actuarial gains and losses and the actual return on plan assets minus the net interest expense or income.*

The actual return on plan assets includes interest, dividends and other income derived from the plan assets, including realized and unrealized gains or losses.

Under US GAAP, the change in net pension asset or liability has five components:

- Employees' service costs for the period.
- Interest expense accrued on the beginning pension obligation.
- Expected return on plan assets. It is a reduction in the amount of expense recognized.
- Past service costs.
- Actuarial gains or losses.

The first three are recognized in profit and loss during the period incurred. Past service costs and actuarial gains and losses are recognized in other comprehensive income in the period they occur and later amortized into pension expense. Under US GAAP, companies are also allowed to immediately recognize actuarial gains and losses in profit and loss.

Example

On 31 Dec. 2012, a company has a pension obligation of 100 and pension assets are 90. What will the company report on the balance sheet under IFRS and US GAAP?

Solution:

Funded status = pension assets – pension obligation = 90 – 100.

The company will report a net pension liability of 10.

10. Evaluating Solvency: Leverage and Coverage Ratios

Solvency ratios are used to measure a company's ability to meet its long-term obligations, including both principal and interest payments. There are two categories of solvency ratios: leverage ratios and coverage ratios.

Leverage Ratios

Leverage ratios focus on the balance sheet and measure the extent to which a company uses debt to finance its assets.

The commonly used leverage ratios are as follows:

Leverage Ratio	Numerator	Denominator
Debt-to-assets	Total debt	Total assets
Debt-to-capital	Total debt	Total debt + shareholders' equity
Debt-to-equity	Total debt	Total shareholders' equity
Financial leverage	Average total assets	Average total equity

These ratios provide information on how much debt a company has taken. A low leverage ratio implies the company has low leverage and is well positioned to fulfill its debt obligations. The ratios for a particular company should be interpreted in the context of the industry in which it operates.

Coverage Ratios

Coverage ratios focus on the income statement and cash flow to measure a company's ability to service debt (make interest and other debt-related payments).

Coverage Ratios	Numerator	Denominator
Interest coverage	EBIT	Interest payments
Fixed charge coverage	EBIT + lease payments	Interest payments + lease payments

Unlike leverage ratios, higher values for coverage ratios are better, all else equal.

Summary

LO.a: Determine the initial recognition, initial measurement, and subsequent measurement of bonds.

When a bond is issued, asset (cash) and liability (bonds payable) both increase by the bond proceeds. The cash flow statement shows an inflow from financing activity.

The book value of a bond is calculated by discounting the future cash flows to present value using market interest rate at the time of issuance. The payments of coupons are recorded as cash outflow from financing activity on the cash flow statement.

- When coupon rate = effective interest rate: the bond is issued at face value.
- When coupon rate < effective interest rate: the bond is issued at a discount.
- When coupon rate > effective interest rate: the bond is issued at a premium.

The book value of a discount bond increases over time until it reaches face value at maturity.

The book value of a premium bond decreases over time until it reaches face value at maturity.

LO.b: Describe the effective interest method and calculate interest expense, amortization of bond discounts/premiums, and interest payments.

Under the effective interest rate method, interest expense = book value of the bond liability at the beginning of the period x market interest rate at issuance. The interest expense includes amortization of any discount or premium at issuance.

Premium Bond:

- The yield < coupon rate, therefore interest expense < coupon payment.
- The difference is subtracted from the bond liability on the balance sheet, which leads to amortization of the premium.

Discount Bond:

- The yield > coupon rate, therefore interest expense > coupon payment.
- The difference is added to the bond liability on the balance sheet, which leads to amortization of the discount.

LO.c: Explain the derecognition of debt.

If a company redeems bonds before maturity, it reports a gain or loss (which is computed as the carrying amount of the bonds less the amount required to redeem the bonds).

Under US GAAP, any remaining unamortized bond issuance costs must also be written off and included in the gain or loss calculation.

Under IFRS, write-off of issuance cost is not necessary because they are already included in the book value of the bond liability.

LO.d: Describe the role of debt covenants in protecting creditors.

A bond indenture often includes restrictions on the issuer, called covenants, to protect the bondholder's interest. The benefit of including debt covenants is that they reduce the default risk for investors and lower the interest costs of borrowing for the borrower. Affirmative covenants require the borrower to take certain actions. Negative covenants place restrictions on a company's actions.

LO.e: Describe the financial statement presentation of and disclosures relating to debt.

The total amount of a company's long-term debt (debt that is due after one year) is combined into a single line item and shown under the non-current liabilities section of the balance sheet. The portion of long-term debt that is due within one year is shown as a current liability. Additional information on a company's debt is disclosed in the notes to financial statements.

LO.f: Explain motivations for leasing assets instead of purchasing them.

Compared to purchasing an asset, the advantages of leasing an asset are:

- Less cash is needed upfront.
- Lower interest rates.
- Lower risks associated with ownership such as obsolescence.

LO. g: Explain the financial reporting of leases from a lessee's perspective.

Under IFRS, there is a single accounting model for both finance and operating leases for lessees.

- Recognize a lease liability and corresponding right-of-use asset on the balance sheet, both equal to the present value of lease payments.
- The liability is subsequently reduced using the effective interest method
- The right-of-use asset is amortized, often on a straight-line basis over the lease term.
- Interest expense and amortization expense are shown separately on the income statement.
- The principal repayment component is reported as cash outflow under financing activities. The interest expense can be reported under either operating or financing activities.

Under US GAAP, there are two accounting models for lessees: one for finance leases and another for operating leases.

The finance lease accounting model is the same as the lease accounting model for IFRS.

The operating lease accounting model is different:

- Recognize a lease liability and corresponding right-of-use asset on the balance sheet, both equal to the present value of lease payments.
- The liability is subsequently reduced using the effective interest method

- But the amortization of the right-of-use asset is the lease payment less the interest expense.
- Interest expense and amortization expense are shown together as a single operating expense on the income statement.
- The entire lease payment is reported as cash outflow under operating activities.

LO. h: Explain the financial reporting of leases from a lessor's perspective.

Finance lease lessors (IFRS and US GAAP)

- Recognize a lease receivable asset equal to the present value of future lease payments and de-recognize the leased asset, simultaneously recognizing any difference as a gain or loss.
- The lease receivable is subsequently reduced by each lease payment using the effective interest method.
- Interest income is reported on the income statement, typically as revenue.
- The entire cash receipt is reported under operating activities on the statement of cash flows.

Operating lease lessors (IFRS and US GAAP)

- The balance sheet is not affected: the lessor continues to recognize the underlying asset and depreciate it.
- Lease revenue is recognized on a straight-line basis on the income statement.
- The entire cash receipt is reported under operating activities on the statement of cash flows.

LO.i: Compare the presentation and disclosure of defined contribution and defined benefit pension plans.

Defined Contribution Plans

- The amount of contribution into the plan is specified. However, the amount of pension that is ultimately paid by the plan is not defined and it depends on the performance of the plan's assets.
- The cash payment made into the plan is recognized as pension expense on the income statement.

Defined Benefit Plans

- The amount of pension that is ultimately paid by the plan is defined, usually according to a benefit formula.
- Under both IFRS and US GAAP, companies must report the difference between the defined benefit pension obligation and the pension assets as an asset or liability on the balance sheet. An underfunded defined benefit pension plan is reported as a non-current liability on the balance sheet.

- Under IFRS, the change in the defined benefit plan net asset or liability is recognized as a cost of the period. Two components of the change (service cost and net interest expense or income) are recognized in the income statement and one component (re-measurements) is recognized in other comprehensive income.
- Under US GAAP, the change in the defined benefit plan net asset or liability is also recognized as a cost of the period. Three components of the change (current service costs, interest expense on the beginning pension obligation, and expected return on plan assets) are recognized in the income statement and two components (past service costs and actuarial gains and losses) are recognized in other comprehensive income. Under US GAAP, companies are also allowed to immediately recognize actuarial gains and losses in profit and loss.

LO.j: Calculate and interpret leverage and coverage ratios.

Leverage ratios focus on the balance sheet and measure the amount of debt financing relative to equity financing.

Leverage Ratio	Numerator	Denominator
Debt-to-assets	Total debt	Total assets
Debt-to-capital	Total debt	Total debt + shareholders' equity
Debt-to-equity	Total debt	Total shareholders' equity
Financial leverage	Average total assets	Average total equity

Coverage ratios focus on the income statement and cash flows and measure the ability of a company to cover its interest payments.

Coverage Ratios	Numerator	Denominator
Interest coverage	EBIT	Interest payments
Fixed charge coverage	EBIT + lease payments	Interest payments + lease payments

Practice Questions

1. At the time of issue of 6% coupon bonds, the effective interest rate was 5.5%. The bonds were *most likely* issued at:
 - A. par.
 - B. a discount.
 - C. a premium.
2. Using the effective interest rate method, the reported interest expense of a bond issued at discount will:
 - A. decrease over the term of the bond.
 - B. increase over the term of the bond.
 - C. remain unchanged over the term of the bond.
3. Company A raised \$1 million by issuing zero-coupon bonds, its debt-to-equity ratio will *most likely*:
 - A. rise over the term of the bond.
 - B. decline over the term of the bond.
 - C. remain constant over the term of the bond.
4. A firm issues \$1 million bonds with a 5% coupon rate, 5-year maturity, and annual interest payments when market interest rates are 6%. The discount amortized in the first year will be *closest* to:
 - A. \$6,583.69.
 - B. \$7,472.58.
 - C. \$8,361.47.
5. SISCO Inc. repurchases the bonds it issued in the open market by paying \$20 million for bonds with a face value of \$25 million and a carrying value of \$22.5 million. The company will *most likely* report:
 - A. other comprehensive income of \$2.5 million.
 - B. a gain of \$5 million on the income statement.
 - C. a gain of \$2.5 million on the income statement.
6. Which of the following is an example of a negative covenant?
 - A. Restrictions on new capital expenditures.
 - B. Inform the lender if a material customer is lost.
 - C. The collateral used for the loan should be maintained.
7. Footnotes *least likely* discloses information about:
 - A. Assets pledged as security

- B. Stated and effective interest rates
C. off-balance-sheet financing.
8. XYZ Inc has a defined benefit pension plan. At the end of 2015, its pension obligations were \$10 million and pension assets were \$12 million. For 2015, XYZ's balance sheet will show:
A. \$10 million as a liability and \$12 million as an asset.
B. \$2 million as a net pension liability.
C. \$2 million as a net pension asset.
9. Company A has \$1 million in total liabilities and \$500,000 in shareholders' equity. It also has lease commitments over the next four years with a present value of \$100,000. If the lease commitments are treated as debt, the debt-to-total-capital ratio of the company is *closest* to:
A. 0.67
B. 0.69
C. 0.71
10. FIMA Inc. prepares financial statements using IFRS. The following information related to the company's defined benefit plan is extracted from the 2018 financial disclosures:
- | | |
|------------------------------|-----|
| Employees' service costs | 520 |
| Net interest expense | 72 |
| Actuarial losses | 6 |
| Actual return on plan assets | 650 |

The pension expense (in thousands) reported in the P&L statement is *closest* to:

- A. 540.
B. 545.
C. 1,070.

Solutions

1. C is correct. Since coupon rate > market rate, the bond is issued at a premium.
2. B is correct. As the discount is amortized, the book value of the bond increases until it reaches its face value. Since interest expense is based on the book value of a bond, it will increase over the term of the bond.
3. A is correct. As discount is amortized over time, the value of the liability for zero-coupon bonds increases. Also, the amortized interest will reduce earnings at an increasing rate over time as the value of the liability increases. Higher relative debt and lower relative equity (through retained earnings) will cause the debt-to-equity ratio to increase as the zero-coupon bonds approach maturity.
4. B is correct.
Since coupon rate < market rate, the bonds will be issued at a discount. Discounting the future payment to their present value indicates that at issuance the company will record an initial book value of \$957,876.36.
The interest expense in the first year = Market interest rate at issuance x book value = $957,876.36 \times 6\% = \$57,472.58$.
Discount amortized in first year = Interest expense - Coupon payment = $\$57,472.58 - \$50,000 = \$7,472.58$.
5. C is correct. A gain of \$2.5 million (carrying amount less amount paid) will be reported on the income statement.
6. A is correct. Negative covenants restrict the borrowing company's actions. Affirmative covenants require the borrower to take certain actions. B and C are examples of affirmative covenants.
7. C is correct. Footnotes disclose more information about long term debt:
 - The nature of the liabilities
 - Maturity dates
 - Stated and effective interest rates
 - Call provisions and conversion privileges
 - Restrictions imposed by creditors
 - Assets pledged as security
 - Amount of debt maturing in next five yearsDetails about debt financing and off-balance sheet financing can be found in MD&A.

8. C is correct. If the fair value of the plan assets is greater than the pension obligation, then the firm will report a net pension asset.

9. B is correct.

$$\text{Debt to total capital ratio} = \frac{\text{total debt}}{(\text{total debt} + \text{total equity})}$$

$$\text{Current debt-to-total-capital ratio} = \$1,000,000 / (\$1,000,000 + \$500,000) = 0.67.$$

If lease commitments are treated as debt, the total debt would increase to \$1,100,000.

$$\text{Post-adjustment debt-to-total capital ratio} = \$1,100,000 / (\$1,100,000 + \$500,000) = 0.69$$

10. A is correct. Under IFRS, the defined benefit pension expense reported on the income statement has two components: employees' service costs and net interest expense. Hence the pension expense is $520 + 72 = 592$. Actuarial losses and actual return on plan assets are part of re-measurements. These are shown under other comprehensive income.