

- What method can be applied to ensure reported inventories are not overvalued?

We will examine each of these issues in the following sections.

### 7.3.1 Inventory Accounting Systems

A merchandising business can typically be engaged in thousands or millions of inventory transactions each year. As well, inventory can comprise a significant proportion of a merchandising company's total assets. It is thus important for merchandising businesses to have robust and accurate systems in place for gathering data on inventory transactions. The use of various technologies, such as computers, bar codes, and RFIDs, has simplified the complex task of gathering inventory transaction information. The use of such technologies has allowed most businesses to implement **perpetual inventory systems** as their data-collection method. A perpetual inventory system is one that tracks all inventory additions and subtractions (purchases and sales) directly in the accounting records. Thus, at any point in time, the company can produce an accurate income statement and balance sheet that will display the amount of the cost of goods sold for the period and inventory balance at the end of the period. This type of system provides more timely information to managers, which can lead to better decision processes.

A **periodic inventory system**, on the other hand, does not track purchases and sales of inventory items directly in the accounting records. Rather, purchases are tracked through a separate purchases account, and the cost of goods sold is not recorded at all at the time of sale. The cost of goods sold can be determined only at the end of the accounting period, when a physical inventory count is taken, and the ending inventory is then reconciled with the opening inventory. This type of system is less useful for management purposes, as profitability can be determined only at the end of the accounting period. As well, the balance sheet would not reflect the appropriate inventory balance until the period-end reconciliation is performed. Periodic inventory systems may be appropriate for a small business where accounting resources are limited, but improvements in technology have resulted in many businesses switching to perpetual inventory systems.

Note that although a perpetual inventory system does result in an instantaneous update of inventory accounts, physical inventory counts are still required under this system. There are many situations, such as product spoilage or theft, that are not captured by perpetual inventory systems, so it is important that companies employing these systems still physically verify the goods at least once per year.

### 7.3.2 Cost Flow Assumptions

The issue of cost flow assumptions can become particularly important when prices of inventory inputs are changing. Consider a merchandising company that purchases inventory items on a continuous basis in order to fill customer orders. At any given point during the accounting period, the goods available for sale may consist of identical items that were purchased at different times for different costs. The question the accountant must answer is, which costs should be allocated to the current cost of goods sold and which costs should continue to be held in inventory? To answer this question, the accountant can choose from three possible methods:

- Specific identification
- Weighted average cost
- First in, first out

#### Specific Identification

This technique is theoretically the most correct way to allocate costs. Each unit that is sold is specifically identified, and the cost for that unit is allocated to cost of goods sold. This method would thus achieve the perfect matching of costs to the revenue generated. There are, however, some disadvantages to this method. First, unless items are easy to physically segregate, it may be difficult to identify which items were actually sold. As well, although physical segregation may be possible, this method could be expensive to implement, as a great deal of record keeping is required. The second disadvantage of this method is its susceptibility to earnings-management techniques. If a manager wanted to manipulate the current period net income, he or she could do this very easily using this method by simply choosing which items to sell and which to retain in inventory. Lower cost items could be shipped to customers, which would result in lower cost of goods sold, higher profits, and higher inventory values on the statement of financial position. Because of this potential problem, this technique should be applied only in situations where inventory items are not normally interchangeable with each other. An example of this would be the inventory held by a car dealership. Each item would have a separate serial number and could not be substituted for another item.

#### Average Cost

This technique can be applied to either periodic or perpetual inventory systems by calculating the average of all goods available for sale and then allocating the average to both the quantity of goods sold and the quantity of goods retained in inventory. When this technique is applied to a perpetual inventory system, it is usually referred to as a **moving average cost**. An example of a moving average cost calculation is as follows:

The following transactions occurred in the month of May for PartsPeople Inc.

May 1	Opening inventory	300 units @ \$3.00
May 3	Purchase	100 units @ \$3.20
May 7	Purchase	200 units @ \$3.25
May 11	Sale	150 units
May 22	Purchase	250 units @ \$3.30
May 25	Sale	375 units
May 31	Ending inventory	325 units

Inventory and cost of goods sold would be calculated as follows:

Date	Purchase	Cost of Goods Sold	Balance	Moving Average <sup>1</sup>	Balance of Units
May 1			300 × \$3.00 = <b>\$900.00</b>	\$3.0000	300
May 3	100 × \$3.20		(300 × \$3.00) + (100 × \$3.20) = <b>\$1,220.00</b>	\$3.0500	400
May 7	200 × \$3.25		(300 × \$3.00) + (100 × \$3.20) + (200 × \$3.25) = <b>\$1,870.00</b>	\$3.1167	600
May 11		150 × \$3.1167 = <b>\$467.50</b>	450 × \$3.1167 = <b>\$1,402.50</b>	\$3.1167	450
May 22	250 × \$3.30		(450 × \$3.1167) + (250 × \$3.30) = <b>\$2,227.50</b>	\$3.1821	700
May 25		375 × \$3.1821 = <b>\$1,193.30</b>	325 × \$3.1821 = <b>\$1,034.20</b>	<b>\$3.1821</b>	<b>325</b>

The total cost of goods sold for the period is  $(\$467.50 + \$1,193.30) = \$1,660.80$ , and the ending inventory balance is \$1,034.20. Under this approach, the average inventory cost is recalculated after each purchase, and this revised average cost is then used to determine the cost of goods sold when a sale is made. After a sale is made, the revised average cost becomes the new base amount for further inventory transactions until the next purchase occurs, and a new average is determined.

This method is often used due to its simplicity and reliability. It is very difficult for managers to manipulate income with this method, as the effects of rising or falling prices will be averaged

<sup>1</sup>The moving average after each transaction is calculated as the total inventory balance divided by the total number of units remaining. The calculation of cost of goods sold and ending balances are out slightly due to rounding differences.

over both the goods sold and the goods remaining on the balance sheet. As well, for goods that are similar and interchangeable, this method may most closely represent the actual physical flow of those goods.



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### First in, First out (FIFO)

Another cost-flow choice companies can use is referred to as the **first in, first out** method, usually abbreviated as FIFO. This method allocates the oldest costs to goods sold first, with newer costs remaining in the inventory balance. Assume the same set of facts for PartsPeople Inc. used in the previous example. Under FIFO, each time a sale occurs, the oldest items are removed from inventory first. The calculation of costs and inventory amounts would be done as follows:

Date	Purchase	Sale	Balance	Balance of Units
May 1			$300 \times \$3.00 =$ <b>\$900.00</b>	300
May 3	$100 \times \$3.20$		$(300 \times \$3.00) +$ $(100 \times \$3.20) =$ <b>\$1,220.00</b>	400
May 7	$200 \times \$3.25$		$(300 \times \$3.00) +$ $(100 \times \$3.20) +$ $(200 \times \$3.25) =$ <b>\$1,870.00</b>	600
May 11		$150 \times \$3.00 =$ <b>\$450.00</b>	$(150 \times \$3.00) +$ $(100 \times \$3.20) +$ $(200 \times \$3.25) =$ <b>\$1,420.00</b>	450
May 22	$250 \times \$3.30$		$(150 \times \$3.00) +$ $(100 \times \$3.20) +$ $(200 \times \$3.25) +$ $(250 \times \$3.30) =$ <b>\$2,245.00</b>	700
May 25		$(150 \times \$3.00) +$ $(100 \times \$3.20) +$ $(125 \times \$3.25) =$ <b>\$1,176.25</b>	$(75 \times \$3.25) +$ $(250 \times \$3.30) =$ <b>\$1,068.75</b>	<b>325</b>

In this case, the total ending inventory balance of \$1,068.75 is higher than the balance calculated under the moving average cost system. This makes sense, as FIFO inventory balances represent the most recent purchases, and in this scenario, input costs were rising throughout the month. This feature of FIFO is considered one of its strengths, as the method results in balance-sheet amounts that more closely represent the current replacement cost of the inventory. Also note that the total cost of goods sold of \$1,626.25 (\$450.00 + \$1,176.25) is lower than moving average amount. This also makes sense, as older costs, which are lower in this case, are being expensed first. This characteristic of FIFO is also one of its major drawbacks. The method of expensing older costs first means that proper matching is not being achieved, as current revenues are being matched to older costs. This method thus represents a trade-off common in accounting standards. A more relevant balance sheet results in a less relevant income statement. Moving average, on the other hand, averages out the differences between the balance sheet and income statement, resulting in some loss of relevance for both statements. As both methods are acceptable under IFRS and ASPE, management would have to decide which statement is more important to the end users and then choose a policy accordingly.



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### How to Choose?

When making an inventory cost flow assumption, what factors do managers need to consider? Generally, the cost flow assumption should attempt to reflect the actual physical flow of goods as much as possible. For example, a grocery retailer selling perishable merchandise may want to use FIFO, as it is common practice to place the oldest items at the front of the rack to encourage their sale first. Alternatively, consider a hardware store that sells bulk nails that are scooped from a bin. There is no way to identify the individual items specifically, and it is likely that over time, customers scooping out nails would mix together items stocked at different times. Weighted average costing would make the most sense in this case, as this would likely represent the real movement of the product. For a company selling heavy equipment, specific identification would likely make the most sense, as each item would be unique with its own serial number, and these items can be easily tracked.

A further consideration would be the effects on the income statement and balance sheet. FIFO results in the inventory reported on the balance being reported at more current costs. As there is an increasing emphasis in standard setting on valuation concepts, this approach would result in the most useful information for determining the value of the company. If profitability is more important to a financial-statement reader, then weighted average cost would be more useful, as more current costs would be averaged into income.

Income taxes may also be a consideration when choosing a cost flow formula. This motivation must be considered carefully, however, as income will be affected in opposite ways, depending on whether input prices are rising or falling. As well, although taxes could be reduced in any

given year through the cost flow assumption made, this is only a temporary effect, as all inventory will eventually be expensed through cost of goods sold.

Whatever method is chosen, it should be applied on a consistent basis. It would be inappropriate for a company to change cost flow assumptions year to year, simply to achieve a certain result in net income. Once the cost flow assumption is determined, it should be applied the same way each year, unless there has been a significant change in circumstances that warrants a change. A company may use different cost flow assumptions for different major inventory classes, but these choices should still be applied consistently.

As a historical note, a further cost flow assumption, last in, first out (LIFO), was once available for use. This method took the most recent purchases and allocated them to the cost of the goods sold first. LIFO is now not allowed in Canada under IFRS or ASPE, but it is still used in the United States. Although this method resulted in the most precise matching on the income statement, tax authorities criticized it as way to reduce taxes during periods of inflation. As well, it was more easily manipulated by management and did not result in accurate valuations on the balance sheet. Canadian companies that are allowed to report under US GAAP may still use this method, but it is not allowed for tax purposes in Canada.

### 7.3.3 The Problem of Overvaluation

Overvaluation can occur when inventory is reported at a higher value than the ultimate amount that can be recovered. This happens with changes in market conditions or consumer tastes, or it happens for other reasons. If a particular product loses favour with the market and must be severely discounted or even disposed of, it would not be appropriate to continue to carry that item on the balance sheet at its cost when that cost is not recoverable. To avoid this problem, the **lower of cost and net realizable value (LCNRV)** needs to be applied. Under this approach, inventory values are reduced to their recoverable amounts in order to ensure that current assets are not stated at an amount greater than the ultimate amount of cash that will be realized from their sale. This also results in recording an expense equal to the loss in value of the asset, which achieves the effect of matching the cost to the period in which the loss actually occurs. For example, if an inventory item has a reported cost of \$1,000 but a net realizable value of only \$800, the company should record the following journal entry:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss due to decline in inventory value .....		200	
	Inventory .....			200

Most companies will simply report the loss as part of the cost of goods sold account on the income statement. Separate disclosure may be appropriate, however, if the amount is considered material or unusual in nature.

### What Is Net Realizable Value?

When determining the loss in inventory value, it is important to have a clear understanding of the concept of **net realizable value (NRV)**. Net realizable value is an estimate based on the expected selling price of the goods in the ordinary course of business, less any estimated costs required to complete and sell the goods. It thus represents the net cash flow that will ultimately be generated by the sale of the product. Because the net realizable value is an estimate, it can be affected by management estimation bias and by changes in economic circumstances. As a result, write-downs of inventories need to be reviewed carefully and frequently by accountants to ensure the reported amounts are reasonable.

### How Is the Lower of Cost and Net Realizable Test Applied?

In general, the lower of cost and net realizable test should be applied to the most detailed level possible. This would normally be considered to be individual inventory items. However, in some situations, it may be appropriate to group inventory items together and apply the test at the group level. This would be appropriate only when items relate to the same product line, have similar end uses, are produced and marketed in the same geographic area, and cannot be segregated from other items in the product line in a reasonable or cost-effective way. If grouping is appropriate, the amount of inventory write-downs will be less than if the test is applied on an individual-item basis. This occurs because grouping allows for some offsetting of over- and undervalued items.

### Biological Assets

One interesting exception to the lower of cost and net realizable value rule is accounting for biological assets. Although ASPE does not specifically address these types of assets, IFRS does present a separate standard: IAS 41 *Agriculture*. This standard covers raising and harvesting living plants and animals. The biological assets are considered the original source of the commercial activity, such as the fruit tree that produces apples, the sheep that produces wool, or the dairy cow that produces milk. The detailed accounting for these specialized assets goes beyond the scope of this course. Generally, the product of the biological asset would fall under the normal rules for inventory accounting, but the biological asset itself is accounted for at its fair value, less selling costs. This means that every year, the value of the biological-asset must be determined, and an adjustment to the assets carrying value must be made. This adjustment would result in an unrealized gain or loss. As the inventory is produced, it is transferred from the biological-asset account to an inventory account at its fair value less selling costs at the point of harvest. This value now becomes the inventory's cost. When inventory is sold, the sale amount is transferred from the unrealized account to realized revenue.

Conceptually, these types of assets are similar in nature to a capital asset, but they are also different in that they grow and obtain value independent of the inventory they produce. This unique nature is the reason IFRS presents a separate standard for the accounting and disclosure of biological assets.

## 7.4 Presentation and Disclosure

Inventories are required to be disclosed as a separate item on the company's balance sheet. As well, significant categories of inventories should be disclosed, such as raw materials, work in process, and finished goods. As with any significant balance sheet item, the company's accounting policies for measuring and reporting inventories, including its chosen cost formula, should be disclosed. The company should also disclose the amount of inventories recognized as an expense during the period. This would normally be disclosed as cost of goods sold, but there may be other material amounts that could be disclosed separately, such as write-downs due to obsolescence and subsequent reversals of those write-downs. As well, under IFRS, additional details of the write-downs need to be disclosed, such as qualitative reasons for the write-downs or subsequent reversal. If the inventory has been pledged as collateral for any outstanding debt, this fact needs to be disclosed, along with the amount pledged.

## 7.5 Inventory Errors

Given the volume of inventory transactions that occur in a merchandising or manufacturing business and the portable nature of many inventory items, it is inevitable that errors in accounting for those items will occur. It is important to understand how inventory errors affect the reported net income and financial position of the company, as these errors could be material and could affect users' interpretations of financial results. To understand the effects of inventory errors, it is useful to review the formula for determining the cost of goods sold:

Opening inventory
+ Purchases
= Goods available for sale
– Ending inventory
= Cost of goods sold

As the ending inventory for one accounting period becomes the opening inventory for the next period, it is easy to see how an inventory error can affect two accounting periods. Let's look at a few examples to determine the effects of different types of inventory errors.

**Example 1:** Using our previous company, assume PartsPeople missed counting a box of rotors during the year-end inventory count on December 31, 2019, because the box was hidden in a storage room. Further assume that the cost of these rotors was \$7,000 and that the invoice for the purchase was correctly recorded. How would this error have affected the financial statements? If we consider the cost of goods sold formula above, we can see that understating ending inventory would have overstated the cost of goods sold, as the ending inventory is subtracted in the formula. As well, consider the following year. The opening

inventory on January 1, 2020, would have also been understated, which would have resulted in an understatement of cost of goods sold for 2020. Thus, over a two-year period, net income would have been understated by \$7,000 in 2019 and overstated by \$7,000 in 2020. At the end of two years, the error would have corrected itself, and the total income reported for those two years would be correct. However, the allocation of income between the two years was incorrect, and the company's balance sheet at December 31, 2019, would have been incorrect. This could be significant if, for example, PartsPeople had a bank loan with a covenant condition that required maintenance of certain ratios, such as debt to equity or current ratios. If the error were discovered prior to the closing of the 2019 books, it would have been corrected as follows:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Inventory .....		7,000	
	Cost of goods sold .....			7,000

If the error was not discovered until after the 2019 books were closed, it would have been corrected as follows:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Inventory .....		7,000	
	Retained earnings .....			7,000

After 2020, as noted above, the error would have corrected itself, so no adjustment would be required. However, the 2019 financial statements used for comparative purposes in future years would have to be restated to reflect the correct amounts of inventory and cost of goods sold.

**Example 2:** Suppose instead that PartsPeople correctly counted its inventory on December 31, 2019, but missed recording an invoice to purchase a \$4,000 shipment of brake pads, because the invoice fell behind a desk in the accounting office. Again, using our cost of goods sold formula, we can see that an understatement of purchases will result in an understatement of the cost of goods sold. As the ending inventory balance was counted correctly, one may think that this problem was isolated to this year only. However, in 2020, the vendor may have issued a replacement invoice when they realized PartsPeople hadn't paid for the shipment. When PartsPeople recorded the invoice in 2020, the purchases for that year would have been overstated, which means the cost of goods sold was also overstated. Again, the error corrected itself over two years, but the allocation of income between the two years was incorrect. If the error was discovered before the books were closed for 2019 (and before a replacement invoice is issued by the vendor), it would have been corrected as follows:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cost of goods sold .....		4,000	
	Accounts payable .....			4,000

If the error was not discovered until after the 2019 books were closed, it would have been corrected as follows:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Retained earnings .....		4,000	
	Accounts payable .....			4,000

**Example 3:** This time, let's consider the effect of two errors. Assume PartsPeople sold goods to a customer with terms FOB shipping on December 29, 2019. The company correctly recorded this as a sale on December 29, but due to a data-processing error, the goods, with a cost of \$900, were not removed from inventory. Further, assume that a supplier sent a shipment to PartsPeople on December 29, also with the terms FOB shipping, and the cost of these goods was \$500. These goods were not received until January 4 of the following year, but due to poor cut-off procedures at PartsPeople, these goods were not included in the year-end inventory balance.

In this situation, we have two different errors that create opposing effects on the income statement and balance sheet. The goods sold to the customer should not have been included in inventory, resulting in an overstatement of year-end inventory. The goods shipped by the supplier should have been included in inventory, resulting in an understatement of year-end inventory. The net effect of the two errors is a  $\$900 - \$500 = \$400$  overstatement of ending inventory. This will result in an understatement of the cost of goods sold and thus an overstatement of net income. If these errors were discovered before the books were closed in 2019, the entry to correct them would be as follows:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cost of goods sold .....		400	
	Inventory .....			400

If the errors were not discovered until after the 2019 books were closed, they would have been corrected as follows:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Retained earnings .....		400	
	Inventory .....			400

These three illustrations are just a small sample of the many kinds of inventory errors that can occur. In evaluating the effect of inventory errors, it is important to have a clear understanding of the nature of the error and its impact on the cost of goods sold formula. It is also important to consider the effect of the error on subsequent years. Although immediate correction of errors is preferable, most inventory errors will correct themselves over a two-year period.

However, even if an error corrects itself, there may still be a need to restate comparative financial-statement information.



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## 7.6 Estimating Inventory

Although a business will normally take an inventory count at least once per year to verify the perpetual inventory records, there may be circumstances where an inventory count is either impractical or impossible. For example, when a company prepares interim unaudited financial statements, it may be too costly to conduct an inventory count, as operations would have to cease during the count, and staff would need to be reallocated to this purpose. Or, in the case where a disaster strikes, such as a warehouse fire, inventory may be destroyed, making a count impossible. In these situations, the company may choose to use an estimation method to determine the inventory. The estimated balance can be used for the interim financial statements or for making an insurance claim in the case of a disaster. Several methods can be used to estimate inventory. We will focus on the **gross profit method**.

This method attempts to estimate the inventory balance at a point in time using past relationships between the cost of goods sold and sales and then applying the cost of goods sold formula to determine the ending inventory balance. Consider the following scenario for PartsPeople. On May 17, 2019, a fire caused by faulty electrical wiring completely destroyed one of the company's warehouses and all of the contents. Fortunately, this loss was covered by the company's insurance policy, but in order to make a claim, the company needed a credible estimate of the amount of inventory destroyed. Assume that the inventory on January 1, 2019, was reported at a cost of \$250,000, which was verified by a count. As well, assume that between January 1 and May 17, 2019, the cost of all inventory purchases was \$820,000, and sales for this period were reported at \$1,200,000. Based on analysis of the previous year's results, the company knows that its gross profit percentage is 25 percent. Based on this information, the company could have estimated the cost of the destroyed inventory as follows:

Inventory on January 1		\$250,000
Purchases		\$820,000
Goods available for sale		<u>\$1,070,000</u>
Sales	\$1,200,000	
Less gross profit (25% × \$1,200,000)	<u>\$300,000</u>	
Estimated cost of goods sold		<u>\$900,000</u>
Estimated inventory on May 17		<u><u>\$170,000</u></u>

PartsPeople could have used this information to make a claim in the amount of \$170,000 for inventory damaged in the fire. There are some obvious limitations in using this technique.

First, the gross profit percentage used here was based on the previous year's results. If the company had made changes to its pricing or purchasing strategies in 2019, the percentage would need to have been adjusted. Second, a single gross profit percentage has been used for all inventory items. It is quite likely that individual inventory items would have different amounts of gross profit built into their pricing, depending on consumer demand, purchasing dynamics, and so on. This blanket rate is based on an average of all inventory items, but depending on the product mix of both sales and purchases during the intervening period, this rate may not be appropriate.

Because this technique provides only an estimate, it should not be used for annual financial reporting purposes. In the circumstances noted above, however, it can be useful, but the calculated amount should be compared with the perpetual inventory records to determine the reasonableness of the estimate. Management should consider the suitability of the single gross profit percentage and consider any adjustments that may be appropriate.



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## 7.7 Inventory Analysis

As mentioned previously, inventory can be a significant asset for many businesses, as it represents profit-generating potential. Buying or producing goods at a certain price and then selling them for a higher price is the essence of the retail, wholesale and manufacturing sectors. Obviously, efficient management of these inventories is essential for the success of the business. A company needs to control the cost of inventories in order to maintain its profit margins. As well, companies need to ensure that inventories move through the system quickly. Inventories sitting in a warehouse, unsold, are not producing profits or cash flow for the company. While the items sit in the warehouse, the company will incur costs: the cost of the warehouse space itself and the cost of funds required to finance the inventory. Obviously, to minimize these costs, it is important to sell the inventory as quickly as possible, while maintaining the desired margin.

To analyze inventory, we will look at two types of ratios: gross profit margin and inventory turnover period.

### Gross Profit Margin

**Gross profit** represents the difference between sales revenue and cost of sales. This is an essential measurement in determining the profitability of a business, as it represents the profit

generated by the primary business activity of selling goods, before considering any other expenses. To facilitate comparisons between different sales volumes, the **gross profit margin** is calculated as follows:

$$\text{Gross profit margin} = \frac{\text{Gross profit}}{\text{Sales revenue}} \times 100$$

By expressing this relationship as a percentage, one can make comparisons between different companies or different accounting periods for the same company. This is a type of common size analysis that helps the reader discern relationships and trends that may indicate something about the company's profitability. Consider the following example from the financial statements of a large automobile manufacturer (in \$ millions):

	Year Ended December 31, 2021	Year Ended December 31, 2020
Sales	\$ 136,200	\$ 140,100
Cost of sales	123,400	125,300
Gross profit	\$ 12,800	\$ 14,800

Sales declined slightly in 2021 compared with the previous year, as did gross profit. By calculating the gross profit margin, we can get a better idea of the meaning of these results:

$$\begin{aligned} \text{Gross profit margin 2021} &= 9.40\% \\ \text{Gross profit margin 2020} &= 10.56\% \end{aligned}$$

Although the gross profit margin dropped by only 1.16 percent between years, this represents lost profits of approximately \$1.5 billion on this scale of revenues. Management would obviously be motivated to find ways to control these margins to prevent further declines, whether through adjusting sales prices or controlling costs better.

### Inventory Turnover Period

Aside from the profitability of the business's core activities as calculated above, management is also interested in the efficiency of carrying out those activities. One way to measure the efficiency of inventory movements to calculate the **inventory turnover period**:

$$\text{Inventory turnover period} = \frac{\text{Average inventories held}}{\text{Cost of sales}} \times 365$$

This ratio will help us understand how quickly the company moves inventory through the various business processes that eventually result in a sale. For a manufacturing company,

this process begins with the receipt of raw materials and ends when the finished goods are finally sold. Once again, consider the reported inventory levels of the automobile manufacturer (in \$ millions): 2021—\$7,860, 2020—\$7,700, 2019—\$7,360.

Using the formula above, we can determine the following inventory turnover periods:

2021: 23.01 days  
2020: 21.94 days

(Note that the average inventories amount was calculated as the simple average of opening and closing inventories. For businesses with seasonal or other unusual patterns of sales, more sophisticated calculations of the average inventories may be required.)

In this example, the inventory turnover period increased by slightly more than one day during the current year. This may not seem significant, but it does indicate that inventories are being held for a longer time, which will increase the company's costs. Line managers are very motivated to find ways to reduce the turnover period through more efficient purchasing practices, better production techniques, and more effective sales promotions.

It should be noted that the absolute values of the ratios we have calculated are not particularly useful on their own. Like all ratios, a comparison or benchmark is needed for comparison. Most companies will start by comparing the ratio with the previous year to see if improvements have occurred in the current year. Many managers will also compare with a budgeted or target amount, as this will provide feedback on the actions they have taken. It may also be useful to compare with industry standards or competitor data, as this indicates something of the company's competitive position. Ratio analysis does not provide answers to questions, but it does help managers and other financial statement users to identify areas where performance is improving or declining.

## 7.8 IFRS/ASPE Key Differences

IFRS	ASPE
Biological assets that produce a harvestable product are accounted for under the provisions of IAS 41.	No specific standard exists for biological assets or agricultural produce.
Disclosures regarding categories of inventories and accounting policies are required. As well, further disclosures regarding qualitative reasons for write-downs are required.	Disclosures regarding categories of inventories and accounting policies used are required.

## Chapter Summary

### LO 1 Define inventory, and identify those characteristics that distinguish it from other assets.

Inventories can be a significant asset for many businesses. The key feature of inventory is that it is held for sale in the normal course of business, which distinguishes it from financial instruments and long-lived assets, such as property, plant, and equipment.

### LO 2: Identify the types of costs that should be included in inventory.

Recognition of the initial cost of purchase should include transportation, discounts, and other nonrecoverable taxes and fees that need to be paid to transport the goods to the place of business. FOB terms of purchase need to be considered when applying cut-off procedures at the end of the accounting period. This is important for determining when the responsibility for the inventory passes from the seller to the buyer. For manufacturers, conversion costs must also be included in inventory. For direct materials and labour, this allocation is fairly straightforward. However certain issues with overhead allocations can occur with low or high production levels. With abnormally low production levels, overheads should be allocated at the rate used for normal production levels. With abnormally high production levels, overheads should be allocated using the actual level of production. Other costs required to bring the inventory to the place of business and get into a saleable condition may also be included. The accountant will need to exercise judgment when considering other costs to include.

### LO 3: Identify accounting issues and treatments applied to inventory subsequent to its purchase.

#### LO 3.1: Describe the differences between periodic and perpetual inventory systems.

Perpetual inventory systems are those that instantly update accounting records for sales and purchases of goods. These types of systems are commonly used today and are facilitated by advances in computer and other technologies. Periodic inventory systems do not allow for the real-time updating of accounting records. Rather, these systems require a periodic inventory count (at least annually) that is then used to derive the cost of goods sold. These types of systems are less useful for management purposes. Even under a perpetual inventory system, annual inventory counts are still required to detect spoilage, theft, or other unaccounted inventory changes.

**LO 3.2: Identify the appropriate criteria for selection of a cost flow formula, and apply different cost flow formulas to inventory transactions.**

The cost flow formula determines how to allocate inventory costs between the income statement and the balance sheet. Although specific identification of individual inventory items is the most precise way to allocate these costs, this method would only be appropriate with inventory items whose characteristics uniquely differentiate them from other inventory units. For homogeneous inventory products, weighted average or first in, first out (FIFO) are appropriate choices. Weighted average (or moving average, when used with a perpetual inventory system) recalculates the average cost of the inventory every time a new purchase is made. This revised cost is used to determine the cost of goods sold. With FIFO, the oldest inventory items are assumed to be sold first. Each method has certain advantages and disadvantages, and each has a different effect on the balance sheet and income statement. The choice of method will depend on the actual physical movement of goods, financial reporting objectives, tax considerations, and other factors. Whatever method is chosen, it should be applied consistently.

**LO 3.3: Determine when inventories are overvalued, and apply the lower of cost and net realizable value rule to write-down those inventories.**

When economic circumstances change, such as a shift in consumer preferences, a company may find itself holding inventory that cannot be sold for its carrying value. In this case, the inventory should be written-down to its net realizable value (selling price less estimated costs required to complete and sell the goods) in order to ensure the balance sheet is not reporting a current asset at a value greater than the amount of cash that can be realized from its sale. Generally, this technique should be applied on an individual-item basis, but in certain cases where a group of products all belong to one product line, are produced and marketed in one geographic area, have similar end uses, or are difficult to segregate, it may be appropriate to apply the test on a grouped basis. Judgment is required in applying this technique, as net realizable values are estimates that may not be easy to verify.

One unique application of fair value inventory accounting relates to biological assets. These are assets that are living plants or animals used to produce an agricultural product. Under IFRS these assets are adjusted to their fair value, less selling costs, each year. This can result in increases as well as decreases in value.

**LO 4: Describe the presentation and disclosure requirements for inventories under both IFRS and ASPE.**

Inventory should be described separately on the balance sheet, with separate disclosure of major categories such as raw materials, work in process, and finished goods. Accounting policies used should also be disclosed, as well as the amount of any inventory that has been

pledged as collateral for any liability. The amount of inventory expensed during the period should be disclosed as cost of goods sold on the income statement, but other categories, if material, could be disclosed separately, such as significant write-downs or reversals of write-downs.

### **LO 5: Identify the effects of inventory errors on both the balance sheet and income statement, and prepare appropriate adjustments to correct the errors.**

Due to the nature and relative volume of inventory transactions, material errors in financial reporting can occur. To correct these errors, the accountant must have a firm understanding of the cost of goods sold formula and its effects on both the current and subsequent years. If inventory errors are discovered after the closing of the books, an adjustment to retained earnings may be required. If an error is not discovered until two years after its occurrence, it is quite likely that the error has corrected itself. In this case, no adjusting entry would be required, but restatement of prior-year comparative results would still be necessary.

### **LO 6: Calculate estimated inventory amounts using the gross profit method.**

The gross profit method can be useful for estimating inventory amounts when a physical count is impractical or impossible. This could be the case when for interim reporting periods or when the inventory is destroyed in a disaster. The technique uses past gross profit percentages and applies it to purchases and sales during the period to estimate the amount of inventory on hand. The method is not appropriate for annual financial reporting purposes, as the estimate could be subject to error as a result of using past gross profit percentages that are not representative of current margins or are not representative of the current product mix. Considerable judgment and care should be applied when using this method.

### **LO 7: Calculate gross profit margin and inventory turnover period, and evaluate the significance of these results with respect to the profitability and efficiency of the business's operations.**

Managers are concerned about the profitability of the company's core business of buying and selling products. Managers are also concerned with the efficiency with which products are moved through the production and sales process. Calculating gross profit margin can identify trends in the profitability of the company's core operations. Calculating inventory turnover period can identify problems with the efficiency movement of inventories, including raw materials, work in progress, and finished goods. Ratio calculations need to be compared with some type of benchmark to be meaningful.

## LO 8: Identify differences in accounting for inventories between ASPE and IFRS.

Inventory accounting standards under IFRS and ASPE are substantially the same. The primary difference relates to biological assets. IFRS has a complete set of standards (IAS 41) for these types of assets, whereas ASPE does not separately identify this category. As well, IFRS requires certain additional disclosures that ASPE does not, including a description of qualitative reasons for inventory write-ups and write-downs.

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### Exercises

#### EXERCISE 7-1

Identify which of the following costs of a product manufacturer would be included in inventories:

- Salaries of assembly line workers
- Raw materials
- Salary of factory foreman
- Heating cost for the factory
- Miscellaneous supplies used in production process
- Salary of the CEO
- Costs to ship raw materials from the supplier to the factory

- Electricity cost for the factory
  - Salaries of the sales team
  - Depreciation of factory machines
  - Property taxes on factory building
  - Discounts for early payment of raw material purchases
  - Salaries of the factory's janitorial staff
- 

**EXERCISE 7-2**

Complete the following table by identifying whether the seller (S) or the purchaser (P) is the appropriate response for each cell.

	FOB Shipping	FOB Destination
Owns the goods while in transit		
Is responsible for the loss if goods are damaged in transit		
Pays for the shipping costs		

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**EXERCISE 7-3**

Hasselbacher Industries Ltd. has fixed production overhead costs of \$150,000. In a normal year, the company produces 100,000 units of product, which results in a fixed overhead allocation of \$1.50 per unit.

**Required:**

- a. If the company produces 105,000 units in a year, how much total fixed overhead should be allocated to the inventory produced?
  - b. If the company produces 30,000 units in a year, how much total fixed overhead should be allocated to the inventory produced?
  - c. If the company produces 160,000 units in a year, how much total fixed overhead should be allocated to the inventory produced?
- 

**EXERCISE 7-4**

Segura Ltd. operates a small retail store that sells guitars and other musical accessories. During the month of May, the following transactions occurred:

	Number of Units	Cost per unit
Opening inventory, May 1	8	\$550
Purchase, May 5	50	\$560
Purchase, May 8	10	\$575
Sale, May 15	15	
Purchase, May 22	12	\$572
Sale, May 25	23	
Closing inventory, May 31	42	

**Required:** Segura Ltd. uses a perpetual inventory system. Using the FIFO cost flow assumption, calculate the cost of goods sold for the month of May and inventory balance on May 31.

#### EXERCISE 7–5

Refer to the information in the previous question.

**Required:** Assume that Segura Ltd. uses the moving average cost flow assumption instead. Calculate the cost of goods sold for the month of May and the inventory balance on May 31.

#### EXERCISE 7–6

The following chart for Severn Ltd. details the cost and selling price of the company's inventory:

Description	Category	Cost (\$)	Selling Price (\$)
Brake pad #1	Brake pads	159	140
Brake pad #2	Brake pads	175	180
Total brake pads		334	320
Soft tire	Tires	325	337
Hard tire	Tires	312	303
Total tires		637	640

**Required:**

- Assume that grouping of inventory items is **not** appropriate in this case. Apply the lower of cost and net realizable value test and provide the required adjusting journal entry.

- b. Assume that grouping of inventory items is appropriate in this case. Apply the lower of cost and net realizable value test and provide the required adjusting journal entry.

### EXERCISE 7-7

Hawthorne Inc. identified the following inventory errors in 2020.

- a. Goods were in transit from a vendor on December 31, 2020. The invoice cost was \$82,000 and the goods were shipped FOB shipping point on December 27, 2020. The goods will be sold in 2021 for \$135,000. The goods were not included in the inventory count.
- b. On January 6, 2021, a freight bill for \$6,000 was received. The bill relates to merchandise purchased in December 2020 and two-thirds of this merchandise was still in inventory on December 31, 2020. The freight charges were not included in either the inventory account or accounts payable on December 31, 2020.
- c. Goods shipped to a customer FOB destination on December 29, 2020, were in transit on December 31, 2020, and had a cost of \$27,000. When notified that the customer had received the goods on January 3, 2021, Hawthorne's bookkeeper issued a sales invoice for \$42,000. These goods were not included in the inventory count.
- d. Excluded from inventory was a box labelled "Return for Credit." The cost of this merchandise was \$2,000 and the sale price to a customer had been \$3,500. No entry had been made to record this return and none of the returned merchandise seemed damaged.

**Required:** Determine the effect of each of the above errors on both the balance sheet accounts at December 31, 2020, and the reported net income for the year ended December 31, 2020 and complete the table below.

Item	Inventory	A/R	A/P	Net Income
A				
B				
C				
D				
Total				

### EXERCISE 7-8

Refer to the information provided in the previous question.

**Required:**

- a. Assume the books are still open for 2020. Provide any required adjusting journal entries to correct the errors.
- b. How would the adjustments change if the books are now closed for 2020?

**EXERCISE 7–9**

Wormold Industries suffered a fire in its warehouse on March 4, 2021. The warehouse was full of finished goods, and after reviewing the damage, management determined that inventory, with a retail selling price of \$90,000, was not damaged by the fire.

For the period from January 1, 2021, to March 4, 2021, accounting records showed the following:

Purchases	\$650,000
Purchase returns	16,000
Sales revenue	955,000

The inventory balance on January 1, 2021, was \$275,000, and the company has historically earned a gross profit percentage of 35%.

**Required:** Use the gross profit method to determine the cost of inventory damaged by the fire.

**EXERCISE 7–10**

Bollen Custom Automobile Mfg. reported the following results (all amounts are in millions USD):

	2020	2019
Sales	20,222	13,972
Cost of sales	17,164	11,141
Gross profit	3,058	2,831
Inventories at year end	2,982	1,564

Inventories at the end of 2018 were \$1,239.

**Required:** Using the data above, analyze the profitability and efficiency of the company with respect to its core business activities. Provide any points for further investigation that your analysis reveals.

# Chapter 8

## Intercorporate Investments

### An Acquisition Debacle for Hewlett Packard

In 2011, Hewlett-Packard (HP) purchased approximately 87% of the share capital (213 million shares) of Autonomy Corporation plc. for US \$11.1 billion cash. The purpose of this acquisition was to ensure that HP took the lead in the quickly growing enterprise information management sector. Autonomy's products and solutions complemented HP's existing enterprise offerings and strengthened the company's data analytics, cloud, industry, and workflow management capabilities, so the acquisition made sense from a strategic point of view.

Autonomy HP was to operate as a separate business unit. Dr. Mike Lynch, founder and CEO of Autonomy, would continue to lead Autonomy HP's business and report to HP's Chief Executive Meg Whitman (Hewlett Packard, 2011).

However, trouble quickly brewed and in 2012, accounting "anomalies" were uncovered by HP, giving rise to a massive impairment write-down of the Autonomy HP unit to the tune of an \$8.8 billion impairment charge. Compared to the original \$11.1 billion purchase price, the impairment represented a whopping 79% drop in the investment's value, a mere one year later.

HP alleged that the owners of Autonomy misrepresented their company's financial position due to what HP referred to as serious accounting *improprieties*. To make matters worse, all this came at a bad time for HP, given that its fourth quarter financial results were already down 20% in hardware sales and 12% in laptop/desktop sales (Souppouris, 2012).

The question remained; how was it possible to lose 79% of Autonomy HP unit value in less than one year? HP claims to have discovered all kinds of accounting irregularities which were denied by Autonomy's founder and CEO, Mike Lynch. HP claimed that it would have paid half the purchase price, had it known what it later discovered about Autonomy's true profitability and growth.

Consider that software companies like Autonomy do not have much value in hard assets, so the impairment did not relate to a revaluation of assets. Also, Autonomy did not have much in the way of outstanding invoices, so there was no large non-payment of amounts owed to trigger the drop in value and subsequent impairment write-down.

So the impairment charge more likely reflected a reassessment by HP of the future cash flows originally estimated, based on the financials, to be much less than anticipated. This

is backed up by Chief Executive Meg Whitman's assertion that Autonomy's real operating profit margin was closer to 30%, and not its reported 40 to 45%.

Whitman accused Autonomy of recording both long-term deals and sales through resellers as fully realized sales. Consider that the booking of revenue is not clear-cut in the software industry because of the differing accounting rules. For example, if Autonomy recorded an extra \$20 million of future sales now, without recording the associated additional cost of goods sold, the gross profit percentage would exponentially increase, perhaps by as much as 10 to 15%.

HP also stated that the actual losses of Autonomy's loss-prone hardware division were misclassified as "sales and marketing expenses" in the operating expenses section rather than as cost of goods sold in the gross profit section. Since sales figures were reported as steeply increasing, this would create a more favourable overall growth rate. Since growth is another factor in business valuations, this exponential effect could also have affected the purchase price HP thought it was willing to pay.

Companies can also increase reported net income by inappropriately classifying certain current expenses as investments (assets), which are thereafter amortized over several years. Some analysts suspected that Autonomy misclassified some of its research costs in this way. Moreover, some of Autonomy's growth was generated from acquisitions of other businesses. Takeovers can, for example, give a more favourable impression of growth rates, if pre-acquisition sales are understated. In this light, apparently, some analysts questioned Autonomy's acquisition accounting.

With all the factors discussed above, it is possible that HP could allege and demonstrate that inappropriate reporting and valuation errors led to a discrepancy the size of which it purports. Autonomy HP unit CEO, Mike Lynch, denies all charges of reporting impropriety or error. He said that Autonomy followed international accounting rules.

Until HP's accusations are fully investigated, it will be impossible for stakeholders and others to know what really happened.

(Source: Webb, 2012)

**[Note: IFRS refers to the balance sheet as the *statement of financial position (SFP)* and ASPE continues to use the historically-used term *balance sheet (BS)*. To simplify the terminology, this chapter will refer to this statement as the historically generic term *balance sheet*.**

## Chapter 8 Learning Objectives

After completing this chapter, you should be able to:

LO 1: Describe intercorporate investments and their role in accounting and business.

LO 2: Identify and describe the three types of non-strategic investments.

LO 2.1: Fair value through net income (FVNI) classification and accounting treatment.

LO 2.2: Fair value through OCI (FVOCI) classification and accounting treatment.

LO 2.3: Amortized Cost (AC) classification and accounting treatment.

LO 3: Identify and describe the three types of strategic investments.

LO 3.1: Investments in associates classification and accounting treatment.

LO 3.2: Investments in subsidiaries classification and accounting treatment.

LO 3.3: Investments in joint arrangements general overview.

LO 4: Explain disclosures requirements for intercorporate investments.

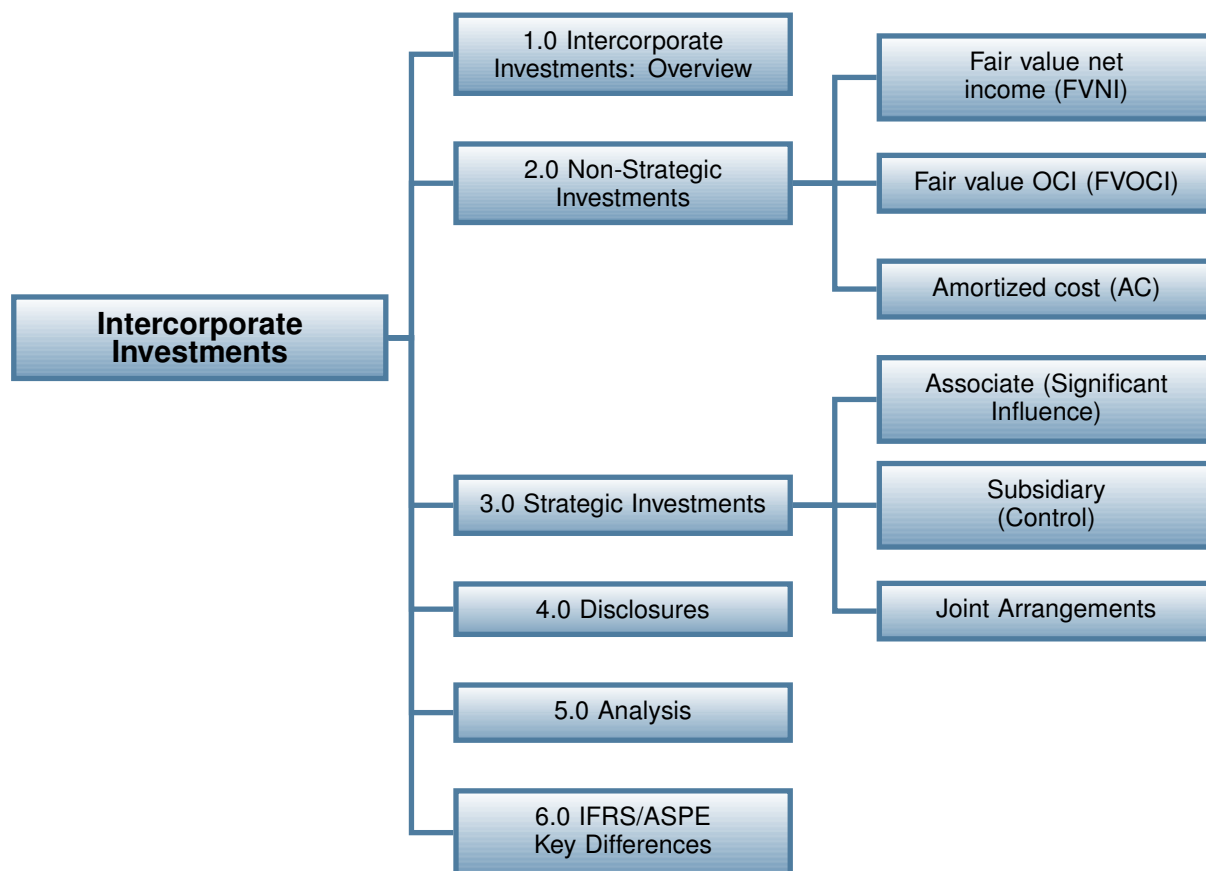
LO 5: Identify the issues for stakeholders regarding investment analyses of performance.

LO 6: Discuss the similarities and differences between IFRS and ASPE for the three non-strategic investment classifications.

## Introduction

Intercorporate investments arise when companies invest in other companies' securities as the Hewlett Packard shares acquisition cover story illustrates. This chapter will focus on explaining how these investments are classified, measured (both initially and subsequently), reported, and analyzed. Canada currently has two IFRS standards in effect: IFRS 9, which was effective January 1, 2018 and ASPE. The purpose of this chapter is to identify the various classifications and accounting treatments permitted by either standard for investments in other companies' debt and equity securities.

## Chapter Organization



### 8.1 Intercorporate Investments: Overview

There are many reasons why companies invest in bonds, shares, and securities of other companies. It is well-known that banks, insurance companies, and other financial institutions hold large portfolios of investments (financed by deposits and fees their customers paid to the banks) to increase their interest income. But it may also be the best way for companies in non-financial industry sectors to utilize excess cash and to strengthen relationships with other companies. If the investments can earn a higher return compared to idle cash sitting in a bank account, then it may be in a company's best interests to invest. The returns from these investments will be in the form of interest income, dividend income, or an appreciation in the value of the investment itself, such as the market price of a share.

In some cases, investments are a part of a portfolio of actively managed short-term investments undertaken in the normal course of business, to offset other financial risks such as foreign exchange fluctuations. Other portfolios may be for longer-term investments such as bonds that will increase the company's interest income. These are examples of **non-strategic**

**investments** where the prime reason for investing is to increase company income using cash not required for normal business operations.

Alternatively, companies may undertake **strategic investments** where the prime reason is to enhance a company's operations. If the percentage of voting shares held as an investment is large enough, the investing company can exercise its right to influence or control the investee company's investing, financing and operating decisions. Strategies to purchase shares of a manufacturer, wholesaler, or customer company can strengthen those relationships, perhaps to guarantee a source of raw materials or increase market share for sales. In some cases, it can be part of a strategy to take over a competitor because it would enhance business operations and profits to do so. Intercorporate investments do have risks as the opening story explains. Hewlett Packard's acquisition of a controlling interest in the voting shares of Autonomy Corp. is an example of where a strategic investment, which was to improve HP's operations and profit, does not always work out as originally intended.

The many different reasons why companies invest in other companies creates significant accounting and disclosure challenges for standard setters. For example, how are investments to be classified and reported in order to provide relevant information about the investments to the stakeholders? What is the best measurement—cost or fair value? How should investments be reported if the investment's value were to suddenly decline in the market place? Are there differences in the accounting treatments and reporting requirements between IFRS and ASPE? These are all relevant accounting issues that will be examined in this chapter.

### What are Investments?

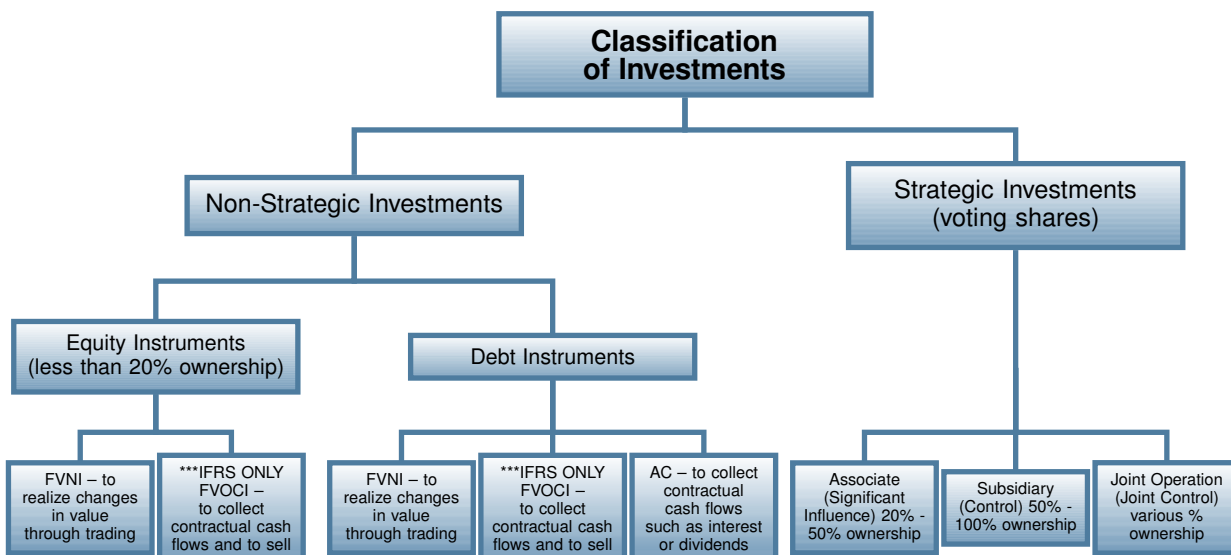
Investments are **financial assets**. Chapter 6: Cash and Receivables, defines financial assets as those that have contractual rights to receive cash or other financial assets from another party. Examples of intercorporate investments include the purchase of another company's **debt instruments** (such as bonds or convertible debt) or **equity instruments** (such as common shares, preferred shares, options, rights, and warrants). The company purchasing the investment (investor) will report these purchases as investment assets, while the company whose bonds or shares were purchased (investee) will report these as liabilities or equity respectively. For this reason, intercorporate investments are **financial instruments** because the financial asset reported by one company gives rise to a financial liability or equity instrument in another company.

### Initial Measurement

The initial measurement for investments is relatively straightforward. All investments are initially measured at fair value which is the acquisition price that would normally be agreed to between unrelated parties. Any transactions costs such as fees and commissions are either expensed or included in the investment asset except valuation which will be explained later in the chapter.

### Subsequent Measurement

There is no single subsequent measurement for all investments for IFRS and ASPE. Below is a summary of the various classification alternatives for the two current standards for IFRS 9 and ASPE.



\*includes most derivatives

As stated above, investments can either be a **strategic** acquisition of voting shares of another company in order to influence the investee company's operating, investing, financing decisions, or a non-strategic financing decision in order to earn a return on otherwise idle or under-utilized cash. Within these two broad categories are six classifications: fair value through net income (FVNI), fair value through OCI (FVOCI), amortized cost (AC), significant influence, subsidiary, and joint arrangement.

Both IFRS and ASPE identify some percentage of ownership reference points as guidelines to help determine in which category to classify an investment. For example, any investment in shares where the ownership is less than 20% would be considered a non-strategic investment. It is highly unlikely that this level of ownership would result in having any influence on a company's decisions or operations. These investments are acquired mainly for the investment return of interest income, dividend income, and capital appreciation resulting from a change in fair values of the investment itself, depending on the company's investment business model. For share purchases of between 20% and 50%, the investor will more likely have a significant influence over the investee company as previously explained. These percentages are not cast in stone. Classifications of investments do not always have to adhere to these ranges where it can be shown that another classification is a better measure of the true economic substance of the investment. For example, an investment of 30% of the shares of a company may not have any significant influence if the remaining 70% is held by very few other investors who are tightly connected together. The circumstances for each investment must be considered when determining the classification of an investment purchase.

A share investment of 50% or greater will result in the investor having control over the company's decisions and policies because the majority of the shares are held by the investing company. The investee company will be regarded as a subsidiary of the investor company. This was the case in the cover story where Hewlett Packard purchased the majority of the outstanding shares of Autonomy Corporation in order to enhance HP's operations.

## Classifications and Accounting Treatments

Below is a classification summary for IFRS 9 and ASPE (Sec. 3856). Note the differences between the accounting standards. ASPE has two classifications for its non-strategic investments and IFRS has three classifications. The table below summarizes the classification criteria for ASPE and IFRS:

Classification basis	ASPE		IFRS	
	Description	Classification	Description	Classification
	<i>Type of investment as either debt or equity, and if there is an active market</i>		<i>Management intent and investment business model is to hold and collect interest and dividends only, or to also sell/trade in order to realize changes in value of the investment</i>	
<b>Non-strategic Investments</b>				
	<b>Short-term trading investments:</b> equities trading in an active market	Fair value through net income (FVNI)	Equities, debt or non-hedged derivatives (i.e., options, warrants) where intent is to sell/trade to realize changes in value of the investment	Fair value through net income (FVNI)
			Equities <sup>1</sup> and debt where intent is to collect cash flows of interest or dividends, AND to sell, to realize changes in value of the investment.	Fair value through Other Comprehensive Income (FVOCI) with recycling (debt) or no recycling (equities)
	<b>All other equities and debt</b>	Equities at cost and debt at amortized cost (AC)	Debt where intent is to collect contractual cash flows of principal and interest and to hold investment until maturity	Amortized cost (AC)
<b>Strategic Investments – must be voting shares</b>				

	<b>Significant Influence: equities</b>	Choice of equity method, cost or fair value through net income if active market exists	<b>Associate: equities</b> acquired to influence company decisions	Equity method
	<b>Subsidiary: equities</b>	Choice of consolidation, equity, cost, or quoted amount if active market exists	<b>Control: equities</b> acquired for control of company	Consolidation
	<b>Joint Arrangement: equities</b>	Proportionate consolidation, equity, or cost depending upon the nature of the joint arrangement and arrangement terms	<b>Joint Arrangement: equities</b>	Proportionate consolidation or equity depending upon the nature of the joint arrangement and arrangement terms

Under IFRS 9, investments are divided into separate portfolios according to the way they are managed. For non-strategic investments these classifications are based on “held to collect solely principal and interest cash flows (AC)”, “held to collect solely principal and interest cash flows AND to sell (FVOCI)”, and “all else (FVNI)”. That is not to say that investments classified as AC can never be sold, but sales in this classification would be incidental and made in response to some sort of change in the investment, such as an increase in investment risk. FVOCI considers that sales are an integral part of portfolio management where active buying and selling are typical activities in order to collect cash flows while investing is held, AND to realize increases in fair values through selling. Both ASPE and IFRS allows companies to classify an investment as FVNI only at acquisition. For IFRS this FVNI election is only to eliminate or significantly reduce an accounting mismatch arising from a measurement or recognition inconsistency for investments that would otherwise be classified as AC or FVOCI.

Differences in the ASPE standard, such as the choice of either straight-line or effective interest rate methods or impairment evaluation and measurement of certain investments, will be separately identified throughout the chapter. Companies that follow IFRS can choose to record interest, dividends, and fair value adjustments to a single “investment income or loss” account or they can keep these separated in their own accounts. ASPE requires that interest, dividends, and fair value adjustments each be reported separately. Since IFRS companies still need to know the interest expense from any dividends received for tax purposes, this chapter separates interest and dividends for both IFRS and ASPE companies, as this is appropriate for both standards and for simplicity and consistency.

Below are the classification categories with details about how they are measured and reported.

<sup>1</sup>Equities is a special irrevocable election only.

## 8.2 Non-Strategic Investments

### 8.2.1 Fair Value Through Net Income (FVNI)

Types of Investments	Accounting Treatment
Debt (bonds)	Interest and dividends through net income as earned/declared.
Equities <sup>2</sup> (shares)	Remeasure investment to fair value at each reporting date or upon sale, with gains/losses through net income. Can be recorded directly to investment or through an asset valuation account.

Investments in debt and equity, including derivatives, are reported at their fair value at each balance sheet date with fair value changes reported in net income. Transactions costs are expensed as incurred. Any gain (loss) upon sale of the investment is reported in net income. FVNI investments are reported as a current asset if they meet the conditions of a current asset, such as; a cash equivalent, are held for trading purposes, or are expected to mature or be sold within 12 months of the balance sheet/SFP reporting date or the normal operating cycle. Otherwise, they are a long-term asset.

Market (fair) values can go up or down while FVNI investments are being held. These increases and decreases are referred to as **unrealized gains and losses and are reported in net income**. Once a sale occurs, the investment can either be remeasured to its fair value as an unrealized gain/loss followed by the receipt of cash, or the gain or loss will be recorded as **realized** and reported through net income as a gain (loss) from the sale of the investment. Either treatment is acceptable for FVNI classification, because the unrealized and realized gains/losses are reported the same way in the income statement. For this reason, treatment as either an unrealized or realized gain/loss upon sales can become blurred.

In order to preserve the original cost of the investment, companies may choose to use an asset **valuation allowance** account instead of directly changing the asset carrying value. This is an option for any of the FVNI, FVOCI, and AC classification discussed in this chapter and will be illustrated in more detail below.

#### Impairment

Investments are reported at fair value at each reporting date, so no separate impairment evaluations and entries are required.

<sup>2</sup>Equities in FVNI classification can include non-hedged derivatives such as options or warrants.

**FVNI Investments in Shares**

The accounting for FVNI equity investments such as shares is usually more straight-forward compared to debt investments such as bonds.

Assume that the following equity transactions occurred for Lornelund Ltd. in 2020:

<b>Lornelund Ltd. – Non-Strategic Equity Investments</b>				
Dates in 2020	Transaction Detail	# of Shares	Price per Share	Total Amount
June 1	Purchased Symec Org. shares for \$150 per share (transaction costs were an additional \$1.25 per share)	1,000	\$150.00	\$150,000
Aug 15	Purchased Hemiota Ltd. shares	2,500	84.00	210,000
Nov 30	Dividends for Symec declared and received	1,000	6.10	6,100
Dec 31	Market price for Symec shares at year-end		165.00	
Dec 31	Market price for Hemiota shares at year-end		82.00	
Dates in 2021				
Jan 10	Sold Symec shares	500	165.70	82,850

The journal entries for the FVNI investments are recorded below:

<b>General Journal</b>				
Date	Account/Explanation	PR	Debit	Credit
Jun 1 2020	FVNI investments – Symec shares .....		150,000	
	Transactions fees expense .....		1,250	
	Cash .....			151,250
Aug 15 2020	FVNI investments – Hemiota shares .....		210,000	
	Cash .....			210,000
Nov 30 2020	Cash (or Dividend receivable if declared but not paid) .....		6,100	
	Dividend income .....			6,100
Dec 31 2020	FVNI investments – Symec shares .....		15,000	
	Unrealized gain (loss) on FVNI investments (\$165 – \$150) × 1,000 .....			15,000
Dec 31 2020	Unrealized gain (loss) on FVNI investments....		5,000	
	FVNI investments – Hemiota shares .....			5,000
	(\$82 – 84) × 2,500 .....			
Jan 10 2021	Cash .....		82,850	
	FVNI investments – Symec shares .....			82,500
	Gain (loss) on sale of FVNI investments....			350
	For cash amount: (\$165.70 × 500 shares), for share value: (\$165 × 500 shares)			

Note that the transaction fees are expensed for FVNI investments. This makes intuitive sense since the shares are being purchased at their fair market value and this represents the maximum amount that can be reported on the investor company's balance sheet. At December 31 year-end, Lornelund makes two adjusting entries to record the latest fair values changes for each FVNI investment. The fair value for Symec shares increased from \$150 to \$165 per share, resulting in an overall increase in the investment value by \$15,000 (from \$150,000 to \$165,000). Conversely, the fair value for Hemiota shares decreased from \$84 to \$82 per share, resulting in a decrease in the investment value of \$5,000 (from \$210,000 to \$205,000). In both cases, the gains and losses will be reported in the income statement as unrealized gains (losses) on FVNI investments. The FVNI investment account would appear in the balance sheet as shown below.

Lornelund Ltd.  
Balance Sheet  
December 31, 2020

Current assets:	
FVNI investments (at fair value) *	<u>\$370,000</u>

\*(\$150,000 + 210,000 + 15,000 – 5,000)

As previously mentioned, instead of recording the changes in fair value directly to the FVNI investment account as shown above, companies will often record the changes to a **valuation allowance** as a contra account to the FVNI investment account (asset). This separates and preserves the original cost information from the fair value changes in much the same way as the accumulated depreciation account for buildings or equipment. If a valuation allowance contra account was used, the balance sheet would appear as follows:

Lornelund Ltd.  
Balance Sheet  
December 31, 2020

Current assets:	
FVNI investments (at cost)*	\$360,000
Valuation allowance for fair value adjustments**	<u>\$ 10,000</u>
	<u>\$370,000</u>

\* (\$150,000 + 210,000)

\*\*(\$15,000 – 5,000)

On January 10, 2021, the Symec shares were sold at \$165.70 per share. As previously explained, the shares can be remeasured to fair value prior to recording the sales proceeds, or the entry can skip that step and record the sales proceeds with the gain/loss as realized from sale of the investment. The entry above chose the latter, simpler alternative.



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### FVNI Investments in Debt

FVNI investments can also be bonds, if market fair values are determinable. On January 1, 2020, Osterline Ltd. purchases 7%, 5-year bonds of Waterland Inc. with a face value of \$500,000. Interest is payable on July 1 and January 1. The market rate for a bond with similar characteristics and risks is 6%. The bond sells for \$521,326.<sup>3</sup>

On December 31, the fair value of the bonds at year-end is \$510,000. Osterline follows IFRS. The interest is calculated using the effective interest method as shown below.

Effective Interest Method for 7% Bonds (market/yield rate 6%)				
Date	Cash Received @ 3.5% stated rate for 6 months	Interest Income @ 3% market rate for 6 months	Amortized Premium (decreases carrying value)	Carrying Value
Jan 1, 2020				\$521,326
Jul 1	17,500	15,640	1,860	519,466
Jan 1, 2021	17,500	15,584	1,916	517,550
Jul 1	17,500	15,527	1,973	515,577
Jan 1, 2022	17,500	15,467	2,033	513,544
Jul 1	17,500	15,406	2,094	511,450
Jan 1, 2023	17,500	15,344	2,156	509,294
Jul 1	17,500	15,279	2,221	507,073
Jan 1, 2024	17,500	15,212	2,288	504,785
Jul 1	17,500	15,144	2,356	502,429
Jan 1, 2025	17,500	15,073	2,429*	500,000

\*rounded

Osterline's journal entries from January 1, 2020 to July 1, 2021 are shown below.

<sup>3</sup>\$521,326 is the present value of the bond's future cash flows. Since the bond interest is being paid twice per year, the number of payments is 10 payments (5 years × 2 payments per year) until the bond matures. The market interest rate is 6% or 3% for each semi-annual interest payment. At maturity, \$500,000 principal amount of the bond is payable to the bondholder/investor. The present value can be calculated using a financial calculator as follows: PV = 17,500 P/A, 3 I/Y, 10 N, 500,000 FV). For a review of present value techniques, refer to Chapter 6: Cash and Receivables.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1 2020	FVNI investments – Waterland bonds .....		521,326	
	Cash .....			521,326
Jul 1 2020	Cash .....		17,500	
	FVNI investments – Waterland bonds .....			1,860
	Interest income .....			15,640
	For cash: $(\$500,000 \times 7\% \times 6 \div 12)$ , for Interest income: $(\$521,326 \times 3\%)$			
Dec 31 2020	Interest receivable .....		17,500	
	FVNI investments – Waterland bonds .....			1,916
	Interest income .....			15,584
	For Interest receivable: $(\$500,000 \times 7\% \times 6 \div 12)$ , for Interest income: $((\$521,326 - 1,860) \times 3\%)$			
Dec 31 2020	Unrealized gain (loss) on FVNI investments....		7,550	
	FVNI investments – Waterland bonds .....			7,550
	$(\$521,326 - 1,860 - 1,916 - 510,000)$			

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1 2021	Cash .....		17,500	
	Interest receivable .....			17,500
Jul 1 2021	Cash .....		17,500	
	FVNI investments – Waterland bonds .....			1,973
	Interest income .....			15,527
	For Cash: $(\$500,000 \times 7\% \times 6 \div 12)$ , for Interest income: $((\$521,326 - 1,860 - 1,916) \times 3\%)$			

The bond was initially valued and recorded at its purchase price (fair value) of \$521,326. Note that this is higher than the face value of \$500,000. This is referred to as purchasing at a **premium**, which is amortized to the FVNI investment account over the life of the bond using the **effective interest method**. This method was also discussed in Chapter 6: Cash and Receivables; review that material again, if necessary. There were no transaction costs, but these would have been expensed as incurred just as was done in the previous FVNI shares example.

The July 1, 2020, entry was for interest income based on the **market rate** (or yield) for 3% (6% annually for six months), while the cash paid by Waterland on that date of \$17,500 was based on the **stated or face rate** for 3.5% (7% annually for six months). The \$1,860 difference was the amount of premium to be amortized to the FVNI investment account on that date. On Dec 31, there were two adjusting entries:

- The first entry was for the interest income that has accrued since the last interest payment on July 1. This interest entry must be done *before* the fair value adjustment to ensure that the carrying value is up to date.
- The second adjusting entry is for the fair value adjustment which is the difference between the investment's carrying value of \$517,550 ( $\$521,326 - 1,860 - 1,916$ ) and the fair value on that date of \$510,000. Since the fair value is less than the carrying value, this FVNI investment (or a valuation allowance) is reduced to its fair value by \$7,550 ( $\$517,550 - 510,000$ ). The investment carrying amount after the adjustment is now equal to the fair value of \$510,000.

It is important to note that the July 1, 2021, interest income of \$15,527 calculated after the fair value adjustment had been recorded continues to be based on the amounts calculated in the original effective interest schedule. **The interest rate calculations will continue to use the original effective interest rate schedule amounts throughout the bond's life, without any consideration for the changes in fair value.**

On July 1, 2021, just after receiving the interest, Osterline sells the bonds at the market rate of 107. The entry for the sale of the bonds on July 1, 2021 is shown below.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jul 1 2021	Cash.....		535,000	
	Gain on sale of FVNI bonds.....			26,973
	FVNI Investment – Waterland bonds.....			508,027
	For cash: ( $\$500,000 \times 1.07$ ), for FVNI Investment: ( $\$510,000 - 1,973$ )			

Recall from the journal entries above that on December 31, 2020, the investment had been reduced to its fair value of \$510,000. On July 1, 2021, the interest entry included amortization of the premium for \$1,973, resulting in a carrying value as at July 1, 2021 of \$508,027. The market price for selling the investment was 107 resulting in a gain of \$26,973. Note that this entry skipped the remeasure to fair value as an unrealized holding gain and recorded the sale entry as simply a gain on sale. Either method is acceptable.

ASPE companies can choose to use straight-line amortization of the bond premium instead of the effective interest method. If straight-line was used, the amount recorded to the investment account would be \$2,133 ( $\$21,326 \div 5 \text{ years} \times 6 \div 12$ ) at each interest date until the investment is sold.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash.....		17,500	
	FVNI Investment – Waterland bonds.....			2,133
	Interest income.....			15,367

Again, note that no separate impairment evaluations or entries are recorded since the debt investment is already adjusted to its current fair value at each reporting date.



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### Investments in Foreign Currencies

Investments may be priced in foreign currencies, which must be converted into Canadian currency for recording and reporting purposes. Illustrated below are the accounting entries for a FVNI investment priced in a foreign currency.

FVNI investments purchased in foreign currencies are converted into Canadian currency using the exchange rates *at the time of the purchase*. Also, depending on the accounting standard and the circumstances of the investment, the fair value adjusting entry may have to separately record the foreign exchange gain (loss) from the fair value adjustment amount.

For example, assume that the US dollar is worth \$1.03 Canadian at the time of an investment purchase for US \$50,000 bonds at par. In Canadian dollars, the amount would be \$51,500. The entry to record the purchase would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	FVNI Investment – bonds.....		51,500	
	Cash .....			51,500
	(US \$50,000 × 1.03)			

At year-end, the fair value of the bonds is US \$49,000 and the exchange rate at that time is 1.05. In Canadian dollars the amount would be \$51,450 (US \$49,000 × 1.05) compared to the original purchase price in Canadian dollars of \$51,500, an overall net loss of \$50.

The entry to record the fair value adjustment separately from the exchange gain/loss would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Unrealized loss on FVNI investments .....		1,050	
	Foreign exchange gain .....			1,000
	FVNI Investment – bonds .....			50
	For Unrealized loss: ((US \$50,000 – 49,000) × 1.05), for Foreign exchange gain: (US \$50,000 × (1.05 – 1.03)), for FVNI investment: (\$51,500 – 51,450)			

Note that the exchange rate increased from 1.03 to 1.05 for the US \$50,000 investment amount. This increase in the exchange rate resulted in a gain of Cdn \$1,000 which was recorded separately from the fair value adjustment loss of Cdn \$1,050.

If there was no requirement to separate the exchange gain from the fair value adjusting entry, the adjusting entry would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Unrealized loss on FVNI investments .....		50	
	FVNI Investment – shares .....			50
	(\$51,500 – 51,450)			

### 8.2.2 Fair Value Through OCI Investments (FVOCI); (IFRS only)

Types of Investments	Accounting Treatment
• Debt (bonds)	• Interest and dividends through net income as earned/declared.
• Debt (bonds) • Equities (shares) by special irrevocable election only at acquisition	<ul style="list-style-type: none"> <li>• Remeasure investment to fair value at each reporting date through OCI. Can be recorded directly to investment or through an asset valuation account.</li> <li>• Upon sale, remeasure investment sold to its fair value with gains/losses through OCI.</li> <li>• Reclassify the OCI for the debt investment sold to net income (FVOCI with recycling), and to retained earnings for equities investments (FVOCI without recycling).</li> </ul>

Looking at the table above, one cannot help but notice how the FVOCI debt investments are recycled through net income when sold in contrast to the FVOCI equities investments which are not recycled, and are reclassified to retained earnings instead, bypassing net income

altogether. Originally, the FVOCI classification was without recycling for both debt and equity. This was done to lessen the instances of “earnings management” which is the manipulation of earnings due to bias. By timing the most opportune time to sell, a company could suddenly boost net income resulting from the reclassification of OCI from AOCI to net income of the unrealized gains dating back to when the investment was purchased. However, it appears that an exception has now been made to allow FVOCI debt investments to recycle through net income. FVOCI investments in equities continue to be classified as FVOCI without recycling.

FVOCI debt and equity investments are reported at their fair value at each balance sheet date with fair value changes recorded in Other Comprehensive Income (OCI). Unlike FVNI investments, transaction costs are usually added to the carrying amount of the FVOCI investment, and are usually reported as long-term assets unless it is expected they will be sold within twelve months or the normal operating cycle.

The fair value measurement at each reporting date is recorded to the investment asset account (or an asset valuation account). The unrealized holding gain (loss) is recorded to unrealized gain (loss) OCI and reported in OCI (net-of-tax). When the investments are sold, a remeasure to fair value can precede the entry for the sales proceeds, or alternatively, any gains (losses) resulting from the sale are reported in net income as a realized gain (loss) on sale of investment.

**This is the point where FVOCI investments in *debt* differ from FVOCI investments in *equity*.**

For FVOCI, *debt* investment sold:

- any unrealized gain (loss) in AOCI at the time of the sale is reclassified from AOCI to net income (with recycling).

For FVOCI, *equity* investment sold:

- any unrealized gain (loss) in AOCI at the time of the sale is reclassified from AOCI to retained earnings (without recycling).

Recall from the chapter on Statement of Income and Statement of Changes in Equity, that OCI is not included in net income, and is reported in a separate statement called the Statement of Comprehensive Income. This means that any unrealized gains (losses) from holding FVOCI investments will not be reported as net income until the debt investment is sold or impaired as will now be discussed. Students are encouraged to review the material regarding the topic of OCI.

**Impairment of Investments with no recycling (Equity)**

For FVOCI in equity investments, there is no need for impairment tests because equities are continually re-measured to their fair value based on the readily available market prices and these changes in value are not reported in net income, so impairment testing is not done. For FVOCI investments in debt, impairments will be discussed in detail in the FVOCI with recycling (debt) section later in this chapter.

**FVOCI (without recycling) – Investments in Shares**

The similarities and differences between FVNI and FVOCI investments journal entries will be examined next, since both apply fair value remeasurements, but differ in how these are recorded and reported. Using the same example for Lornelund Ltd. used in the FVNI investments above, a comparison between the entries required for FVNI and FVOCI is shown below. The transactions are repeated below but now include another fair value change at the end of 2021.

<b>Lornelund Ltd. – Non-Strategic Equity Investments</b>				
Dates in 2020	Transaction Detail	# of Shares	Price per Share	Total Amount
June 1	Purchased Symec Org. shares for \$150 per share (transaction costs were an additional \$1.25 per share)	1,000	\$150.00	\$150,000
Aug 15	Purchased Hemiota Ltd. shares	2,500	84.00	210,000
Nov 30	Dividends for Symec declared and received	1,000	6.10	6,100
Dec 31	Market price for Symec shares at year-end		165.00	
Dec 31	Market price for Hemiota shares at year-end		82.00	
Dates in 2021				
Jan 10	Sold Symec shares	500	165.70	82,850
Dec 31	Market price for Symec shares at year-end		\$167.00	
Dec 31	Market price for Hemiota shares at year-end		\$75.00	

<b>COMPARISON OF FVNI TO FVOCI (without recycling)</b>					
		<b>(FVNI)</b>		<b>(FVOCI)</b>	
<b>2020</b>					
June 1	Investments – Symec shares .....	150,000		151,250	
	Transactions fees expense .....	1,250			
	Cash .....		151,250		151,250
Aug 15	Investments – Hemiota shares .....	210,000		210,000	
	Cash .....		210,000		210,000
Nov 30	Cash (or dividend receivable if declared but not paid) ..	6,100		6,100	
	Dividend income .....		6,100		6,100

Dec 31	Investments – Symec shares.....	15,000		13,750	
	Unrealized gain (loss) on FVNI investments (NI).... (\$165 × 1,000 shares)		15,000		
	Unrealized gain (loss) on FVOCI investments (OCI) (\$165,000 – 151,250)				13,750
<b>NOTE – Both FVNI and FVOCI shares carrying values for Symec are \$165 per share × 1,000 = \$165,000.</b>					
Dec 31	Unrealized gain (loss) on FVNI investments (NI)..... ((\$84 – 82) × 2,5000 shares)	5,000			
	Unrealized gain (loss) on FVOCI investments (OCI)....			5,000	
	Investments – Hemiota shares.....		5,000		5,000
<b>NOTE – Both FVNI and FVOCI shares carrying values for Hemiota are \$82 per share × 2,500 = \$205,000</b>					
<b>2021</b>					
Jan 10	Cash.....	82,850		82,850	
	Investments – Symec shares.....		82,500		82,500
	Gain (loss) on sale of investments (NI).....		350		
	Gain (loss) on sale of investments (OCI).....				350
	For Cash: (\$165.70 × 500 shares), For Investments: (\$165 × 500 shares)				
Jan 10	AOCI.....			7,225	
	Retained earnings..... (\$13,750 × 500 ÷ 1,000 shares + 350)				7,225
	To reclassify unrealized gains from AOCI to retained earnings for 500 Symec shares sold.				
Dec 31	Investments – Symec shares.....	1,000		1,000	
	Unrealized gain (loss) on FVNI investments (NI)....		1,000		
	Unrealized gain (loss) on FVOCI investments (OCI) (500 × (\$165.00 – 167.00))				1,000
Dec 31	Unrealized gain (loss) on FVNI investments (NI).....	17,500			
	Investments – Hemiota shares..... (\$205,000 – (2,500 × \$75))		17,500		
	Unrealized gain (loss) on FVOCI investments (OCI)....			17,500	
	FVOCI Investments – Hemiota shares.....				17,500

Note that the transaction fees are expensed for FVNI investments but are added to the carrying value for FVOCI investments. At December 31 year-end, Lornelund makes two end-of-period

adjusting entries to record the latest fair values changes for each investment. The fair value for Symec shares increased FVOCI \$150 to \$165 per share resulting in an increase in the investment value by \$15,000 and \$13,750 for FVNI and FVOCI categories respectively. These amounts are different due to the transaction costs originally recorded to the investment asset of the FVOCI investment. The fair value for Hemiota shares decreased from \$84 to \$82 per share resulting in a decrease in the investment value of \$5,000 for both FVNI and FVOCI investments.

Ignoring taxes for simplicity, below are the financial statements for 2020 under FVNI and FVOCI:

Lornelund Ltd. Balance Sheet December 31, 2020			
	FVNI	FVOCI	
Current assets:			
FVNI investments (at fair value)*	\$370,000		
Long-term assets:			
Long-term investment (at fair value)		\$ 370,000	
Equity:			
Accumulated other comprehensive income **		\$ 8,750	

\* FVNI (\$150,000 + 210,000 + 15,000 – 5,000); FVOCI (\$151,250 + 210,000 + 13,750 – 5,000)

\*\* AOCI (\$13,750 – 5,000)

There is no difference in the ending balances of the investment asset accounts under the FVNI and FVOCI methods on December 31, 2020, because both are reported at fair value at each reporting date. Even though the transaction costs were initially capitalized under the FVOCI method, the year-end fair value adjustment entry for both FVNI and FVOCI investments resulted in equalizing the investments balances.

Lornelund Ltd.  
Income Statement and Comprehensive Income Statement (partial)  
For the Year Ended December 31, 2020

	FVNI	FVOCI
Dividend income	\$ 6,100	\$ 6,100
Unrealized gain (\$15,000 – 5,000)	10,000	
Transaction fees expense	(1,250)	
Net income	\$14,850	\$ 6,100
Other Comprehensive Income:		
Items that may be reclassified subsequently to net income or loss:		
Unrealized gain from FVOCI investments (\$13,750 – 5,000)		\$ 8,750
Total comprehensive income	\$14,850	\$ 14,850

At December 31, 2021 year-end, 50% of the Symec shares have been sold in January and the fair values are once again adjusted for both Symec and Hemiota investments at year-end.

Below is a partial balance sheet and income statement reporting the investment at December 31, 2021.

Lornelund Ltd. Balance Sheet December 31, 2021		
	FVNI	FVOCI
Current assets:		
FVNI investments (at fair value)*	\$271,000	
Long-term assets:		
Long-term investment (at fair value)		\$ 271,000
Equity:		
Retained earnings		\$ 7,225
Accumulated other comprehensive income/loss **		(14,625)

\* FVNI (\$370,000 – 82,500 + 1,000 – 17,500); FVOCI (\$370,000 – 82,500 + 1,000 – 17,500)

\*\* AOCI (\$8,750 + 350 – 7,225 + 1,000 – 17,500)

Lornelund Ltd.  
Income Statement and Comprehensive Income Statement (partial)  
For the Year Ended December 31, 2021

	FVNI	FVOCI
Gain on sale of shares	\$ 350	\$
Unrealized loss	(17,500)	
Net income/(loss)	\$(16,150)	
Other Comprehensive Income:		
Items that may be reclassified		
subsequently to net income or loss:		
Unrealized gain/loss from FVOCI investments	\$	(16,150)*
Total comprehensive income/(loss)	\$(16,150)	\$ (16,150)

\* (\$1,000 + 350 – 17,500)

As can be seen from the illustrations above, there are significant differences in net income, due to the accounting treatments between FVNI and FVOCI investments. This could lead to earnings management, if care is not taken to ensure that these differences are considered solely for the purpose of managing net income to get higher bonuses, or fall under the radar regarding any restrictive covenants (for example, net income minimum thresholds set by creditors as performance targets). These differences also have to be taken into account when analyzing investment portfolio performance.

### **FVOCI (with recycling) – Investments in Debt**

FVOCI investments for IFRS companies can also be debt, such as bonds. FVOCI shares (no recycling) reports dividends in net income and unrealized gains in OCI until sold, at which time the OCI corresponding to the shares sold are reclassified from OCI/AOCI to retained earnings. FVOCI debt (with recycling) reports interest in net income and unrealized gains in OCI until sold. As the “with recycling” name suggests, when the debt securities are sold, the corresponding OCI is recycled through net income.

Using the same example as for FVNI investments in bonds discussed earlier, where Osterline Ltd. purchased 7%, 5-year Waterland bonds with a face value of \$500,000. On July 1, 2021, just after receiving the interest, Osterline sells the bonds at the market rate of 107. Osterline’s journal entries from Jan 1, 2020 to July 1, 2021 classified as FVNI are repeated below and compared with debt investments classified as FVOCI.

<b>Osterline Ltd.</b>					
<b>COMPARISON OF FVNI TO FVOCI debt (with recycling)</b>					
		(FVNI)		(FVOCI)	
<b>2020</b>					
Jan 1	Investments – Waterland bonds .....	521,326		521,326	

	Cash .....		521,326		521,326
Jul 1	Cash.....	17,500		17,500	
	Investments – Waterland bonds.....		1,860		1,860
	Interest income .....		15,640		15,640
	For Cash: $(\$500,000 \times 7\% \times 6 \div 12)$ , for Interest income: $(\$521,326 \times 3\%)$				
Dec 31	Interest receivable .....	17,500		17,500	
	Investments – Waterland bonds.....		1,916		1,916
	Interest income .....		15,584		15,584
	For Interest receivable: $(\$500,000 \times 7\% \times 6 \div 12)$ , for Interest income: $((\$521,326 - 1,860) \times 3\%)$				
Dec 31	Unrealized loss on FVNI investment (NI).....	7,550			
	Unrealized gain (loss) on investments (OCI) .....			7,550	
	Investments – Waterland bonds.....		7,550		7,550
	For NI: $(\$521,326 - 1,860 - 1,916 - 510,000)$				
<b>2021</b>					
Jan 1	Cash.....	17,500		17,500	
	Interest receivable .....		17,500		17,500
Jul 1	Cash.....	17,500		17,500	
	Investments – Waterland bonds.....		1,973		1,973
	Interest income .....		15,527		15,527
	For Cash: $(\$500,000 \times 7\% \times 6 \div 12)$ , for Interest income: $((\$521,326 - 1,860 - 1,916) \times 3\%)$				
Jul 1	Cash.....	535,000		535,000	
	Gain on sale of Waterland bonds.....		26,973		
	Gain on sale of Waterland bonds (OCI) .....				26,973
	Investments – Waterland bonds.....		508,027		508,027
	For Cash: $(\$500,000 \times 1.07)$ , for Investments: $(\$510,000 - 1,973)$				
Jul 1	OCI – removal of gain due to sale .....			19,473	
	Gain from sale of investment (NI) .....				19,473
	$(\$26,973 \text{ gain} - 7,550 \text{ loss})$				

Note the similarities in accounting treatment between the FVNI and FVOCI classifications for bonds. As was the case for the FVNI investment in shares, the investment is adjusted to fair value at the reporting date. The difference between the two methods is the account used for the fair value adjustment. For FVNI, the unrealized gain/loss is reported in net income, whereas for FVOCI, the unrealized gain/loss is reported as Other Comprehensive Income which is closed at each year-end to the AOCI account (an equity account), until the investment

is sold. Once sold, any unrealized gains/losses that relate to the sale of this investment are now *realized* and are transferred from OCI to net income. This is referred to as “*with recycling*” (through net income). Recall that FVOCI in equities do not recycle through net income. It is for this reason that FVOCI investments in debt with recycling must be evaluated for impairment which is discussed next.

Also note the order of the entries upon sale. The July 1 sales is comprised of two entries above. The first entry is a combined entry that records the cash proceeds, removal of the investment sold and any realized gain/loss through OCI. This is the same as the method used for FVOCI equities. The second entry is a transfer of the OCI related to the sale from OCI to net income. For FVOCI equities this entry is a reclassification from OCI to retained earnings. This is an important distinction regarding the accounting treatment for the FVOCI investments.

Because the entire investment was sold, the net income differed in the first and second year between FVNI and FVOCI with recycling, but over two years, the net income was the same for both. If only part of the investment been sold, the differences would be similar to the example regarding FVOCI equities, with regard to balances in the OCI/AOCI account compared to FVNI where all the gains/losses are reported through net income.

### **Impairment of Investments – FVOCI with recycling (Debt)**

For FVOCI in debt investments, an evaluation is done starting at its acquisition date. Under IFRS 9, impairment evaluation and measurement is based on *expected losses*, and must now reflect the basic principles below:

- An unbiased evaluation over a range of probability-based possible outcomes
- Estimated revised cash flows are discounted to reflect time value of money
- The evaluation and measurements are based on data from past, current and estimated future economic conditions, using reasonable and supportable information without undue cost or effort at the reporting date

The last point suggests that a company does not need to identify every possible scenario when risks are low, and companies are encouraged to use modelling techniques to simplify evaluations and impairment measurements of large low-risk portfolios.

Essentially how it works is that for each investment at acquisition, various potential **default scenarios** (where the debt owing is not paid when due) are identified. Expected future cash flows are estimated for each scenario, which is multiplied by its probability of occurring. These probability-based cash flows are summed, and the total is deemed as the *expected credit loss* (ECL) for that investment. This is a separate evaluation and measurement of impairment losses than fluctuations in the market.

These estimated cash flows can either be based on scenarios and probabilities of default over the investment's next 12 months (12-month ECL) from acquisition, if risk of default is low, or over the investment's lifetime (Lifetime ECL), if risk of default is higher. IFRS 9 identifies three approaches for receivables and investments:

- Credit adjusted approach – for investments that are impaired at acquisition, such as deeply discounted investments from high risk investee companies. This approach will apply only rarely. Evidence of high risk could be due to significant financial difficulties or potential bankruptcy, a history of defaults, a history of concessions granted by creditors on previous debt, or economic downturns in the investee company's industry sector. This approach uses the cumulative change in Lifetime ECL.
- Simplified approach – this approach is intended specifically for trade receivables, IFRS 15 contract assets and lease receivables where the financial instrument does not contain a significant interest component. It is based on Lifetime ECL
- General approach – this approach applies to all other financial instruments not covered in the first two approaches. It is based on a 12-month ECL unless the credit risk increases significantly.

If the credit risk is high at the investment's acquisition, the credit adjusted approach with Lifetime ECL will apply, otherwise the general approach would be used with the shorter 12-month ECL. The end-result is that every investment will have an ECL amount associated with it. These risk-based cash flows are discounted using the **historic interest rate at acquisition**, and compared to the carrying value of the debt investment at the evaluation date. The carrying value of the investment (or an asset valuation account) is reduced by the loss amount and recorded to net income. Below is a schedule that illustrates a simple ECL calculation:

Investment in Bonds – Emil Ltd. Investee				
Expected Credit Loss Calculation				
	Scenario 1	Scenario 2	Scenario 3	Total
Estimated future cash flows at acquisition assuming no risk of default, discounted @ effective interest rate	\$ 500,000	\$ 500,000	\$ 500,000	
Future cash flows if default occurs, discounted @ historic effective rate at acquisition	450,000	400,000	350,000	
Cash flow shortage	50,000	100,000	150,000	
Probability of default	2.0%	1.5%	0.5%	
Expected Credit Loss (ECL)	\$ 1,000	\$ 1,500	\$ 1,750	<u>\$4,250</u>

Management can include as many default scenarios as is appropriate. In this case, there are three scenarios where management has identified potential defaults for this investment. If at

the first reporting date after acquisition the fair value of the investment is \$480,000, the entry to record the fair value change would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss on impairment due to ECL (net income) . . . . .		4,250	
	Unrealized loss in FV-OCI (OCI) . . . . .		15,750	
	FV-OCI investment (or asset valuation allowance) . . . . .			20,000
	For FV-OCI investment:			
	(\$500,000 face value – 480,000)			

The unrealized loss of \$15,750 is to adjust for changes in the market fluctuations that is not due to an impairment, so *it is recorded to OCI*. The loss on impairment resulting from the ECL calculation must be *reported through net income*. Compared to the previous accounting standard (IAS 39), this results in an earlier recognition of an impairment loss because it is recorded at the first reporting period after the investment acquisition. This clearly could create more volatility in the income statement.

After the initial recognition, the ECL is adjusted up or down, through net income at each reporting date as the probabilities of default change. Once the investment is collected, the ECL will be reduced to zero and impairment recoveries will be reported through net income. If default risk increases due to adverse changes in business conditions, not only will the estimated cash flow shortages and probabilities increase, the increased credit risk could result in a change from the simpler 12-month ECL to the Lifetime ECL if risk becomes too high. If a default does occur, the ECL amount will equal the actual cash flow shortage. In IFRS 9, there is a presumption that credit/default risk significantly increases if contractual payments from the investee are more than 30 days past due.

To summarize, assessing credit risk is only required for amortized cost and FVOCI debt (with recycling). FVNI and FVOCI equities do not need to be evaluated for impairment because they are always remeasured to fair value each reporting date. Evaluating and measuring impairments requires considerable judgement and companies are encouraged to establish an accounting policy regarding factors to consider when determining if increases in credit risk (ECL) is to be deemed as significant or not.

### 8.2.3 Amortized Cost Investments (AC)

For ASPE companies, either debt or equities *that are not traded in an active market* are reported at amortized cost or cost respectively. Unlike investments acquired for short-term profit such as FVNI investments, shares or bonds may be purchased as AC investments for other reasons, such as to strengthen relationships with a supplier or an important customer.

For IFRS companies, if the investment business model is to acquire investments to collect the contractual cash flows of principal and interest, and there is no intention to sell, investments in debt securities such as bonds are reported at their amortized cost at each balance sheet date. Management intent is to hold these investments until maturity, so debt instruments are included in this category. Equity investments have no set maturity dates, therefore they are not classified as an AC investment. Even if equities such as shares are not part of a quoted market system, IFRS states that fair values are still normally determinable, making FVOCI equities (without recycling) the more appropriate classification for unquoted equities.

Transactions costs are added to the investment (asset) account. AC investments are reported as long-term assets unless they are expected to mature within twelve months of the balance sheet date or the normal operating cycle.

To summarize the initial and subsequent measurements used for AC investments:

- Initial purchase is at cost (purchase price) which is also fair value on the purchase date. Unlike FVNI investments, transaction fees are added to the investment (asset) account. This is because AC investments are cost-based investments, so any fees paid to acquire the asset are to be capitalized like property, plant, and equipment, which are also cost-based purchases.
- Bond interest and share dividends declared are reported in net income as realized. Any premium or discount is amortized to the investment asset using the effective interest rate method (IFRS). For ASPE companies, they can choose between the effective interest rate method and the straight-line method.
- If the investment is impaired, determine the impairment amount. For ASPE the impairment amount is the higher of: a) the present value of impaired future cash flows at the current market interest rate, and b) net realizable value through sale (or sale of collateral). ASPE allows for reversals of impairment. For IFRS, refer to the Impairment section above in the FVOCI debt (with recycling).
- Report the investment at its carrying value at each reporting date, net of any impairment. An asset valuation account can be used instead of recording the impairment loss directly to the investment account.
- When the investment is sold, remove the related accounts from the books. For debt instruments, ensure that any interest, amortization or possible impairment recovery is updated *before* calculating the gain/loss on sale prior to its removal from the books. The difference between the carrying value and the net sales proceeds is reported as a gain/loss on sale (including full or partial recovery of a previous impairment, if applicable) and reported in net income.

**AC Investments in Debt**

In the previous sections discussing FVNI and FVOCI investments, Osterline purchased Waterland bonds on the January 1, 2020, the interest payment date. Assume now that Osterline classified this as an AC investment. The entries would be the same as illustrated earlier for the FVNI category, except to exclude any fair value adjustments.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1 2020	AC investments – Waterland bonds .....		521,326	
	Cash .....			521,326
Jul 1 2020	Cash .....		17,500	
	AC investments – Waterland bonds .....			1,860
	Interest income .....			15,640
	For Cash: $(\$500,000 \times 7\% \times 6 \div 12)$ , for Interest income: $(\$521,326 \times 3\%)$			
Dec 31 2020	Interest receivable .....		17,500	
	AC investments – Waterland bonds .....			1,916
	Interest income .....			15,584
	For Interest receivable: $(\$500,000 \times 7\% \times 6 \div 12)$ , for Interest income: $((\$521,326 - 1,860) \times 3\%)$			
Jan 1 2021	Cash .....		17,500	
	Interest receivable .....			17,500
Jul 1 2021	Cash .....		17,500	
	AC investments – Waterland bonds .....			1,973
	Interest income .....			15,527
	For Cash: $(\$500,000 \times 7\% \times 6 \div 12)$ , for Interest income: $((\$521,326 - 1,860 - 1,916) \times 3\%)$			
Jul 1 2021	Cash .....		535,000	
	Gain on sale of Waterland bonds .....			19,423
	AC investments – Waterland bonds .....			515,577
	For Cash: $(\$500,000 \times 1.07)$ , for AC investments: $(\$521,326 - 1,860 - 1,916 - 1,973)$			

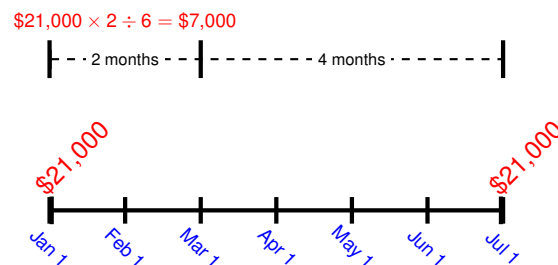
Note that the entry to the investment account for the sale of Waterland bonds for the FVNI or FVOCI methods shown earlier is \$508,027 compared to AC method above for \$515,577. The reason for this difference is due to the fair value adjustment for \$7,550 for the FVNI and FVOCI methods (both fair-value based) but not done for AC method which is based on amortized cost.

### AC Investments in Bonds – Between Interest Dates

What if the debt investment is purchased in between interest payment dates? Below is an example of the accounting treatment for an AC investment in bonds that is purchased between interest payment dates.

On March 1, 2020, Trimliner Co. purchases 6%, 5-year bonds of Zimmermann Inc. with a face value of \$700,000. Interest is payable on January 1 and July 1. The market rate for a bond with similar characteristics and risks is 6.48%. The bond is purchased for \$685,843 cash. Stated another way, the bond is purchased at 98 ( $\$685,843 \div \$700,000$ ) on March 1, 2020. On December 31, 2020 year-end, the fair value of the bond at year-end is \$710,000. Trimliner follows IFRS and intends to hold the investment to collect the contractual cash flows of principal and interest and to hold until maturity (AC classification).

Note that the purchase date of March 1 falls in between interest payments on January 1 and July 1. The business practice regarding bond interest payments is for the bond issuer to pay the full six months interest to the bond holder throughout the life of the bond. This creates a much simpler bond interest payment process for the bond issuer, but it creates an issue for the purchaser since they are only entitled to the interest from the purchase date to the next interest date, or four months in this case, as illustrated below.



This issue is easily resolved. The purchaser includes in the cash paid any interest that has accrued between the last interest payment date on January 1 and the purchase date on March 1, or two months. In other words, the purchaser adds to the cash payment any interest that they are *not entitled to receive*. Later, when they receive the full six months of interest on July 1 for \$21,000, the net amount received will be for the four-month period that was earned, which was from the purchase date on March 1 to the next interest payment on July 1 as shown above.

In this example, the purchase price of \$685,843 is lower than the face value of \$700,000, so the bonds are purchased at a discount.

The entry to record the investment for Trimliner, including the interest adjustment on March 1, 2020 and the first interest payment on July 1, 2020, is shown below. Note that the discount is also amortized from the date of the purchase of bonds to the end of the interest period.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Mar 1	Interest receivable .....		7,000	
	AC investment – Zimmermann bonds .....		685,843	
	Cash .....			692,843
	For Interest receivable: $(\$700,000 \times 6\% \times 2 \div 12)$			
Jul 1	Cash .....		21,000	
	AC investment – Zimmermann bonds .....		814	
	Interest receivable .....			7,000
	Interest income .....			14,814
	For Cash: $(\$700,000 \times 6\% \times 6 \div 12)$ , for Interest income: $(\$685,843 \times 6.48\% \times 4 \div 12)$			

The net interest income recorded by Trimliner is \$14,814 on July 1  $(\$685,843 \times 3.24\% \times 4 \div 6)$ , which represents the four months interest earned from the March 1 purchase date to the first interest payment date on July 1. The interest receivable is now eliminated.

Note that for AC bonds, **there are no entries to adjust the AC investment to fair value at year-end. The fair value information of \$710,000 on December 31, 2020, that was provided in the question data is not relevant for AC investments.**

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2020	Interest receivable .....		21,000	
	AC investments – Zimmermann bonds .....		1,248	
	Interest income .....			22,248
	For Interest receivable: $(\$700,000 \times 6\% \times 6 \div 12)$ , for Interest income: $(\$685,843 + 814) \times 6.48\% \times 6 \div 12)$			
Jan 1 2021	Cash .....		21,000	
	Interest receivable .....			21,000
Jul 1 2021	Cash .....		21,000	
	AC investments – Zimmermann bonds .....		1,288	
	Interest income .....			22,288
	For Interest income: $(\$685,843 + 814 + 1,248) \times 6.48\% \times 6 \div 12)$			

When the bonds mature at the end of five years, the entry to record the proceeds of the sale is shown below.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1 2025	Cash .....		700,000	
	AC investment – Zimmermann bonds .....			700,000

As previously stated, ASPE companies can choose to use either the effective interest or the straight-line method to amortize premiums or discounts. If straight-line method is used, the discount for \$14,157 ( $\$700,000 - 685,843$ ) will be amortized over five years. The amortization amount for the July 1 entry would be for four months or \$944 ( $\$14,157 \div 5 \text{ years} \times 4 \div 12$ ). After that, the amortization will be for every six months or \$1,416 ( $\$14,157 \div 5 \times 6 \div 12$ ).



A video is available on the Lyryx site. [Click here to watch the video.](#)

## AC Impairment

For IFRS companies, the process to evaluate and measure impairments was already discussed in FVOCI debt (with recycling). The accounting treatment for impairments (IFRS) is the same for both FVOCI debt with recycling and AC.

This section will now discuss impairment for ASPE companies with AC investments.

Since AC investments are measured at amortized cost for bonds and cost for shares, there is always the possibility of an impairment loss since fair values are not used. For this reason, investments should be assessed at the end of each reporting period to see if there has been a loss event. Investment assets should be evaluated on both an individual investment and portfolio (grouped) investment basis to minimize any possibilities of hidden impairments within a portfolio of investments with similar risks. Below are details regarding how impairments for AC investments are measured:

ASPE—reduce the investment carrying value to the higher of:

- the present value of impaired future cash flows using the *current market* interest rate and
- the net realizable value either through sale or by exercising the entity's rights to sell any collateral.

The loss is reported in net income and the investment (or an asset valuation allowance) is reduced accordingly. These impairments may be reversed.

For example, assume that Vairon Ltd. purchased an investment in Forsythe Ltd. bonds for \$200,000 at par value on January 1 and intends to hold them until maturity. The bonds pay interest on December 31 of each year. At year-end, Forsythe experiences cash flow problems that are considered by the investor as a loss event that triggers an impairment evaluation. The following cash flows are identified:

Present value of impaired cash flows using the <i>current</i> market rate	\$190,000	}
Net realizable value either through sale or by exercising the investor's rights to sell any collateral	185,000	

For companies following ASPE, the entry for the AC investment in bonds would be:

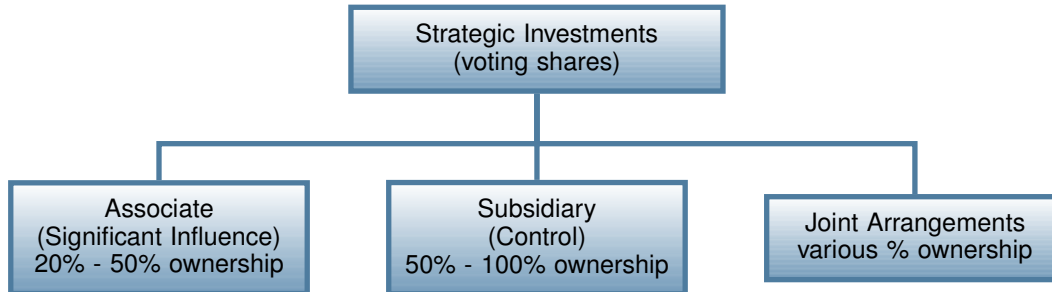
General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss on impairment of AC investments .....		10,000	
	AC Investment – Forsythe bonds .....			10,000
	Present value using higher of the current interest rate of \$190,000 and the net realizable value of \$185,000: (\$200,000 – 190,000) ←			

### Changes in Classifications

Changes in management's intention to sell or hold to maturity can result in a change in classification. However, earlier in this chapter some significant impacts in net income and investment asset values were illustrated between FVNI, FVOCI, and AC methods. It is easy to see how this might lead to manipulation of net income or asset values by management. To minimize this possibility, for ASPE, no reclassification is permitted unless there's a change in the company's business model, which happens very rarely. For IFRS, there is the fair value option discussed earlier for FVOCI equities, which is irrevocable.

## 8.3 Strategic Investments

In the previous categories, investments in other companies' debt or shares were acquired in order to make a return on idle cash. Investing in other companies can also be for strategic purposes, such as to acquire the power to influence the board of directors and company policies, or to take over control of the company outright. This is done by acquiring various amounts of another company's voting common shares. The degree of ownership (number of votes) defines the level of influence.



Guidelines have been developed to help determine the classification of the investment based on the degree of influence. For example, the previous three categories of investments (FVNI, FVOCI, and AC) each assumed that the investor's ownership in shares were less than 20%, therefore having no influence on the investee company.

For ownership in shares greater than 20% but less than 50%, it is assumed that **significant influence** exists. IFRS calls this category **investment in associates**. However, if an investing company owns between 20% and 50% of another company's shares, significant influence is by no means assured and can be refuted, if there is evidence to the contrary. For example, if an investor acquires 40% of the outstanding common shares of a company but the remaining 60% of the shares are held by one other investor, then significant influence will not exist. A general assumption is that the greater the number of investors, the more likely that investment holdings of greater than 20% will result in significant influence.

If an investor holds greater than 50% of the common shares, then it has the majority of the votes at the board of directors' meetings, thereby having **control** of the investee company's operations, decisions and policies.

**Joint arrangements** is another type of strategic investment that involves the contractually-agreed sharing of control by two or more investors. There are two types of joint arrangements, namely; joint operations and joint ventures. A joint operation exists if the investor has rights to the assets and unlimited liability obligations of the joint entity and a joint venture exists if the investor has rights to net assets (assets and limited liability obligations of the joint entity).

Regarding strategic investments—why would an investor want to influence or control another company? If the investee company has resources that would enhance the operations of the investor, then acquiring sufficient voting shares to significantly influence or control the investee's board of directors would be a prime motivator to do so. Acquiring an interest in another company could secure a guaranteed source of materials and products, open up new markets, or broaden existing ones for the investor company. It could also expand an investor company's range of products and services available for sale as was the case with Hewlett Packard's acquisition of 87% of Autonomy Corporation's shares resulting in control of the company.

The accounting treatments for these classifications are complex and will be covered in more

detail in the advanced accounting courses. The rest of this chapter will focus on an introduction to the three strategic investment classifications.

### 8.3.1 Investments in Associates (Significant Influence)

For IFRS, investments between 20% and 50% of the voting shares in another company are reported using the equity method. For ASPE companies, management can choose the equity method, the fair value through net income method (if this investment is traded in an active market), or the cost method if no market exists. Transactions costs are expensed for the equity and fair value methods and added to the investment (asset) account for the cost method. Investments in associates are reported as long-term investments and income from associates is to be separately disclosed.

This chapter has already discussed the fair value and cost models, so the focus will now be on the equity method.

The equity method initially records the shares at the cost of acquiring them which is also fair value. Subsequent measurement of the investment account includes recording the proportionate share of the investee's:

- net income (loss) adjusted for any inter-company transactions
- dividends
- amortization of any fair value difference in the investee's capital assets
- impairments, if any
- proceeds of sale

The equity method is often referred to as the *one-line consolidation* because *all the related transactions are recorded as increases or decreases in a single investment asset account*. For example, if the investee company reported net income, this would result in a proportionate increase in the investor's investment (asset) due to the added profit. Conversely, a net loss reported or dividend received would be recorded as a proportionate decrease in the investment. Any amortization of fair value adjustments from the date of purchase or impairment would also be recorded as a decrease in the investment account. Below is an example of how the investment is accounted for using the equity method.

On January 1, 2020, Tilton Co. purchased 25% of the 100,000 outstanding common shares of Beaton Ltd. for \$455,000. Beaton currently is one of Tilton's suppliers of manufactured goods. The outstanding shares are widely held, so with this purchase, Tilton can exercise

significant influence over Beaton. This investment solidified the relationship between Tilton and will guarantee a steady supply of goods needed by Tilton for its customers. The following financial information relates to Beaton:

	Total	25%	Note
Amount paid by Tilton for 25% shares of Beaton		\$455,000	1
Book value of Beaton's net assets on January 1, 2020	\$1,500,000	375,000	
Excess of the amount paid from the net book value		80,000	
Fair value allocation of excess paid for net depreciable assets	240,000	60,000	4
Remaining life of Beaton's depreciable assets as at January 1, 2020	10 years		
Unexplained excess assumed to be goodwill		20,000	
Dividends declared and paid on December 31, 2020	150,000	37,500	2
Net income for the year ended December 31, 2020	250,000	62,500	3

Below are the entries recorded to Tilton's books that relate to its investment in Beaton:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1 2020	Investment in associate – Beaton shares . . . . .		455,000	
	Cash . . . . .			455,000
	Note 1: Purchase of 25% of Beaton's common shares			
Dec 31 2020	Cash . . . . .		37,500	
	Investment in associate – Beaton shares . . .			37,500
	Note 2: 25% share of dividends received			
Dec 31 2020	Investment in associate – Beaton shares . . . . .		62,500	
	Investment income (loss) . . . . .			62,500
	Note 3: 25% share of net income for 2020			
Dec 31 2020	Investment income (loss) . . . . .		6,000	
	Investment in associate – Beaton shares . . .			6,000
	Note 4: Amount of excess price paid for net depreciable assets amortized over 10 years. (\$60,000 ÷ 10 years)			

On December 31, Tilton recorded its 25% share of dividends received, net income (loss), and amortization of Beaton's net depreciable assets. But what about the \$80,000 excess paid for the investment? The excess of \$60,000 relates to Beaton's net depreciation assets, so this portion of the excess is amortized over ten years. The remaining \$20,000 is inexplicable, so it will be treated as *unrecorded* goodwill. Goodwill is discussed in detail in Chapter 11: Intangible Assets and Goodwill. Since there is unrecorded goodwill, an intangible asset, Tilton must evaluate its investment each reporting date to determine if there has been any impairment in the investment's value.

Below is a partial balance sheet and income statement reporting the investment at December 31, 2020.

Tilton Co.  
Balance Sheet  
December 31, 2020

Long-term investment:	
Investment in associates (equity method)*	\$474,000

\*(\$455,000 – 37,500 + 62,500 – 6,000)

For IFRS, investments in this classification are assessed each balance sheet date for possible impairment. If it was determined that the investment's recoverable amount—being the higher of its value in use (the present value of expected cash flows from holding the investment, discounted at the current market rate) and fair value less costs to sell, both of which are discounted cash flow concepts—was \$460,000, then the carrying value is more than the recoverable amount and an impairment loss of \$14,000 (\$460,000 – 474,000) is recorded as a reduction to the investment (or valuation account) and to net income (loss).

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss due to impairment .....		14,000	
	Investment in associate – Beaton shares...			14,000

For ASPE, impairment evaluation and measurement is the same as IFRS except “fair value” does not include netting the costs to sell.

Since there is \$20,000 of unrecorded goodwill, the \$14,000 impairment charge represents a loss in an intangible asset and is therefore not reversible. If there had been no unrecorded goodwill, any subsequent impairment charge would be reversible, but limited and the recovery amount could not result in a carrying value balance greater than if there had been no impairment.

### 8.3.2 Investments in Subsidiaries (Control)

For IFRS, investments greater than 50% of the voting shares in another company are reported using the consolidation method. For ASPE companies, there is a choice of consolidation, equity, or cost methods. Transactions costs are expensed for the consolidation and equity methods and added to the investment (asset) account for the cost method.

For IFRS companies, the investor is referred to as the **parent**, and the investee as the **subsidiary**, and it is reasonable to treat the two companies as one economic unit and prepare a

consolidated set of financial reports for the combined entity. This means that the investment account is eliminated and 100% of each asset and liability of the subsidiary is reported within the parent company's balance sheet on a line-by-line basis. For example, the accounts receivable ending balance for the subsidiary would be added to the accounts receivable balance of the parent and reported as a single amount on the consolidated balance sheet. This would be done for all of the subsidiary's assets and liabilities sheet accounts. As well, 100% of each of the subsidiary's revenues, expenses, gains, and losses accounts would be included with those of the parent company and reported in the consolidated income statement.

Since 100% of all the net assets and net income (loss) is being reported by the parent, any percentage of ownership held by outside investors, referred to as the minority interest, must also be reported in the financial statements. This is reported as a single line in the balance sheet and the income statement as *non-controlling interest*. For example, in the cover story, Hewlett Packard purchased a majority of the voting shares of Autonomy Corp. The remaining percentage would be the minority interest shareholders who did not sell their shares to Hewlett Packard and continue to be investors of Autonomy Corp. This non-controlling interest would be reported as a single line in the balance sheet and the income statement. Earlier chapters regarding the income statement and statement of financial position both illustrate how the non-controlling interest is presented in these financial statements.

### 8.3.3 Investments in Joint Arrangements

As previously stated in the overview of strategic investments, joint arrangements is another type of strategic investment for both IFRS and ASPE that involves a contractual arrangement between two or more investors regarding control of a joint entity. Control in this case means that the investors must together agree on the decision-making. For IFRS, there are two types of joint arrangements:

- Joint operations—investor has direct rights to assets and (unlimited) liability obligations of the joint entity, such as a partnership where liability can be unlimited. Each investor would include in their financial statements the assets, liabilities, revenue, and expenses that they have a direct interest in. In other words, it is a form of proportionate consolidation where the investor's proportionate share of the assets, liabilities, revenue and expense accounts from the joint entity are added to the investor's existing accounts.
- Joint ventures—investor has rights to *net* assets (assets and (limited) liability obligations) of the joint entity, such as the case involving corporations with limited liability. The equity method is used for this type of investment which is the method illustrated for investments in associates above. In this case, the joint entity is shown on a net basis in an investment account on the statement of financial position.

The ASPE standards are very similar, though the terms are a bit different, namely, jointly

controlled operations, jointly controlled assets, and jointly controlled enterprises. ASPE companies can make a policy choice to use proportionate consolidation, equity, or cost to account for their joint entity investments. Once chosen, the method must be applied to all investments of this nature.

## 8.4 Investments Disclosures

Reporting disclosures were addressed under each accounting method above. To summarize, investments will be reported as either current or long-term assets on the same basis as other assets. If the investment is expected to be sold within twelve months of the balance sheet date (or its operating cycle), is held for trading purposes, or is a cash equivalent, it will be reported as a current asset. All other investments will be reported as long-term assets. Both IFRS and ASPE companies are similar regarding this classification. IFRS and ASPE standards are also similar regarding the *disclosure objectives* for investments for the following reasons:

- to ensure that information is available to assess the level of significance of the overall financial position and performance of the investments
- to understand the nature and extent of risks arising from the investments
- to know how these risks are managed

Examples of disclosure details are:

- separation of investments by type (i.e., FVNI, AC, FVOCI, Significant Influence, Subsidiary, Joint arrangements)
- the carrying value of investments with details about their respective fair values including valuation techniques, interest income, unrealized and realized gains (losses), impairments and reversals of impairments, and reclassifications
- information from the legal documents including maturity dates, interest rates, and collateral
- information regarding market risk, liquidity risk, and credit risk, as well as the policies in place to manage risks
- IFRS for impaired assets must disclose the basis for the ECL and changes in ECL as well as a breakdown and reconciliation of the reporting year's adjustments of any impairment allowance accounts

Since investments are also financial instruments, the disclosure requirements identified in Chapter 6: Cash and Receivables apply to intercorporate investments as well. Refer to that chapter for more details.

## 8.5 Investments Analysis

Access to the information contained in financial statements and required disclosures is vital to sound investment analysis. This information will assist management to separate the assets, liabilities, and income components of the investment portfolios from the company's core operations to accurately assess performance of the company and of the investment itself. As well, creditors and potential investors will have to keep in mind the impact that certain accounting treatments would have on existing financial data. The equity method was referred to earlier as the one-line consolidation method for a reason: some of the key data using this method is not separately identifiable. As well, the accounting treatment chosen could affect the amounts and timing of net income and assets balances reported by the investor company. Some of these differences are identified in the chapter highlights below. Decisions regarding when to purchase or sell are in part determined by analysis of the investee company's operating results, earnings prospects, and earnings ratios. For this reason, care must be taken to clearly be aware of any obscured data and to understand the differences in data created by the choice of accounting treatments for each investment portfolio. Proper access to information and a thorough understanding of the various accounting treatments will reduce the possibility that management will make sub-optimal business investment decisions due to misinterpretation of analysis results.

## 8.6 IFRS/ASPE Key Differences

There is no doubt that accounting for investments is complex, given the presence of two accounting standards that have identified eight separate categories for IFRS and ASPE as shown in the Classifications chart at the beginning of this chapter.

Below is a *decision map* for the various equity investment categories:

Std	Description	Corporate Planning	Purpose	Treatment
IFRS	If <b>voting</b> shares ownership is greater than 50%	Strategic	Control	Full consolidation

	If <b>voting</b> shares ownership is between 20% and 50%	Strategic	Associate	Equity method
	If equity investment is less than 20%	Non-strategic	For trading purposes (FVNI)	FVNI – fair value – net income
	If equity investment is less than 20%	Non-strategic	To collect dividends and also to sell (FVOCI)	Fair value – OCI without recycling (equities)
ASPE	If <b>voting</b> shares ownership is greater than 50%	Strategic	Subsidiary	Choice of consolidation, equity method, or cost method
	If <b>voting</b> shares ownership is between 20% and 50%	Strategic	Significant influence	Choice of equity method or cost method, or fair value (if market exists) – net income
	If equity investment is less than 20% and has an active market	Non-strategic	Short-term trading	FVNI – fair value – net income
	If equity investment is less than 20% and has no active market	Non-strategic	All other equities	Cost

## Chapter Summary

### LO 1: Describe intercorporate investments and their role in accounting and business.

Non-strategic intercorporate investments exist when companies invest in other companies' equity (shares or derivatives) or debt (bonds or convertible debt) to earn a better return on their idle cash. These returns will take the form of interest income, dividend income, or capital appreciation of the security itself.

Strategic intercorporate investments are voting shares purchased by the investor company to

enhance its own operations. The goal is to either influence the investee's board of directors (share holdings 20% or greater) or to take control over the company (share holdings 50% or greater). This is undertaken in order to guarantee a source of scarce materials or services or to increase sales and hence profit. There are also joint arrangements where two or more investors, through a contractual agreement, control a joint entity.

Intercorporate investments are financial assets because the investor's contractual rights to receive cash or other assets of the investee company result in a financial liability or equity instrument of the investee. They are reported as either current or long-term investments depending on the investments business model and if management intends to hold and collect interest and dividends or to realize changes in their value through selling them.

For all investments, the initial measurement is the acquisition price (which is equal to the fair value) in Canadian funds. For equity investments this would likely be the market price and for debt investments such as bonds, it would be the future cash flows discounted using the market interest rate (net present value). Subsequent measurement will depend on the category of the investment. For non-strategic investments, IFRS has three categories: a) FVNI for trading and measured at fair value through net income; b) AC to hold and collect cash flows and measured at amortized cost; and c) FVOCI to collect cash flows and to sell, measured at fair value through OCI with recycling (debt) or without recycling (equities). ASPE has two categories: a) investments for trading purposes (FVNI); and b) all other investments at cost or amortized cost. Strategic investments have three categories: a) holdings of 20% or greater (associate or significant influence) which uses the equity method (IFRS); b) holdings of 50% or greater (subsidiary or control) which uses consolidation (IFRS); and c) joint arrangements made up of various percentages, using the equity method for joint ventures or a form of proportionate consolidation for joint operations. ASPE allows some other choices of methods for its strategic investments and permits straight-line amortization of its debt instruments. The ownership percentages are guidelines only and there can be exceptions to these.

## LO 2: Identify and describe the three types of non-strategic investments.

Held-for-trading (FVNI) investments in debt, equity, or derivatives are held for short periods of time. For ASPE companies, these are for equities trading in an active market, debt, or most derivatives under the fair value option (classification irrevocable, once made). FVNI investments are reported as current assets at fair value through net income at each balance sheet date. Transaction costs are expensed. Gains (losses) upon sale are reported in net income. Since they are reported at fair value, no separate impairment tests or charges are required. Investor companies often use an asset valuation allowance account (contra account to the investment asset) to record changes in fair value to preserve the original cost information for the investment. For debt instruments such as bonds, any amortization is calculated using the effective interest method for IFRS. ASPE companies can also elect to use straight-line method for its amortization.

FVOCI investments in debt or equity are for sale, but also for the purpose of collecting the cash flows of interest and dividends. This classification is only available for IFRS companies. They are reported as long-term assets (until within twelve months of the intention to sell them) at fair value through OCI at each balance sheet date until sold. Transaction costs are capitalized. For FVOCI investments in debt, gains/losses upon sale are transferred from OCI to net income. For FVOCI investments in equities, gains/losses upon sale are reclassified from AOCI to retained earnings. Impairment evaluations begin as soon as the investment is acquired and estimated costs regarding potential defaults (expected credit losses or ECL) are calculated and reported at the first reporting date after acquisition. The ECL is adjusted up or down depending on if credit risk increasing or decreasing.

For IFRS, AC investments in debt are reported at amortized cost at each balance sheet date. ASPE companies can also classify equity securities not traded in an active market to this category at cost. Transaction costs are capitalized. AC investments are reported at their carrying value as long-term assets, unless they are expected to mature within twelve months of the balance sheet date. Interest earned on investments in debt (bonds), and dividends earned on equity securities measured at cost, are reported in net income. Any bond premium or discount amortization is calculated using the effective interest rate method for IFRS companies. ASPE can choose to use either the effective interest or the straight-line method. For ASPE, if a loss event occurs, any impairment is calculated as the difference between the carrying value and the present value of the impaired cash flows using the current market rate. Any gain (loss) due to impairment or upon sale is reported in net income. An asset valuation allowance can be used for either standard and any of the classifications.

For IFRS, impairment evaluations for AC investments are the same process as for FVOCI debt. To summarize, impairment evaluations begin as soon as the AC investment is acquired and estimated costs regarding potential defaults (expected credit losses or ECL) are calculated and reported at the first reporting date after acquisition. The ECL is adjusted up or down depending on if credit risk increasing or decreasing.

### **LO 3: Identify and describe the three types of strategic investments.**

Investments in the voting shares of an investee company are undertaken to influence or take over control of the board of directors. The degree of ownership defines the level of influence and the classification.

Associate (Significant Influence) investments of 20% or greater voting shares are reported using the equity method for IFRS. For ASPE, management can choose the equity method, the fair value method through net income if traded in an active market, or the cost method if no market exists. Transaction costs are expensed for the equity and fair value methods and added to the investment (asset) account for the cost method. Investments in associates are reported as long-term investments and income from associates is to be separately disclosed on the income statement. The equity method is based on a reflection of ownership in the investee

company. Dividends received are treated as a return of some of the investment asset and are recorded as a reduction in the value of the investment. Conversely, the investor company's share of an associate's reported net income is added to the value of the investment. Included in the journal entries are also any excess amount paid that is attributable to the investee's net identifiable assets amortized over the remaining life of the assets. Any remaining excess is usually attributable to unrecorded goodwill. Any impairment charge other than those attributed to unrecorded goodwill is recoverable, but limited.

Investments in subsidiaries (Control) for greater than 50% of the voting shares in another company are reported using the consolidation method for IFRS. For ASPE companies, there is a choice of consolidation, equity, or cost methods. Transaction costs are expensed for the consolidation and equity methods and added to the investment (asset) account for the cost method. Consolidation involves the elimination of the investment account, and 100% of each asset and liability of the subsidiary is incorporated on a line-by-line basis with the assets and liabilities of the parent company's balance sheet. As well, 100% of the revenues, expenses, gains, and losses are also incorporated on a line-by-line basis in the parent company's consolidated statement of income. If the parent company owns less than 100%, then a minority interest held by other shareholders exists. This is reported as a single line called non-controlling interest in the parent company's consolidated balance sheet and consolidated income statement.

The investments in joint arrangements classification is used when there are multiple investors each having direct rights to the assets and obligations of the joint arrangement. The degrees of ownership can be varying percentages, and are reported in each investor company using the proportionate consolidation method for IFRS. For ASPE companies, there is a choice of using proportionate consolidation, equity, or cost. The mechanics of the proportionate consolidation method are similar to the consolidation method discussed above.

#### **LO 4: Explain disclosures requirements for intercorporate investments.**

The various classifications and accounting treatments can significantly impact the asset values and net income of investor companies. Accounting methods in this chapter can obscure some of the key data and stakeholders may have difficulty distinguishing between performance of the investor's core operations and those of its investments. Investment decisions to buy or sell are based on this information so it is critical to be aware of any obscured data that could influence these decisions.

## LO 5: Identify the issues for stakeholders regarding investment analyses of performance.

Analyzing the performance of a company's portfolio of intercorporate investments is a critical process. The most significant hurdle to good investment management is to ensure that the information used to assess performance is clearly understood by those performing the analysis and interpreting the results, since some of the critical data can be obscured by the choice of accounting treatment. Investments have three potential accounting categories for both non-strategic (FVNI, FVOCI, AC) and strategic (associate, control, joint arrangements) investments. As well, accounting treatments can also vary between debt instruments and equity securities within a specific classification, making comparisons with other benchmark data (e.g., historic or industry ratios) difficult, and hence performance assessment challenging as well. The result is that both net income and investment accounts balances can differ widely at each reporting date depending on the category classification chosen to account for the investment(s).

## LO 6: Discuss the similarities and differences between IFRS and ASPE for the three non-strategic investment classifications.

A decision map assists in determining the proper treatment for various types of investment decisions.

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## Exercises

### EXERCISE 8–1

On January 1, Maverick Co. purchased 500 common shares of Western Ltd. for \$50,000 plus a 1% commission of the transaction. On September 30, Western declared and paid a cash dividend of \$2.25 per share. At year-end, the fair value of the shares was \$108 per share. In early March of the following year, Maverick sold the shares for \$57,000 less a 1% commission. The shares are not publicly traded, so Maverick will account for them using the cost method. Maverick follows ASPE.

#### Required:

- Describe the type of investment and how it would be reported.
- Prepare the journal entry for the purchase, the dividends received, and the sale, and any year-end adjustments, if required.
- Assume now that Maverick follows IFRS and the investment in shares is accounted for as FVNI investment. Prepare the journal entry for the purchase, the dividends received, any year-end adjusting entries and the sale.
- How would your answer to part (c) change if Maverick follows ASPE and the shares are traded on an active market?

### EXERCISE 8–2

On January 1, 2020, Smythe Corp. invested in a 10-year, \$25,000 face value 4% bond, paying \$25,523 in cash. Interest is paid annually, every January 1. On January 3, 2028, Smythe sold all of the bonds for 101. Smythe's year-end is December 31 and the company follows IFRS. At the time of purchase, Smythe intended to collect the contractual cash flows of interest and principle, and to hold the bonds to maturity.

#### Required:

- a. What is the effective interest rate for this bond, rounded to the nearest whole dollar? (Hint: this involves a net present value calculation as discussed in Chapter 6: Cash and Receivables.)
  - b. What is the amount of the bond premium or discount? Indicate if it is a premium or a discount.
  - c. Record all relevant entries for 2020, the January entry for 2021, and the entry for the sale in 2028, if Smythe classifies the investment as an AC investment. Round amounts to the nearest whole dollar.
  - d. What is the total interest income and net cash flows for Smythe over the life of the bond? What accounts for the difference between these two amounts?
  - e. Assume now that Smythe follows ASPE. How would the entries in part (c) differ? Use numbers to support your answer.
- 

**EXERCISE 8–3**

On January 2, Terrace Co. purchased \$100,000 of 10-year, 4% bonds from Inverness Ltd. for \$88,580 cash. The effective interest yield for this transaction is 5.5%. The bonds pay interest on January 1 and July 1. Terrace's business model is to hold and collect the contractual cash flows of interest and principal until maturity. The company follows IFRS and their year-end is December 31.

**Required:**

- a. What is the discount or premium, if any, for this investment? Explain why a premium or discount could occur when purchasing bonds.
  - b. Record the bond purchase, the first two interest payments, and any year-end adjusting entries, rounding amounts to the nearest whole dollar.
  - c. Record the entries from part (b), assuming now that Terrace follows ASPE and has chosen the alternative method to account for the premium or discount, if any.
- 

**EXERCISE 8–4**

On January 2, Bekinder Ltd. purchased \$100,000 of 10-year, 4% bonds from Colum Ltd. for \$88,580 cash. The effective interest yield for this transaction is 5.5%. The bonds pay interest on January 1 and July 1. Terrace follows IFRS and classifies this investment as AC. Their year-end is September 30.

**Required:** Record the first two interest payments and any adjusting entries, rounding amounts to the nearest whole dollar.

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### EXERCISE 8–5

On March 1, Imperial Mark Co. purchased 5% bonds with a face value of \$20,000 for trading purposes. The bonds were priced in the trading markets at 101 to yield 4.87%, at the time of the purchase, and pay interest annually each July 1. At year-end on December 31, the bonds had a fair value of \$21,000. Imperial Mark follows IFRS.

**Required:**

- a. What classification would Imperial Mark use to report this investment?
  - b. Prepare the journal entries for the bond purchase, the first interest payment, and any year-end adjusting entries required. Round amounts to the nearest whole dollar.
  - c. Assume now that Imperial Mark follows ASPE. How would Imperial Mark classify and report this investment? Prepare the journal entries from part (b) using the ASPE classification and the alternate method to amortize the premium. Assume that bond investment matures in ten years.
- 

### EXERCISE 8–6

Halberton Corp. purchased 1,000 common shares of Xenolt Ltd., a publicly traded company, for \$52,800. During the year Xenolt paid cash dividends of \$2.50 per share. At year-end, due to a temporary downturn in the market, the shares had a market value of \$50 per share. Halberton's business model is to collect the dividend cash flows for now, and sell this investment if/when the share price reaches 54,000. Halberton follows IFRS and has elected to classify this investment as FVOCI equities, with recycling to best fit with their intentions to sell, but at a later date.

**Required:**

- a. How would Halberton report this investment?
- b. Prepare Halberton's journal entries for the investment purchase, the dividend, and any year-end adjusting entries. Is the drop in market price due to an investment impairment?
- c. Prepare the sale entry if Halberton sells the investment one week into the next fiscal year for \$54,200 cash.

- d. How would the answer for part (a) change if Halberton followed ASPE?
- 

**EXERCISE 8–7**

The following are various transactions that relate to the investment portfolio for Zeus Corp., a publicly traded corporation. The portfolio is made up of debt and equity instruments all purchased in the current year and accounted for as investments for trading (FVNI). The investee's year-end is December 31.

- a. On February 1, the company purchased Xtra Corp. 12% bonds, with a par value of \$500,000, at 106.5 plus accrued interest to yield 10%. Interest is payable April 1 and October 1.
- b. On April 1, semi-annual interest was received on the Xtra bonds.
- c. On July 1, 9% bonds of Vericon Ltd. were purchased. These bonds, with a par value of \$200,000, were purchased at 101 plus accrued interest to yield 8.5%. Interest dates are June 1 and December 1.
- d. On August 12, 3,000 shares of Bretin ACT Corp. were acquired at a cost of \$59 per share. A 1% commission was paid.
- e. On September 1, Xtra Corp. bonds with a par value of \$100,000 were sold at 104 plus accrued interest.
- f. On September 28, a dividend of \$0.50 per share was received on the Bretin ACT Corp. bonds.
- g. On October 1, semi-annual interest was received on the remaining Xtra Corp. bonds.
- h. On December 1, semi-annual interest was received on the Vericon Ltd. bonds.
- i. On December 28, a dividend of \$0.52 per share was received on the Bretin ACT Corp. shares.
- j. On December 31, the following fair values were determined: Xtra Corp. 101.75; Vericon Ltd. bonds 97; and Bretin ACT Corp. shares \$60.50.

**Required:** Prepare the journal entries for each of the items (a) to (j) above. The company wishes to record interest income separately from other investment gains and losses.

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**EXERCISE 8–8**

On January 1, 2020, Verex Co. purchased 10% of Optimal Instrument's 140,000 shares for \$135,000 plus \$1,750 in brokerage fees. Management accounted for this investment as a FVOCI. In October, Optimal declared a \$1.10 cash dividend. On December 31, which is Verex's year-end, the market value of the shares was \$9.80 per share. On February 1, 2021, Verex sold 50% of the investment for \$12 per share less brokerage fees of \$580.

**Required:**

- a. Does Verex follow ASPE or IFRS, and why?
- b. Record all the relevant journal entries for Verex for this investment from purchase to sale.

**EXERCISE 8–9**

At December 31, 2020, the following information is reported for Jackson Enterprises Co.:

Net income	\$250,000
Investments in FVOCI – carrying value	320,000
Investments in FVOCI – fair value	350,000
Accumulated Other Comprehensive Income, Jan 1, 2020	15,000

**Required:** Calculate the Other Comprehensive Income (OCI) and total comprehensive income for the year ending December 31, 2020, and the December 31, 2020 ending balance for the Accumulated Other Comprehensive Income (AOCI). Ignore income taxes.

**EXERCISE 8–10**

On January 2, 2020, Bellevue Holdings Ltd. purchased 5%, 10-year bonds with a face value of \$200,000 at par. This investment is accounted for at amortized cost. On January 4, 2021, the investee company was experiencing financial difficulties. As a result, Bellevue evaluated the investment and determined the following:

- The present value of the cash flows using the current market rate was \$195,000
- The present value of the cash flows using the original effective interest rate was \$190,000

By June 30, 2021, the investee recovered from the financial difficulties and was no longer considered impaired.

**Required:** Record all the impairment related transactions in 2020 and 2021 assuming Bellevue uses ASPE.

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**EXERCISE 8–11**

On December 31, 2020, Camille Co. provided the following information as at December 31, 2020 about its investment accounts that it acquired for trading purposes:

	Carrying Amount	Fair Value
ABC Ltd. shares	\$15,000	\$17,500
Warbler Corp. shares	24,300	22,500
Shickter Ltd. Shares	75,000	80,200

During 2021, Warbler Corp. shares were sold for \$23,000 and 50% of the Shickter shares were sold for \$42,000. At the end of 2021, the fair value of ABC shares was \$19,200 and Shickter Ltd. was \$41,000. Camille follows IFRS.

**Required:**

- Prepare the adjusting entry for December 31, 2020, if any.
  - Prepare the entry for the Warbler and Shickter sales.
  - Prepare the adjusting entry for December 31, 2021, if any.
  - How would the entries in parts (a), (b), and (c) differ if Camille accounted followed ASPE?
- 

**EXERCISE 8–12**

On September 30, 2019, FacePlant Inc. purchased a \$225,000 face-value bond for par plus accrued interest. The bond pays interest each October 31 at 4%. Management's investment business model is to hold for trading purposes. On December 31, 2019, the company year-end, the fair value published for bonds of similar characteristics and risk was 102.6. On March 1, 2020, FacePlant sold the bonds for 102.8 plus accrued interest. FacePlant follows IFRS.

**Required:**

- Prepare all the related journal entries for this investment. The company wants to report interest income separately from other gains and losses.
- Prepare a partial classified balance sheet and income statement for FacePlant, as at December 31, 2019.

- c. How would the answer to parts (a) and (b) change if FacePlant followed ASPE?
- d. What kinds of returns did this investment generate? (Hint: Consider all sources, such as interest income and gain/loss on sale of the investment.)
- 

### EXERCISE 8–13

Bremblay Ltd. owns corporate bonds that it accounts for using the amortized cost model. As at December 31, 2020, after an impairment review was triggered, the bonds have the following financial data:

Par value	\$500,000
Amortized cost	422,000
Discounted cash flow at the current market rate	400,000
Discounted cash flows at the original historic rate	390,000
Bond, net realizable value	395,000

The company does not use a valuation account.

#### Required:

- a. Prepare all relevant entries related to the impairment assuming the company follows ASPE. Is this reversible?
- b. Prepare all relevant entries related to the impairment assuming that the company follows ASPE but uses an asset valuation allowance account.
- 

### EXERCISE 8–14

On January 1, 2020, Helsinky Co. paid cash to acquire 8% bonds of Britanica Corp. with a maturity value of \$250,000, to mature January 1, 2028. The bonds provide a 9% yield and pay interest each December 31. Helsinky purchased these bonds as part of its trading portfolio and accounts for the bonds as FVNI investments. On December 31, 2020, the bonds had a fair value of \$240,000. Helsinky follows ASPE and has a December 31 year-end.

During 2021, the industry sector that Britanica operates in experienced some difficult times due to the drop in international market prices for oil and gas. As a result, by December 31, 2021, their debt was downgraded to the market price of 87.3. By December 31, 2022, the bond had a market price of 92.3. In 2023, conditions improved measurably, resulting in the bonds having a fair value on December 31, 2023 of 99.3.

#### Required:

- a. Prepare all of the relevant entries for 2020, 2021, 2022 and 2023, including any adjusting entries as required. Round entry amounts to the nearest whole dollar.
  - b. If Helsinky had accounted for the investment at amortized cost, identify and describe the impairment model that the company would have used.
- 

**EXERCISE 8–15**

On January 1, 2014, Billings Ltd. purchased 2,500 shares of Outlander Holdings for \$87,500. During the time that this investment has been held by Billings, the economy and the investee company Outlander have experienced many good and bad times. In 2020, Outlander stated that it was experiencing a reduction in profits but was trying to get things to improve.

**Required:**

- a. Assume that Billings applies the cost method to this investment because there is no active market for Outlander shares. In 2019, Billings had a general sense that the value of its investment in Outlander had probably dropped by about 8.6% to \$80,000. This was not enough to trigger an impairment evaluation as it was still uncertain. By 2020, seeing no improvement, Billings' management completed an evaluation of the investment and estimated that the discounted cash flows from this investment was now \$50,000.

Prepare the entries for 2019 and 2020, assuming that Billings follows ASPE.

- b. Next, assume that Billings classifies the investment as a FVNI. By the end of 2019, the price of Outlander shares had fallen from \$34.00 the previous year to \$32.00. By 2020, the price had dropped to a 52-week low of \$25.00 per share.

Prepare the entries for 2019 and 2020, assuming that Billings follows ASPE.

- c. Finally, assume that Billings follows IFRS and had purchased the shares of Outlander because Billings wanted to collect the dividends and sell them to realize the change in the shares' valuation. For this reason, Billings classified the investment as a FVOCI investment. How might the accounting treatment change due to a change to IFRS and FVOCI?
- 

**EXERCISE 8–16**

On January 1, 2020, Sandar Ltd. purchased 32% of Yarder Co.'s 50,000 outstanding common shares at a price of \$25 per share. This price is based on Yarder's net assets. On June 30, Yarder declared and paid a cash dividend of \$60,000. On December 31, 2020, Yarder reported net income of \$120,000 for the year. At this time, the shares had a fair value of \$23. Sandar's year-end is December 31 and follows ASPE.

**Required:**

- a. Assuming that Sandar does not have any significant influence over Yarder, prepare all the 2020 entries relating to this investment using the FVNI classification.
- b. Prepare all the 2020 entries relating to this investment if it was classified as cost due to no active markets.
- c. Prepare all the 2020 entries relating to this investment assuming that Sandar has significant influence over Yarder. Sandar uses the equity method of accounting.

**EXERCISE 8–17**

The following T-account shows various transactions using the equity method. This investment of \$290,000 is made up of 30% of the outstanding shares of another company who had a carrying amount of \$900,000. The excess of the purchase price over the investment amount is attributable to capital assets in excess of the carrying values with the remainder allocated to goodwill. The investor company has significant influence over the investee company. Dividends for 15% of the investee's net income are paid out in cash annually. The investee's net assets have a remaining useful life of 10 years. The investor company follows IFRS.

Investment in Investee Company	
\$290,000	
60,000	
	9,000
	1,500

**Required:**

- a. What was the investee's total net income for the year?
- b. What was the investee's total dividend payout for the year?
- c. What is the investor's share of net income?
- d. How much was the investor's annual depreciation of the excess payment for capital assets?
- e. How much of the excess payment would be assigned to goodwill?
- f. How much are the investor's share of dividends for the year?

**EXERCISE 8–18**

On January 1, 2019, Dologan Enterprises Ltd. purchased 30% of the common shares of Twitterbug Inc. for \$380,000. These shares are not traded in any active markets. The carrying value of Twitterbug's net assets at the time of the shares purchase was \$1.2 million. Any excess of the purchase cost over the investment is attributable to unrecorded intangibles with a 10-year life.

During 2019, the following summary operations for Twitterbug occurred:

Net income and Total comprehensive income	\$ 50,000
Dividends paid	25,000
Investment fair value	400,000

During 2020, the following summary operations for Twitterbug occurred:

Net loss and Total comprehensive loss	\$ 15,000
Dividends paid	0
Investment fair value	360,000
Investment recoverable amount	370,000

**Required:**

- a. Prepare all the relevant entries for 2019 and 2020 assuming no significant influence. Assume that Dologan follows IFRS and accounts for the investment as a FVNI.
- b. How is the comprehensive income affected in 2019 and 2020 in part (a)?
- c. Prepare all the relevant entries for 2019 and 2020 assuming that Dologan can exercise significant influence. Assume that Dologan follows IFRS.
- d. Calculate the carrying value of the investment as at December 31, 2020 assuming Dologan can exercise significant influence and follows IFRS.
- e. How would your answer to part (c) be different if Twitterbug's statement of comprehensive income included a loss from discontinued operations of \$15,000 (net of tax) for 2019?

**EXERCISE 8–19**

On January 1, 2020, Chacha Holdings Ltd., a privately-held corporation that follows ASPE, purchased 35% of the common shares of Eugene Corp. for \$600,000. With this purchase,

Chacha now has significant influence over Eugene, who is a supplier of materials for Chacha's production processes. Below is some information about the investee at the date the shares were purchased:

Carrying value of assets subject to amortization	\$ 900,000
Carrying value of assets not subject to amortization (10 years useful life remaining, on a straight-line basis)	780,000
Fair value of the assets subject to amortization	1,050,000
Liabilities	225,000

**Required:** Prepare all relevant entries for the investment based on the information provided above. Subsequently, the investee reported net income of \$225,000 and dividends paid of \$100,000. Assume that any excess of payment that is unexplained is attributed to goodwill.

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### EXERCISE 8–20

Below are details for several independent investments:

- i. Preferred shares were purchased from a publicly traded company because of their favourable dividend payout history. They are for sale, but management has no specific intention to sell at this time.
- ii. On February 1, 2020, 10% or 1,400 shares of the total outstanding shares were purchased from another company that is a privately-held corporation. Management intends to acquire 30% of the total outstanding shares.
- iii. The company has an investment in 10-year bonds which will mature in 5 more years. Management's intention was to hold them until maturity but the company is short of cash, so a possibility exists that they may be sold in 2020, though that is not certain at this point.
- iv. Common shares of a supplier company were purchased to strengthen their relationship. Management intends to hold this investment into the future.
- v. On January 1, 2020, a 4% bond that will mature in 6 years was purchased at market price of 92. When the price point reaches 103, management intends to sell the investment.
- vi. Bonds that mature in 10 years were purchased with monies set aside for a new building purchase expected to occur in 10 years. The bonds will be sold once they mature.
- vii. On March 1, 2020, bonds maturing in 2021 were purchased.

**Required:**

- a. What classification would each investment item be if the investor company follows APSE? How are impairments treated from an accounting perspective?
  - b. What classification would each investment item be if the investor company follows IFRS?
- 

**EXERCISE 8–21**

On January 1, 2020, Amev Ltd., an IFRS company, acquires a 3%, 5-year, bond at par for \$1,150,000, which it intends to hold and collect the contractual cash flows of principal and interest. At year-end, management has determined that there is no significant increase in credit risk, but there is a 1% chance that the company will not collect 15% of the bond face value in the next 12 months.

**Required:** Determine the investment's classification and prepare the year-end journal entry. What is the carrying value of the bond?

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**EXERCISE 8–22**

Referring to the data in Exercise 8–21, assume now that management estimates that there has been a significant increase in the credit risk and there is now a 6% chance that the Amev will not collect 50% of the bond face value over its life.

**Required:** Prepare the year-end entry and determine the carrying value of the investment. What else has changed since the previous ECL valuation?

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**EXERCISE 8–23**

Referring to the data in Exercise 8–21, prepare the year-end entry assuming that Amev classifies the investment as FVOCI and the fair value of the bond at year-end was 99.5, assuming the probabilities have not changed and there has been no significant change in credit risk.

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# Chapter 9

## Property, Plant, and Equipment

### Winter in Hawaii!

In July 2014, WestJet Airlines Ltd. (WestJet) announced that it planned to purchase four Boeing 767-300ERW aircraft to continue and enhance its service from Alberta to Hawaii. These flights had previously been offered through an arrangement with another airline. This represented a significant investment by the company, as each Boeing 767 sells for approximately \$191 million. The company had previously announced in March 2014 that it had placed an order for an additional five Bombardier Q400 NextGen aircraft. Aside from these orders, the company had also taken delivery of five other Q400 NextGen aircraft and two Boeing 737NG 800s in the first half of 2014. The company's total fleet of aircraft in mid-2014 was 120 units, but the company indicated that it planned to expand the fleet to approximately 200 units by 2027.

Clearly, aircraft equipment is a significant asset for an airline. In WestJet's case, the total carrying value of all its property and equipment at June 30, 2014 was approximately \$2.7 billion. This represented approximately 66% of the company's total asset base. The bulk of the company's investment in equipment was comprised of aircraft (\$1.9 billion) and deposits on aircraft (\$0.5 billion). For any financial statement reader or decision maker, it is important to gain a clear understanding of the nature of this significant asset class in WestJet.

WestJet reports that their aircraft equipment is actually comprised of several components. These components include the aircraft itself—the engine, airframe, and landing gear components—and the live satellite television equipment. Each component is depreciated over different periods of time, ranging from five to twenty years. In addition to the aircraft equipment, the company depreciates other property and equipment, such as spare engines, ground property, buildings, and leasehold improvements over periods ranging from three to forty years. It is evident that understanding the nature and identification of components is an important accounting function in a company like WestJet.

In the company's accounting policy note, it is stated that the identification of components is based on management's judgment of what constitutes a significant cost in relation to the total cost of an asset. As well, it states that management considers the patterns of consumption and useful lives of the assets when identifying reportable components. The accounting policy note further states that most overhaul expenditures are capitalized and depreciated.

As WestJet continues to expand its fleet into new types of aircraft, it will be important for

management to consider their accounting policies carefully with respect to their property and equipment. With such a significant investment in non-current assets, accounting decisions regarding the identification of asset components can have a profound effect on reported income. A sound understanding of the criteria and principles behind capitalization of property, plant, and equipment assets is essential to understanding WestJet.

(Sources: Barterm, 2014; Westjet, 2014)

## Chapter 9 Learning Objectives

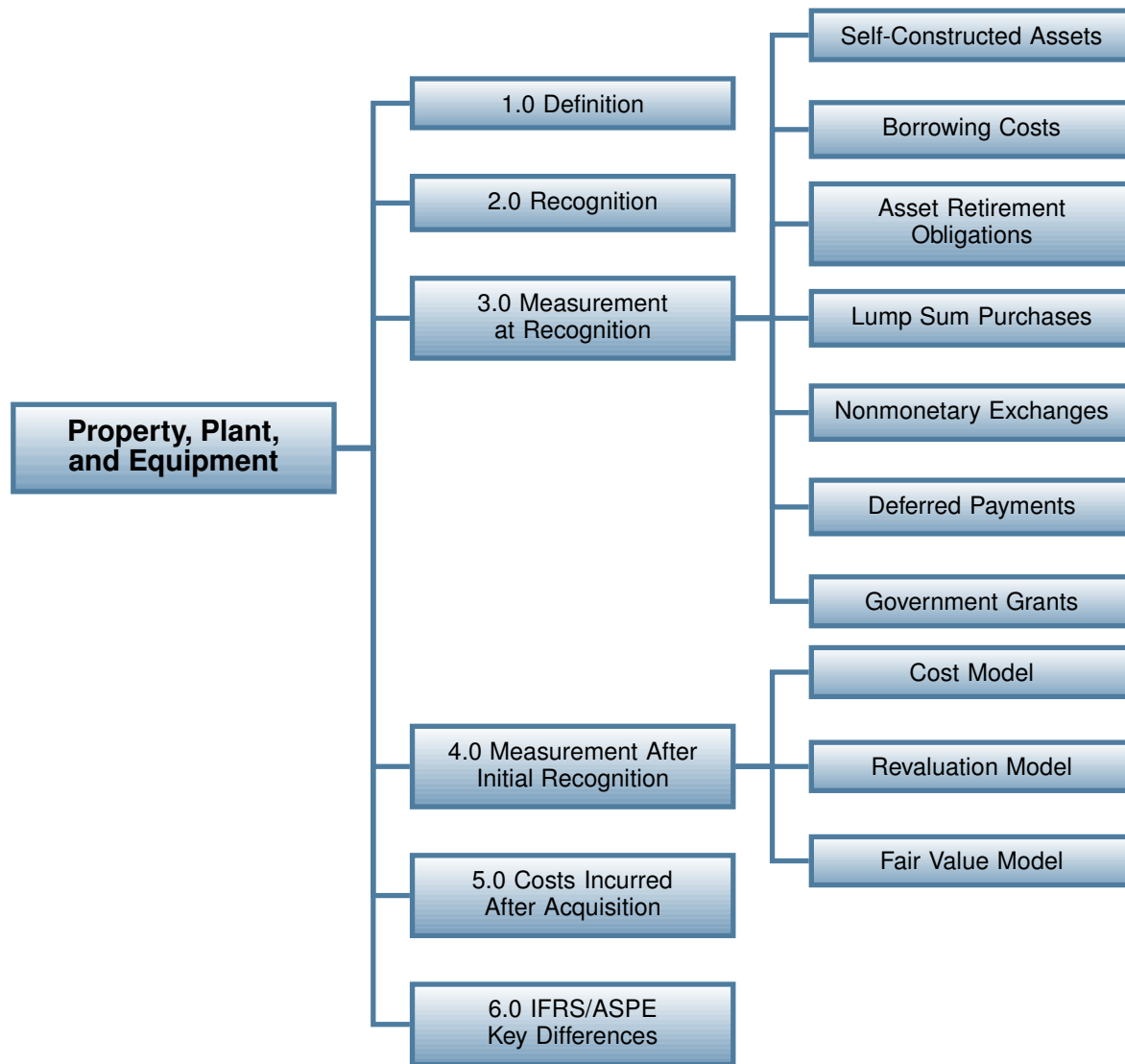
After completing this chapter, you should be able to:

- LO 1: Describe the characteristics of property, plant, and equipment assets that distinguish them from other assets.
- LO 2: Identify the criteria for recognizing property, plant, and equipment assets.
- LO 3: Determine the costs to include in the measurement of property, plant, and equipment at acquisition.
- LO 4: Determine the cost of a property, plant, and equipment asset when the asset is acquired through a lump-sum purchase, a deferred payment, or a non-monetary exchange.
- LO 5: Identify the effect of government grants in determining the cost of a property, plant, and equipment asset.
- LO 6: Determine the cost of a self-constructed asset, including treatment of related interest charges.
- LO 7: Identify the accounting treatment for asset retirement obligation.
- LO 8: Apply the cost model.
- LO 9: Apply the revaluation model.
- LO 10: Apply the fair value model.
- LO 11: Explain and apply the accounting treatment for post-acquisition costs related to property, plant, and equipment assets.
- LO 12: Identify key differences between IFRS and ASPE.

## Introduction

The rapid development of information technology in recent decades has highlighted the importance of intellectual capital. The future of commerce, we are told, lies in the development of ideas, processes, and brands. Yet, even with this change in focus from a traditional manufacturing economy, the importance of the physical assets of a business cannot be ignored. Even companies like Facebook and Google still need computers to run their applications, desks and chairs for staff to sit in, or buildings to house their operations. And even as the knowledge economy grows, there continues to be an increasing variety of consumer products being manufactured and sold. All of this activity requires capacity, and this capacity is provided by the property, plant, and equipment of a business.

## Chapter Organization



### 9.1 Definition

The computers, furniture, buildings, land, factory equipment, and so forth that a business owns are called its **hard assets**, also sometimes referred to as **fixed assets** or **capital assets**. But the term that is consistently used in the IFRS publications is *property, plant, and equipment* (PPE).

According to IAS 16.6, under IFRS property, plant, and equipment are the tangible items that are:

- held for use in the production or supply of goods or services, for rental to others, or for administrative purposes
- expected to be used during more than one period (IAS, 2003a)

A key element of the definition is that the item be **tangible**. This means that it must have a physical substance; therefore, it does not include items of an intangible nature, such as a copyright. The intended use of the asset is also important, as it is expected that it be used for some productive purpose and not simply resold to a customer. This *distinction of intent* is important. An automobile held by a car dealership would be considered inventory, as the dealership intended to resell it; whereas, an automobile owned by a rental company would be considered PPE, as the intended use is earning revenue from rentals. The definition also suggests that the asset should be useful to the business for more than one accounting period. Although this means that a tangible, productive asset with a useful life of two years would be considered PPE, many PPE items have lives much longer than this. A property that includes land and a manufacturing facility could be useful to a business for thirty or forty years, or even longer. The long-term, productive assets of a business are sometimes referred to as bricks and mortar, suggesting something of the relatively permanent nature of these assets.

## 9.2 Recognition

According to IAS 16.7, a PPE item should be recognized when:

- It is probable that future economic benefits associated with the item will flow to the entity.
- The item's cost can be measured reliably (IAS 2003a).

Notice that these conditions are similar to our basic definition of an asset. Also notice that the definition is phrased in terms of economic benefits, rather than of the item itself. This means that some expenditures not directly incurred to purchase the asset, but necessary nonetheless to guarantee the continued productive use of the asset, may still be included in the asset's cost. For example, safety equipment mandated by legislation may not provide direct revenue to the business, but is necessary in order to continue operating the equipment legally. Thus, these costs should be capitalized as part of the asset's cost, and if significant, may even be identified as a separate component of the asset.

The definition of PPE does not contain any guidance on how to define an individual element of PPE. This means that the accountant will need to apply professional judgment to determine the segregation of various PPE components. If we consider a large, complex piece of equipment such as an airplane, the need for proper component accounting becomes clear. An airplane

contains several major elements: the fuselage, the engines, and the interior fixtures (seats, galley, and so on). As indicated in the opening story about WestJet, each of these elements may have a significantly different useful life, and may require maintenance and replacement at different intervals. Because we need to depreciate assets based on their useful lives, and because we need to consider the accounting treatment of subsequent expenditures, it is important to define the separate components of a PPE item properly at the time of **recognition**. Accountants will usually consider the value of the component relative to the whole asset, along with the useful life and other qualitative and practical factors when making these determinations.

IAS 16 also indicates that spare parts, stand-by equipment, and servicing equipment should be recognized as property, plant, and equipment if they meet the definition. If they don't meet the definition, then it is more appropriate to classify these items as inventory. This is an area where materiality and the accountant's professional judgment will come into play, as the capitalization of these items may not always be practical.

### 9.3 Measurement at Recognition

PPE assets are initially measured at their cost, which is the cash or fair value of other assets given to acquire the asset. A few key inclusions and exclusions need to be considered in this definition.

Any cost required to purchase the asset and bring it to its location of operation should be capitalized. As well, any further costs required to prepare the asset for its intended use should also be capitalized. The following is a list of some of the costs that should be included in the capitalized amount:

- Purchase price, including all non-recoverable tax and duties, net of discounts
- Delivery and handling
- Direct employee labour costs to construct or acquire the asset
- Site preparation
- Other installation costs
- Net material and labour costs required to test the asset for proper functionality
- Professional fees directly attributable to the purchase
- Estimates of decommissioning and site restoration costs

Costs that should *not* be included in the initial capitalized amount include:

- Initial operating losses
- Training costs for employees
- Costs of opening a new facility
- Costs of introducing a new product or service
- Costs of reorganization and operation at a new location
- Administration and general overhead costs
- Other revenue or expenses that are incidental to the development of the PPE

### 9.3.1 Self-Constructed Assets

When a company chooses to build its own PPE, further accounting problems may arise. Without a transaction with an external party, the cost of the asset may not be clear. Although the direct materials and labour needed to construct the asset are usually easy to identify, the costs of overheads and other indirect elements may be more difficult to apply. The general rule to apply here is that only costs directly attributable to the construction of the asset should be capitalized. This means that any allocation of general overheads or other indirect costs is not appropriate. As well, any internal profits or abnormal costs, such as material wastage, are excluded from the capitalized amount.

### 9.3.2 Borrowing Costs

One particular problem that arises when a company constructs its own PPE is how to treat any interest incurred during the construction phase. IAS 23 (IAS, 2007) requires that any interest that is directly attributable to the construction of a qualifying asset be capitalized. A qualifying asset is any asset that takes a substantial amount of time to be prepared for its intended use. This definition could thus include inventories as well as PPE, although the standard does not require capitalization of interest for inventory items that are produced in large quantities on a regular basis.

If a PPE asset is qualified under this definition, then a further question arises as to how much interest should be capitalized. The general rule is that any interest that could have been avoided by not constructing the asset should be capitalized. If the company has obtained specific financing for the project, then the direct interest costs should be easy to identify.

However, note that any interest revenue earned on excess funds that are invested during the construction process should be deducted from the total amount capitalized.

If the project is financed from general borrowings and not a specific loan, identification of the capitalized interest is more complicated. The general approach here is to apply a weighted average cost of borrowing to the total project cost and capitalize this amount. Some judgment will be required to determine this weighted average cost in large, complex organizations.

Interest capitalization should commence when the company first incurs expenditures for the asset, first incurs borrowing costs, and first undertakes activities necessary to prepare the asset for its intended use. Interest capitalization should cease once substantially all of the activities necessary to get the asset ready for its intended use are complete. Interest capitalization should also be stopped if active development of the project is suspended for an extended period of time.

Many aspects of the accounting standards for interest capitalization require professional judgment, and accountants will need to be careful in applying this standard.

### 9.3.3 Asset Retirement Obligations

For certain types of PPE assets, the company may have an obligation to dismantle, clean up, or restore the site of the asset once its useful life has been consumed. An example would be a drilling site for an oil exploration company. Once the well has finished extracting the oil from the reserve, local authorities may require the company to remove the asset and restore the site to a natural state. Even if there is no legal requirement to do so, the company may still have created an expectation that it will do so through its own policies and previous conduct. This type of non-legally binding commitment is referred to as a **constructive obligation**. Where these types of legal and constructive obligations exist, the company is required to report a liability on the balance sheet equal to the present value of these future costs, with the offsetting debit being recorded as part of the capital cost of the asset. This topic will be covered in more detail in Chapter 10, but for now, just be aware that this type of cost will be capitalized as part of the PPE asset cost.

### 9.3.4 Lump Sum Purchases

There are instances where a business may purchase a group of PPE assets for a single price. This is referred to as a lump sum, or basket, purchase. When this occurs, the accounting issue is how to allocate the purchase price to the individual components purchased. The normal practice is to allocate the purchase price based on the relative fair value of each component. Of course, this requires that information about the assets' fair values be available and reliable. Often, insurance appraisals, property tax assessments, depreciated replacement costs, and

other appraisals can be used. The reliability and suitability of the source used will be a matter of judgment on the part of the accountant.

Consider the following example. A company purchases land and building together for a total price of \$850,000. The most recent property tax assessment from the local government indicated that the building's assessed value was \$600,000 and the land's assessed value was \$150,000. The total purchase price of the components would be allocated as follows:

Land	$\frac{150,000 \times 850,000}{(150,000 + 600,000)}$	=	\$170,000
Building	$\frac{600,000 \times 850,000}{(150,000 + 600,000)}$	=	\$680,000
Total		=	\$850,000

### 9.3.5 Non-monetary Exchanges

When PPE assets are acquired through payments other than cash, the question that arises is how to value the transaction. Two particular types of transactions can occur: 1) a company can acquire a PPE asset by issuing its own shares, or 2) a company can acquire a PPE asset by exchanging it with another asset the company currently owns.

#### Asset Acquired by Issuing Shares

When a company issues its own shares to acquire an asset, the transaction should be recorded at the fair value of the asset acquired. IFRS presumes that this fair value should normally be obtainable. This makes sense, as it is unlikely that a company would acquire an asset without having a reasonable estimate of its value. If the fair value of the asset acquired is not determinable, then the asset should be reported at the fair value of the shares given up. This value is relatively easy to determine for an actively traded public company. In cases where neither the value of the asset nor the value of the shares can be reliably determined, the asset could not be recorded.

#### Asset Acquired in Exchange for Other Assets

When assets are acquired through exchange with other non-monetary assets or a combination of monetary and non-monetary assets, the asset acquired should be valued at the fair value of the assets given up. If this value cannot be reliably determined, then the fair value of the asset received should be used. Notice how this differs from the rule for share-based payments. The presumption is that the fair values of assets are generally more reliable than the fair values of shares.

The implication of this general rule is that when non-monetary assets are exchanged, there will likely be a gain or loss recorded on the transaction, as fair values and carrying values are

usually not the same. The recognition of a gain or loss suggests that the earnings process is complete for this asset. This seems reasonable, as each company involved in the transaction would normally expect to receive some economic benefit from the exchange.

There are two instances, however, where the general rule does not apply. These two situations occur when:

- The fair values of both assets are not reliably measurable.
- The transaction lacks commercial substance.

Although it is an unusual situation, it is possible that the fair value of neither asset can be reliably determined. In this case, the asset acquired would be recorded at the book value of the asset given up. This means that no gain or loss would be recorded on the transaction.

A more likely situation occurs when the transaction lacks commercial substance. This means that after the exchange of the assets, the company's economic position has not been altered significantly. This condition can usually be determined by considering the future cash flows resulting from the exchange. If the business is not expected to realize any difference in the amount, timing, or risk of future cash flows, either directly or indirectly, then there is no real change in its economic position. In this case, it would be unreasonable to recognize a gain, as there has been no completion of the earnings process. This type of situation could occur, for example, when two companies want to change their strategic directions, so they swap similar assets that may be located in different markets. There may be no significant difference in cash flows, but the assets received by each company are more suitable to their long-term plans. In this case, the asset acquired is reported at the carrying value of the asset given up.

One instance where accountants need to be careful occurs when an asset exchange lacks commercial substance and the carrying amount of the asset given up is greater than the fair value of the asset acquired. If we apply the principle for non-commercial exchanges by recording the asset acquired at the carrying value of the asset given up, the result will be an asset reported at an amount greater than its fair value. This result would create a misleading statement of financial position, so in this case, the asset acquired should be reported at its fair value, even though there is no commercial substance. This will result in a loss on the exchange.

Consider the following illustrations of asset exchanges.

### *Commercial Substance*

ComLink Ltd. decides to change its manufacturing process in order to accommodate a new product that will be introduced next year. They have decided to trade a factory machine that is no longer used in their production for a new machine that will be used to make the new product.

The machine that is being disposed of had an original cost of \$78,000 and accumulated depreciation of \$60,000. The fair value of the old machine at the time of exchange was \$22,000. The new machine being obtained has a list price of \$61,000. After a period of negotiation, the seller finally agreed to sell the new machine to ComLink Ltd. for cash of \$33,000 plus the trade-in of the old machine. As the new machine will be used to manufacture a new product for the company, and the old machine was essentially obsolete, we can reasonably conclude that this transaction has commercial substance. In this case, the journal entry to record the exchange will be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	New machine .....		55,000	
	Accumulated depreciation – old machine .....		60,000	
	Old machine .....			78,000
	Cash .....			33,000
	Gain on disposal of machine .....			4,000
	For New machine: (\$22,000 + \$33,000)			

Note that the new machine is reported at the fair value of the assets given up in the exchange (\$33,000 cash + \$22,000 machine). Also note that the gain on the disposal is equal to the fair value of the old machine (\$22,000) less the carrying value of the machine at disposal (\$78,000 – \$60,000 = \$18,000).



A video is available on the Lyryx site. [Click here to watch the video.](#)

### *No Commercial Substance*

Assume that ComLink Ltd. has a delivery truck that it purchased one year ago for \$32,000. Depreciation of \$5,000 has been recorded to date on this asset. The company decides to trade this for a new delivery truck in a different colour. The new truck has the same functionality and expected life as the old truck. The only difference is the colour, which the company feels ties in better with its corporate branding efforts. No identifiable cash flows can be associated with the effect of this branding. The fair value of the old truck at the time of the trade was \$28,000. The seller of the new truck agrees to take the old truck in trade, but requires ComLink Ltd. to pay an additional \$5,000 in cash. In this instance, because there is no discernible effect on future cash flows, we would reasonably conclude that the transaction lacks commercial substance. The journal entry to record this transaction would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	New truck .....		32,000	
	Accumulated depreciation – old truck .....		5,000	
	Old truck .....			32,000
	Cash .....			5,000
	For New truck: (\$27,000 + \$5,000)			

Note that the new truck is reported at the book value of the assets given up (\$5,000 cash + (\$32,000 – \$5,000) = \$27,000 truck). Also note that the implied fair value of the new truck (\$28,000 + \$5,000 = \$33,000) is not reported, and no gain on the transaction is realized.

If the same exchange occurred, but we were able to ascertain that the fair value of the asset acquired was only \$30,000, it would be inappropriate to record the new asset at a value of \$32,000, as this would exceed the fair value. The journal entry would thus be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	New truck .....		30,000	
	Accumulated depreciation – old truck .....		5,000	
	Old truck .....			32,000
	Cash .....			5,000
	Loss on disposal of truck .....		2,000	

Note that the new truck is recorded at the lesser of its fair value and the book value of the asset given up. This results in a loss on the transaction, even though the transaction lacks commercial substance.



A video is available on the Lyryx site. [Click here to watch the video.](#)

### 9.3.6 Deferred Payments

When a PPE asset is purchased through the use of long-term financing arrangements, the asset should initially be recorded at the present value of the obligation. This technique essentially removes the interest component from the ultimate payment, resulting in a recorded amount that should be equivalent to the fair value of the asset. (Note, however, that interest on self-constructed assets, covered in IAS 23 and discussed previously in this chapter, is included in the cost of the asset.) Normally, the present value would be discounted using the interest rate stated in the loan agreement. However, some contracts may not state an interest rate or may use an unreasonably low interest rate. In these cases, we need to estimate an interest rate that would be charged by arm's length parties in similar circumstances. This rate would be based on current market conditions, the credit-worthiness of the customer, and other relevant factors.

Consider the following example. ComLink Ltd. purchases a new machine for its factory. The supplier agrees to terms that allow ComLink Ltd. to pay for the asset in four annual instalments of \$7,500 each, to be paid at the end of each year. ComLink Ltd. issues a \$30,000, non-interest bearing note to the supplier. The market rate of interest for similar arrangements between arm's length parties is 8%. ComLink Ltd. will record the initial purchase of the asset as follows:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Factory machine .....		24,841	
	Note payable .....			24,841

The capitalized amount of \$24,841 represents the present value of an ordinary annuity of \$7,500 for four years at an interest rate of 8%. The difference between the capitalized amount and the total payments of \$30,000 represents the amount of interest expense that will be recognized over the term of the note.

### 9.3.7 Government Grants

Governments will at times create programs that provide direct assistance to businesses. These programs may be designed to create employment in a certain geographic area, to develop research and economic growth in a certain industry sector, or other reasons that promote the policies of the government. When governments provide direct grants to businesses, there are a number of accounting issues that need to be considered.

IAS 20 states that government grants should be “recognized in profit or loss on a systematic basis over the periods in which the entity recognizes as expenses the related costs for which the grants are intended to compensate” (IAS 20-12, IAS, 1983). This type of accounting is referred to as the *income approach* to government grants, and is considered the appropriate treatment because the contribution is coming from an entity other than the owner of the business.

If the grant is received in respect of current operating expenses, then the accounting is quite straightforward. The grant would either be reported as other income on the statement of profit or loss, or the grant would be offset against the expenses for which the grant is intended to compensate. When the grant is received to assist in the purchase of PPE assets, the accounting is slightly more complicated. In this case, the company can defer the grant income, reporting it as a liability, and then recognize the income on a systematic basis over the useful life of the asset. Alternately, the company could simply use the grant funds received to offset the initial cost of the asset. In this method, the grant is implicitly recognized through the reduced depreciation charge over the life of the asset.

Consider the following example. ComLink Ltd. purchases a new factory machine for \$100,000. This machine will help the company manufacture a new, energy-saving product. The company receives a government grant of \$20,000 to help offset the cost of the machine. The machine is expected to have a five-year useful life with no residual value. The accounting entries for this machine would look like this:

	Deferral Method		Offset Method	
	Debit	Credit	Debit	Credit
Machine .....	100,000		80,000	
Deferred grant .....		20,000		-
Cash .....		80,000		80,000
Purchase of machine.				
Depreciation expense .....	20,000		16,000	
Accumulated depreciation .....		20,000		16,000
Deferred grant .....	4,000		-	
Grant income .....		4,000		-
First year depreciation and revenue recognition.				
For Depreciation expense, deferral method: $(\$100,000 \div 5 \text{ years} = \$20,000)$ ; offset method: $(\$80,000 \div 5 \text{ years} = \$16,000)$				
For Deferred grant: $(\$20,000 \div 5 \text{ years} = \$4,000)$				

The net effect on income of either method is the same. The difference is only in the presentation of the grant amount. Under the deferral method, the deferred grant amount presented on the balance sheet as a liability would need to be segregated between current and non-current portions.

Companies may choose either method to account for grant income. However, significant note disclosures of the terms and accounting methods used for grants are required to ensure comparability of financial statements.

## 9.4 Measurement After Initial Recognition

Once a PPE asset has been recognized and recorded, there are three choices in IFRS of how to deal with the asset in subsequent accounting periods. The asset may be accounted for using the **cost model**, the **revaluation model**, or the **fair value model**. Each of these models treats subsequent changes in the value of the asset differently. When a model is chosen, it must be applied consistently to all the assets in a particular class.

### 9.4.1 Cost Model

The cost model is considered the more established or traditional method of accounting for PPE assets. This model measures the asset after its acquisition at its cost, less any accumulated depreciation or accumulated impairment losses. The model, thus, does not attempt to adjust the asset to its current value, except in the case of impairment. This means that changes in the value of the asset are not recognized in income until that value is actually realized through

the sale of the asset. This model is widely used and is very easy to understand and apply. Depreciation and impairment will be discussed in a later chapter.

### 9.4.2 Revaluation Model

IFRS allows an alternative method for subsequent reporting of PPE assets. The revaluation model attempts to capture changes in an asset's value over its life. An essential condition of using this model is that the fair value of an asset be available and reliable at the reporting date. Fair values can often be determined through the use of qualified appraisers or other professionals who understand how to interpret market conditions. If appraisals are not available, other valuation techniques may be used to estimate the value. However, in some cases reliable fair values will not be available, so the model cannot be used.

The standard does not require that revaluations be performed at each reporting date, but it does require that the reported value not be materially different from the current fair value at the reporting date. If the property, plant, and equipment asset is expected to have volatile and significant changes in value, then annual revaluations are required. If the asset is only subject to insignificant changes in fair value each year, then revaluations every three to five years are recommended. The costs of obtaining valuation data or appraisals are likely one reason this method is not used by many companies. There is an additional cost in obtaining the reliable fair values, which many companies would compare to the marginal benefit of adjusting the PPE amounts on the balance sheet. In many cases, the fair values and depreciated costs of PPE assets would not be significantly different, so the model would not be applied. For some types of assets such as real estate, however, the revaluation model may provide significantly different results than the cost model. In these instances, the use of the revaluation model has a stronger justification.

In applying the revaluation model, adjustments are made to the PPE asset value by either adjusting the cost and accumulated depreciation proportionally, or by eliminating the accumulated depreciation and adjusting the asset cost to the new value. The second approach is simpler to apply, and will be used in the illustrations below.

When adjusting the value of the PPE asset, the obvious question is how to treat the offsetting side of the journal entry. The answer is to use an account called Revaluation Surplus, which is reported as part of other comprehensive income. However, there are some complicating factors in using this account.

If the adjustment increases the reported value, then report as part of revaluation surplus. If the adjustment decreases the reported value, then first reduce any existing revaluation surplus for that asset to zero, and record the remaining reduction as an expense in profit or loss. This expense may be reversed in future periods, if the value once again rises.

Consider the following example to illustrate this model. ComLink Ltd. purchases a factory

building on January 1, 2019, for \$500,000. The building is expected to have a useful life of twenty years with no residual value. The company uses the revaluation model for this class of asset and will obtain current valuations every two years. The journal entries for the first two years would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1 2019	Building .....		500,000	
	Cash .....			500,000
Dec 31 2019	Depreciation expense .....		25,000	
	Accumulated depreciation .....			25,000
	(( $\$500,000 - 0$ ) $\div$ 20 years)			
Dec 31 2020	Depreciation expense .....		25,000	
	Accumulated depreciation .....			25,000

On December 31, 2020, an appraisal on the building is conducted and its fair value is determined to be \$490,000. The following adjustment, which eliminates accumulated depreciation and adjusts the asset's cost to its new value, will be required:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2020	Accumulated depreciation .....		50,000	
	Building .....			50,000
	( $\$25,000 \times 2$ years)			
Dec 31 2020	Building .....		40,000	
	Revaluation surplus (OCI) .....			40,000
	(( $\$490,000 - (\$500,000 - \$50,000)$ )			

The cost of the building is now \$490,000 and the accumulated depreciation is \$nil. Because the building has now been revalued, we need to revise the depreciation calculation. Assuming no change in the remaining useful life of the asset, the new depreciation rate will be  $\$490,000 \div 18$  years = \$27,222. The journal entries for the next two years will be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2021	Depreciation expense .....		27,222	
	Accumulated depreciation .....			27,222
Dec 31 2022	Depreciation expense .....		27,222	
	Accumulated depreciation .....			27,222

On December 31, 2022, the building is again appraised, and this time the fair value is determined to be \$390,000. The following journal entries will be required:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2022	Accumulated depreciation .....		54,444	
	Building.....			54,444
Dec 31 2022	Revaluation surplus (OCI) .....		40,000	
	Revaluation loss.....		5,556	
	Building.....			45,556
	For Building: \$390,000 – (\$490,000 – (2 yrs × \$27,222))			

The revaluation loss of \$5,556 will be reported on the income statement in the current year. In future years, if the value of the building increases again, a revaluation gain can be reported on the income statement up to this amount. Any further increases will once again increase the Revaluation Surplus account.

The Revaluation Surplus (OCI) account itself can be dealt with in two ways. It can simply continue to be reported as part of accumulated other comprehensive income for the life of the asset. Once the asset is disposed of, the balance of the account is transferred from Accumulated Other Comprehensive Income directly to retained earnings. Another option is to make an annual transfer from the revaluation surplus account to retained earnings. The amount that can be transferred is limited to the difference between the depreciation expense that is actually recorded (using the revalued carrying amount) and the amount that would have been recorded had the cost model been used instead.



A video is available on the Lyryx site. [Click here to watch the video.](#)

### 9.4.3 Fair Value Model

The fair value model is a specialized type of optional accounting treatment that may be applied to only one type of asset: investment properties. IAS 40 (IAS, 2003b) considers investment properties to be land or buildings that are held primarily for the purpose of earning rental income or capital appreciation, are not used for production or administrative purposes of the business, and are not held for resale in the ordinary course of business. This definition suggests that the asset will earn cash flows that are largely independent of the regular operations of the business, which is why a different accounting standard can be applied. The fair value model requires adjustment of the carrying value of the investment property to its fair value every reporting period. As well, no depreciation is recorded for investment properties under the fair value model. The key feature that differentiates this model from the revaluation model is that gains and losses in value with investment properties are reported directly on the income statement, rather than using a Revaluation Surplus (OCI) account. This can be illustrated with the following example.

ComLink Ltd. purchases a vacant piece of land that it feels will appreciate in value over the next ten years as a result of suburban expansion. The land is initially purchased for \$5 million on January 1, 2019. The company has classified this land as an investment property and has chosen to use the fair value model. The appraised values of the land over the next three years are:

Appraisal Date	Appraised Value
December 31, 2019	\$5,200,000
December 31, 2020	\$4,600,000
December 31, 2021	\$4,850,000

The adjustments will be recorded each year as follows:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2019	Investment property .....		200,000	
	Gain in value of investment property .....			200,000
	(\$5.2M – \$5M)			
Dec 31 2020	Loss in value of investment property .....		600,000	
	Investment property .....			600,000
	(\$4.6M – \$5.2M)			
Dec 31 2021	Investment property .....		250,000	
	Gain in value of investment property .....			250,000
	(\$4.85M – \$4.6M)			

It should be noted that this model is optional for reporting purposes. A company may choose to use the cost model for its investment properties. However, if the fair value model is chosen, all investment properties must be reported this way. As well, there are significant disclosure requirements under this model.

## 9.5 Costs Incurred After Acquisition

Costs to operate and maintain a PPE asset are rarely ever captured completely by the initial purchase price. After a PPE asset is acquired, it is quite likely that there will be additional costs incurred over time to maintain or improve the asset. The essential accounting question that needs to be answered here is whether these costs should be recognized immediately as an expense, or whether they should be capitalized and depreciated in future periods. IAS 16 indicates that costs incurred in the day-to-day servicing of a PPE asset should not be capitalized, as they do not meet the recognition criteria (i.e., they do not provide future economic benefits). The types of costs discussed in the standard include labour, consumables, and small parts. Immediately expensing these types of costs recognizes the fact that normal

repair and maintenance activities do not significantly extend the useful life of an asset, nor do they improve the function of the asset. Rather, they simply maintain the existing capacity. As such, they should be recognized as period costs.

Sometimes, a major component of a PPE asset may require periodic replacement. For example, the motor of a transport truck may need replacement after operating for a certain number of hours. Or, a restaurant may choose to knock down its existing walls to reconfigure and redecorate the space to create a fresher image. If the business managers think these changes create the potential for future economic benefits, then capitalization would be appropriate.

When these types of items are capitalized, they are actually replacing an existing component of a PPE asset. In these cases, the old component needs to be removed from the carrying value of the asset before the new addition is capitalized. This procedure is required, even if the part being replaced was not actually recorded as a separate component. If this is the case, the standard allows for a reasonable estimate to be made of the asset's carrying value.

Consider the following example. LeCorre, a Michelin-starred restaurant, has recently decided to update its image through a complete renovation of the dining room. This process involved tearing out all the existing fixtures and relocating several walls. None of the fixtures or walls were reported as separate components, as they were merely included as part of the original building cost when it was purchased five years ago. The building has been depreciated on a straight-line basis over an estimated useful life of thirty years. The total cost of the renovation was \$87,000, and the company received an additional \$2,000 from the sale of the old fixtures. It was also determined that construction costs in this area have increased by approximately 30% over the last five years.

The journal entries to record this renovation will be separated into two parts: the disposal of the old assets and the purchase of the new assets.

### 1. Disposal of old assets

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Accumulated depreciation – building . . . . .		11,154	
	Building . . . . .			66,923
	Cash . . . . .		2,000	
	Loss on disposal . . . . .		53,769	

If we assume that the old fixtures and decorations are of a similar quality as the new ones, then the construction cost of the new renovations can be used to estimate the cost of the assets that have been removed. With an increase in construction costs of 30% over five years, the original cost can be estimated to be  $\$87,000 \times 1 \div (1 + .3) = \$66,923$ . If the asset has been depreciated for five years, then the accumulated depreciation would be  $(\$66,923 \div 30) \times 5 = \$11,154$ . The loss on disposal equals the difference between the calculated, net carrying value and the proceeds received.

## 2. Purchase of the new assets

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Building improvements .....		87,000	
	Cash .....			87,000

If the management of LeCorre believes that these types of interior renovations will continue in the future at similar intervals, it should record the cost as a separate component, as the useful life would clearly differ from the building itself.

Note that if the original renovations had already been recorded as a separate component, the journal entries would take the same form, but there would be no need to estimate the cost and book value of the original assets, as they would be evident from the accounting records.

## 9.6 IFRS/ASPE Key Differences

IFRS	ASPE
Component accounting is required. An item of PPE is defined by the economic benefits that are derived from it, not the physical nature of the item.	Significant and separable component parts should be recorded as individual assets where practicable. In practice, this definition has led to less components being reported under ASPE than IFRS.
Any revenue and expense incurred prior to the PPE asset being ready to use is taken to profit or loss, as this is considered incidental to the construction of the asset.	Any revenue or expense from using an item of PPE prior to its substantial completion is included in the asset's cost. Expenses are added to the asset cost while revenues are deducted from the asset cost.
Borrowing costs directly attributable to PPE acquisition, construction, or development must be capitalized.	Directly attributable interest costs may be capitalized if this is the company's chosen accounting policy.
The cost of legal and constructive obligations for asset retirement must be capitalized.	Only legal obligations for asset retirement need to be capitalized.
PPE items can be accounted for using the cost or the revaluation models.	Only the cost model may be used for PPE.
Investment properties can be accounted for using the cost or fair value models.	No separate standard for investment properties. They fall under the same general rule (i.e., the cost model) as other types of PPE.
IAS 16.19 (IAS, 2003a) prohibits the inclusion of general overhead costs in the capital cost of a property, plant, and equipment asset.	S 3061.08 allows directly attributable overhead costs to be included in the capital cost of self-constructed property, plant, and equipment assets.

<p>The general capitalization criterion requires the presence of future economic benefits flowing to the entity. However, IAS 16.20 (IAS, 2003a) prohibits the capitalization of redeployment, relocation, or reorganization costs. This excludes the capitalization of some of the items that could be classified as betterments under ASPE.</p>	<p>S 3061.14 allows for the capitalization of betterments. Betterments are costs incurred to improve the service capacity, extend the useful life, improve the quantity or quality of output, or reduce the operating costs of a property, plant, and equipment asset.</p>
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## Chapter Summary

### LO 1: Describe the characteristics of property, plant, and equipment assets that distinguish them from other assets.

PPE assets are tangible items that are held for use in the production or supply of goods and services, for rental to others, or for administrative purposes. It is presumed that they are expected to be used for more than one period. The distinguishing features are in their nature (they are tangible) and in their use (production, rather than resale).

### LO 2: Identify the criteria for recognizing property, plant, and equipment assets.

PPE assets should be recognized when it is probable that future economic benefits associated with the item will flow to the entity and the item's cost can be measured reliably. As the definition of PPE does not identify what specific, physical element should be measured, it is important for accountants to apply good judgment in identifying the specific components of an asset that need to be reported separately.

### LO 3: Determine the costs to include in the measurement of property, plant, and equipment at acquisition.

PPE costs should include any cost required to purchase the asset and bring it to its intended location of use. As well, any further costs incurred to prepare the asset for its intended use should also be capitalized.

**LO 4: Determine the cost of a property, plant, and equipment asset when the asset is acquired through a lump-sum purchase, a deferred payment, or a non-monetary exchange.**

When an asset is acquired through a lump-sum exchange, the purchase price should be allocated based on the relative fair value of each asset acquired. When an asset is acquired through a deferred payment, the asset cost should be recorded at the present value of the future payments, discounted at either the interest rate implicit in the contract, or at a reasonable market rate if the contract does not include a reasonable interest rate. When a PPE asset is obtained through the issuance of the company's own shares, the asset should be recorded at its fair value. When a PPE asset is obtained by exchange with another, non-monetary asset of the company, the new asset should be reported at the fair value of the assets given up. However, if the fair values are not reliably measurable, or if the transaction lacks commercial substance, then the new asset should be recorded at the carrying value of the assets given up. The only exception to this occurs when a transaction lacks commercial substance, but the fair value of the asset acquired is less than the carrying value of the asset given up. In this case, the transaction should be reported at the fair value of the asset acquired, in order to avoid overstating the value of the new asset.

**LO 5: Identify the effect of government grants in determining the cost of a property, plant, and equipment asset.**

IAS 20 says that, "Government grants [should be recognized] in profit or loss on a systematic basis over the periods in which the entity recognizes as expenses the related costs for which the grants are intended to compensate." In the case of grants received to assist in the purchase of PPE assets, the grant can either be deducted from the initial cost of the asset, which will reduce future depreciation, or the grant can be deferred and amortized into income on the same basis as the asset's depreciation. The net effect on income of these two methods will be exactly the same.

**LO 6: Determine the cost of a self-constructed asset, including treatment of related interest charges.**

For self-constructed assets reported under IFRS, only direct costs, and not overheads, should be allocated to the PPE asset. When borrowing is incurred to construct an asset over a substantial amount of time, any interest that is directly attributable to the construction should be included in the asset cost.

### **LO 7: Identify the accounting treatment for asset retirement obligation.**

When the company has a legal or constructive obligation to dismantle, clean up, or restore the asset site at the end of its useful life, the present value of those asset retirement costs should be included in the capital cost of the asset.

### **LO 8: Apply the cost model.**

Under this model, PPE assets are reported at their acquisition cost, less any accumulated depreciation. No attempt is made to adjust the value to reflect current market conditions.

### **LO 9: Apply the revaluation model.**

Under this model, PPE assets may be adjusted to their fair values on a periodic basis, assuming the fair values are both available and reliable. Increases in value are credited to the other comprehensive income account titled revaluation surplus. If the increase reverses a previous decrease that was expensed, the increase should be reported as part of profit or loss. Decreases in value are applied to first reduce any existing revaluation surplus, and then reported as expense, if any balance remains. Adjustments to the asset value can be made either by eliminating the accumulated depreciation and adjusting the asset cost, or by adjusting the asset cost and accumulated depreciation proportionally.

### **LO 10: Apply the fair value model.**

This model can only be used for investment properties, which are land and buildings held primarily for the purpose of earning rental income or capital appreciation. With this model, the carrying value of the investment property is adjusted to its fair value every reporting period. Any gains and losses resulting from the revaluation are reported directly in profit or loss. As well, no depreciation is reported on investment properties under this model.

### **LO 11: Explain and apply the accounting treatment for post-acquisition costs related to property, plant, and equipment assets.**

Costs incurred after acquisition can either be expensed immediately or added to the carrying value of the PPE asset. Costs incurred for the normal, day-to-day maintenance of PPE asset are usually expensed, as these costs do not add to the service life or capacity of the asset.

Costs that improve the asset by increasing future economic benefits, either by extending the useful life or improving the efficiency of operation, are usually capitalized. When a significant component of the asset is replaced, the cost and accumulated depreciation of the old asset should be removed and the cost of the new asset should be capitalized.

## LO 12: Identify key differences between IFRS and ASPE.

The concept of component accounting is not as explicitly articulated in ASPE. ASPE requires revenues or expenses incurred prior to asset completion to be included in the asset cost, whereas IFRS takes these items to profit or loss. IFRS requires capitalization of borrowing costs, whereas ASPE leaves the choice to management. ASPE only requires capitalization of legal obligations for asset retirement, whereas IFRS also includes constructive obligations as well. ASPE does not allow the use of the revaluation model or the fair value model.

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## Exercises

### EXERCISE 9–1

Dixon Ltd. has recently purchased a piece of specialized manufacturing equipment. The following costs were incurred when this equipment was installed in the company's factory facilities in 2020.

Cash price paid, net of \$1,600 discount, including \$3,900 of recoverable tax	\$82,300
Freight cost to ship equipment to factory	3,300
Direct employee wages to install equipment	5,600
External specialist technician needed to complete final installation	4,100
Repair costs during the first year of operations	1,700
Materials consumed in the testing process	2,200
Direct employee wages to test equipment	1,300
Costs of training employees to use the equipment	1,400
Overhead costs charged to the machine	5,300
Legal fees to draft the equipment purchase contract	2,400
Government grant received on purchase of the equipment	(8,000)
Insurance costs during first year of operations	900

**Required:** Determine the total cost of the equipment purchased. If an item is not capitalized, describe how it would be reported.

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### EXERCISE 9–2

Argyris Mining Inc. completed construction of a new silver mine in 2020. The cost of direct materials for the construction was \$2,200,000 and direct labour was \$1,600,000. In addition, the company allocated \$250,000 of general overhead costs to the project. To finance the project, the company obtained a loan of \$3,000,000 from its bank. The loan funds were drawn on February 1, 2020, and the mine was completed on November 1, 2020. The interest rate on the loan was 8% p.a. During construction, excess funds from the loan were invested and earned interest income of \$30,000. The remainder of the funds needed for construction was drawn from internal cash reserves in the company. The company has also publicly made a commitment to clean up the site of the mine when the extraction operation is complete. It is estimated that the mining of this particular seam will be completed in ten years, at which time restoration costs of \$100,000 will be incurred. The appropriate discount rate for this type of expenditure is 10%.

**Required:** Determine the cost of the silver mine to be capitalized in 2020.

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### EXERCISE 9–3

Cheng Manufacturing Ltd. recently purchased a group of assets from a bankrupt company during a liquidation auction. The total proceeds paid for the assets were \$220,000 and included a specialized lathe, a robotic assembly machine, a laser guided cutting machine, and a delivery truck. To make the bid at the auction, the company hired a qualified equipment appraiser who provided the following estimates of the fair value of the assets, based on their conditions, productive capacities, and intended uses:

Specialized lathe	\$ 30,000
Robotic assembly machine	\$ 90,000
Laser guided cutting machine	\$110,000
Delivery truck	\$ 20,000

**Required:** Determine the cost of each asset to be capitalized on Cheng Manufacturing Ltd.'s books.

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#### EXERCISE 9–4

Prabhu Industries Ltd. recently exchanged a piece of manufacturing equipment for another piece of equipment owned by Zhang Inc. Prabhu Industries was required to pay an amount of cash to finalize the exchange. The following information is obtained regarding the exchange:

	Prabhu	Zhang
Equipment, at cost	25,000	21,000
Accumulated depreciation	10,000	8,000
Fair value of equipment	17,000	19,000
Cash paid	2,000	

**Required:**

- Prepare the journal entries required by each company to record the exchange, assuming the exchange is considered to have commercial substance.
  - Repeat part (a) assuming the exchange does not have commercial substance.
  - Repeat part (b) assuming the accumulated depreciation recorded by Prabhu is only \$5,000 instead of \$10,000.
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#### EXERCISE 9–5

Lo-Dun Inc. is a publicly traded financial services company. The company recently acquired two assets in the following transactions:

Transaction 1: Lo-Dun acquired a new computer system to assist with its programmed trading activities. The computer system had a list price of \$85,000, but the salesperson indicated that the price could likely be negotiated down to \$80,000. After further negotiation, the company acquired the asset by issuing 15,000 of its own common shares. At the time of the transaction, the shares were actively trading at \$5.25 per share.

Transaction 2: Lo-Dun acquired new office furniture by making a down payment of \$5,000 and issuing a non-interest bearing note with a face amount of \$45,000. The note is due in one year. The market rate of interest for similar transactions is 9%.

**Required:** Prepare the journal entries for Lo-Dun Inc. to record the transactions. Provide a rationale for the amount recorded for each item.

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### EXERCISE 9–6

Pei Properties recently purchased a vacant office condo where it plans to operate an employment-training centre. The total purchase price of the condo was \$625,000 with an expected useful life of 30 years with no residual value. The local government in this municipality was very interested in this project, providing a grant of \$90,000 for the purchase of the condo. The only condition of the grant was that the employment-training centre be operated for a period of at least five years. Pei Properties believes that this target can be achieved with the business plan it has prepared.

**Required:**

- a. Prepare the journal entry to record the purchase of the condo, assuming the company uses the deferral method to record the government grant.
  - b. Repeat part (a) assuming the company uses the offset method to record the government grant.
  - c. Determine the annual effect on the income statement for each of the above methods.
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### EXERCISE 9–7

Finucane Manufacturing Inc. owns a large factory building that it purchased in 2016. At the time of purchase, the company decided to apply the revaluation model to the property; the first revaluation occurred on December 31, 2018. On January 1, 2019, the recorded cost of the building was \$1,200,000, and the accumulated depreciation was nil, as the company applies the revaluation model by eliminating accumulated depreciation. The balance in the revaluation surplus account on January 1, 2019, was \$150,000. As well, the company decided on this

date to obtain annual appraisals of the property in order to revalue it at every reporting period. The appraised values obtained over the next three years were as follows:

Date	Appraised Value
December 31, 2019	\$1,250,000
December 31, 2020	\$1,000,000
December 31, 2021	\$1,150,000

**Required:** Prepare all the required journal entries for this property for the years ended December 31, 2019 to 2021. Assume that the building is depreciated on a straight-line basis over 30 years with no residual value. Also assume that the company does not make annual transfers from the revaluation surplus account to retained earnings.

### EXERCISE 9–8

Kappi Capital Inc. holds a number of investment properties that it accounts for under IAS 40 using the fair value method. The company purchased a new rental property on January 1, 2020, for \$1,500,000. The appraised value on December 31, 2020, was \$1,450,000 and the appraised value on December 31, 2021, was \$1,625,000.

**Required:** Prepare the adjusting journal entries for this property on December 31, 2020, and December 31, 2021.

### EXERCISE 9–9

Sun Systems Ltd. operates a manufacturing facility where specialized electronic components are assembled for use in consumer products. The facility was purchased in 2014 for a cost of \$800,000, excluding the land component. At the time of purchase, it was believed that the building would have a useful life of 40 years with no residual value. The company follows the policy of recording a full year of depreciation in the year of an asset's acquisition and no depreciation in the year of an asset's disposal. During 2020, the following transactions with respect to the building occurred:

- Regular repairs to exterior stucco and mechanical systems were incurred at a total cost of \$32,000.
- In the middle of the year, the existing boiler system failed and required replacement. The replacement cost of the new unit was \$125,000. Management considers this to be a major component of the building, but had not separately recorded the cost of the original boiler, as it was included in the building purchase price. It is estimated inflation has increased the cost of these types of units by 15% since 2014.

- The entire building was repainted at a cost of \$15,000 during the year. This did not extend the useful life of the building, but improved its overall appearance.
- A major structural repair to the foundation was undertaken during the year. This repair cost \$87,000 and was expected to extend the useful life of the building by ten years over the original estimate.
- A small fire in the staff kitchen caused damage that cost \$5,000 to repair.

**Required:** Prepare the journal entries to record the transactions that occurred in 2020. Assume all transactions were settled in cash.

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# Chapter 10

## Depreciation, Impairment, and Derecognition of Property, Plant, and Equipment

### The Limping Kangaroo

The year 2014 was tough for Qantas Airways Ltd. On August 28, the iconic Australian airline announced that it would be reporting a net loss of AUD \$2,843 million for the year ended June 30, 2014. The most significant components included in this loss were two asset-impairment charges: AUD \$387 million for impairment of specific assets and AUD \$2.6 billion for impairment of the Qantas International cash-generating unit. The CEO, in his annual report to shareholders, indicated that these write-downs were “required by accounting standards.” The chairman of the board of directors indicated in his report that the year was “challenging” and “unsatisfactory” but made no mention of the asset write-downs. These non-cash, asset-impairment charges, which were charged primarily to the aircraft and engines category, clearly had a significant impact on the company’s financial results. The impairment of the cash-generating unit, in particular, was almost solely responsible for the company’s net loss.

This asset-impairment charge arose as part of a restructuring plan within the business. The company assessed the value in use of a particular group of assets, Qantas International, and determined that the current carrying value of these assets was overstated. The value in use was determined by projecting future cash flows for this asset group and then discounting these cash flows at a 10.5 percent interest rate. In projecting the cash flows, assumptions were made about the growth rate of future revenues, fuel charges, currency exchange rates, and many other factors.

The annual report explained that the impairment loss resulted from a situation where wide-body aircraft were purchased at a time when the Australian dollar was weaker than the US dollar. Although this may explain why the initial recorded value of these assets was higher, it obscures reasons behind the current decline in the value in use.

Clearly, the economic benefits to be derived from these assets were no longer justified by the initial purchase price. Companies purchase property, plant, and equipment assets with the expectation of realizing economic benefits at least equal to the price paid. Accounting standards need to be able to allocate these capital costs in a rational way so that they are reflected in the accounting periods where the economic benefits are created. When these estimates of benefit consumption are incorrect, write-downs such as those experienced by Qantas are necessary. The CEO was correct in stating that accounting standards require this treatment. (Qantas, 2014).

In this chapter, we will examine the details of the accounting treatment of the use and consumption of property, plant, and equipment assets.

## Chapter 10 Learning Objectives

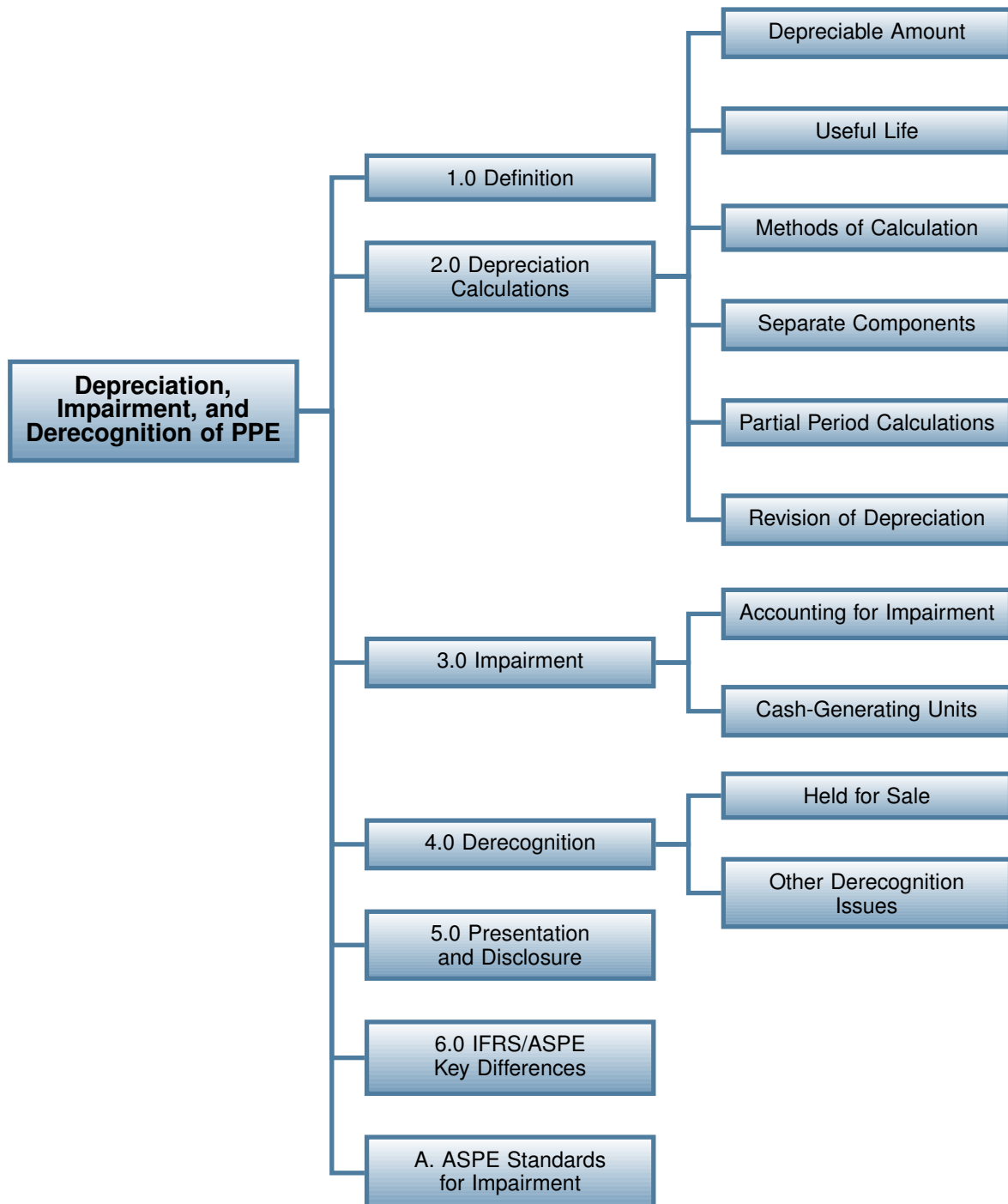
After completing this chapter, you should be able to:

- LO 1: Identify the purpose of depreciation, and discuss the elements that are required to calculate depreciation.
- LO 2: Calculate depreciation using straight-line, diminishing-balance, and units-of-production methods.
- LO 3: Discuss the reasons for separate component accounting and the accounting problems that may arise from this approach.
- LO 4: Calculate depreciation when partial periods or changes in estimates are required.
- LO 5: Discuss indicators of impairment and calculate the amount of impairment.
- LO 6: Identify the criteria required to classify an asset as held for sale.
- LO 7: Prepare journal entries for assets held for sale.
- LO 8: Discuss other derecognition issues.
- LO 9: Identify the presentation and disclosure requirements for property, plant, and equipment.
- LO 10: Identify key differences between IFRS and ASPE.

## Introduction

As we saw in the previous chapter, companies invest significant amounts of capital in property, plant, and equipment (PPE) assets. The purpose of these investments is to gain productive capacity that will further the goals of the business. The success of these investments in PPE will be evaluated based on the productive capacity attained relative to the costs incurred. We have already learned how to determine the costs to record for PPE assets. In this chapter, we will examine how to record the use of PPE assets and how to deal with the eventual disposal of these assets.

## Chapter Organization



## 10.1 Definition

IAS 16.50 indicates that the depreciable amount of an asset should be allocated on a systematic basis over its useful life. This description captures one of the key elements of depreciation concept: it is an allocation of the asset's cost.

Many people often associate the idea of depreciation with a decline in value of the asset. Although it is possible that the depreciation calculated approximates the loss in value of the asset as it is used, there is no guarantee that this will be true. It is important to appreciate that the purpose of accounting depreciation is to match the initial cost of the PPE asset to the periods that benefit from its use. Depreciation does not provide an estimate of the change in an asset's fair value. Rather, it simply provides a way to allocate asset costs to the correct accounting periods.

The description above also identifies three key concepts:

- The depreciable amount
- The useful life of the asset
- The basis (method) used to calculate depreciation.

A further requirement of the standard is that significant components be depreciated separately. We will deal with each of these elements separately.

## 10.2 Depreciation Calculations

### 10.2.1 Depreciable Amount

The first element that needs to be determined for a depreciation calculation is the depreciable amount. It represents the cost that will be allocated to future periods through the depreciation process. This amount is determined by taking the asset's cost and deducting the residual value. (Note: if the company uses the revaluation method, the cost is replaced by the revalued amount in this calculation.) The residual value is the estimated net amount that the company would be able to sell the asset for at the end of its useful life, based on current conditions. Thus, the estimate does not try to anticipate future changes in market or economic conditions; it merely considers the nature of the asset itself. The residual value is, of course, an estimate and is thus subject to possible error. As a result, IFRS requires an annual review of residual amounts used in depreciation calculations. If the residual amount needs to be changed, it

should be accounted for prospectively as a change in estimate. Many assets will have a residual value of zero or close to zero, and this amount will thus be ignored in the calculation. If the revised residual value were to exceed the carrying value of the asset, then depreciation would cease until the residual value dropped back below the carrying value.

### 10.2.2 Useful Life

The useful life of an asset is determined by its utility to the company. This means that estimates need to be made about how long the company plans to use the asset. For certain types of assets, companies may have a policy of timed replacement, even if the asset is still functioning. This means the useful life may be less than the physical life of the asset. IFRS (International Accounting Standards, n.d., 16.56) identifies the following factors that need to be considered in determining useful life to the company:

- The expected usage of the asset, as assessed by reference to the asset's expected capacity or physical output.
- The expected physical wear and tear, which depends on operational factors, such as the number of shifts for which the asset is to be used, the repair and maintenance program, and the care and maintenance of the asset while idle.
- The technical or commercial obsolescence of the asset arising from changes or improvements in production or from a change in the market demand for the product or service output of the asset. Expected future reductions in the selling price of an item that was produced using an asset could indicate the expectation of technical or commercial obsolescence of the asset, which, in turn, might reflect a reduction of the future economic benefits embodied in the asset.
- The legal or similar limits on the use of the asset, such as the expiry dates of related leases.

It should be apparent that a substantial amount of judgment is required in determining the useful life of an asset. Although management may have significant experience in working with these assets, the estimation process can still result in errors. The process of annual review and estimation changes for useful lives is the same as described above, in [10.2.1: Depreciable Amount](#), for residual values.

Another question that needs to be addressed when determining the useful life of an asset is when to start and stop depreciating it. Depreciation of the asset should commence when the asset is available for use. This means that the asset is in place and ready for productive function, even if it is not actually being used yet. Depreciation should stop at the earlier date when the asset is either reclassified as held for sale or derecognized. These situations will be covered later in the chapter.

### 10.2.3 Methods of Calculation

The IFRS requirement of allocation of cost on a systematic basis is a deliberately vague description of the techniques used to calculate depreciation. Companies are given the freedom to choose the method used, as long as the method makes sense in relation to the consumption of future economic benefits realized by use of the asset. The standard does identify three broad techniques that can be used: straight line, diminishing balance, and units of production. However, other techniques could be justified if they provide a more systematic and reasonable allocation of cost. The standard also indicates that depreciation methods based on revenue should not be used, as revenue may be affected by factors, such as inflation, that are not directly related to the consumption of economic benefits.

#### **Straight-Line Method**

This is the simplest and most commonly used depreciation method. This method simply allocates cost in equal proportions to the time periods of an asset's useful life. The formula to determine the depreciation charge is as follows:

$$\frac{\text{Cost} - \text{Residual value}}{\text{Useful life}} = \text{Depreciation charge}$$

For example, consider an automated packaging machine purchased for \$100,000 that is used in a factory. It is estimated that this machine will have a useful life of ten years and will have a residual value of \$5,000. The calculation of the annual depreciation charge is as follows:

$$\frac{\$100,000 - \$5,000}{10 \text{ years}} = \$9,500 \text{ per year}$$

The benefit of this method is its simplicity for both the preparer and reader of the financial statement. No special knowledge is required to understand the logic of the calculation. As well, the method is appropriate if we assume that economic benefits are delivered in roughly equal proportions over the life of the asset. However, there are arguments that are contrary to this assumption. For certain assets, it may be reasonable to assume that the economic benefits decline with the age of the asset, as there is more downtime due to repairs or other operational inefficiencies that result from age. If these inefficiencies are significant, then the straight-line method may not be the most appropriate method.

#### **Diminishing-Balance Method**

The diminishing-balance method results in more depreciation in the early years of an asset's life and less depreciation in later years. The justification for this method is that an asset will offer its greatest service potential when it is relatively new. Once an asset ages and

starts to require more repairs, it will be less productive to the business. This reasoning is quite consistent with the experience many companies have with assets that have mechanical components. This method will also result in an overall expense to the company that is fairly consistent over the life of the asset. In early years, depreciation charges are high, but repairs are low; in later years, this situation will reverse.

A number of different calculations can be used when applying the diminishing-balance method. The common feature of all the methods is that a constant percentage is applied to the closing net book value of the asset each year to determine the depreciation charge. The percentage that is used can be derived in a number of ways. The most accurate way would be to apply a formula to determine the exact percentage needed to depreciate the asset down to its residual value. Although this can be done, this approach is not often used, because it requires a more complex calculation. A simpler, more commonly used approach is to simply use a multiple based on the asset's useful life. For example, a technique referred to as **double-declining balance** would convert the useful life to a percentage and multiply the result by two. In our previous example, the calculation would be as follows:

$$\frac{1}{\text{Useful life}} \times 2 = \text{Depreciation rate}$$

$$\frac{1}{10 \text{ years}} \times 2 = 20\%$$

Depreciation would thus be calculated as follows:

Year	Book Value, Opening	Rate	Depreciation Expense	Accumulated Depreciation	Book Value, Closing
1	100,000	20%	20,000	20,000	80,000
2	80,000	20%	16,000	36,000	64,000
3	64,000	20%	12,800	48,800	51,200
4	51,200	20%	10,240	59,040	40,960
5	40,960	20%	8,192	67,232	32,768
6	32,768	20%	6,554	73,786	26,214
7	26,214	20%	5,243	79,029	20,971
8	20,971	20%	4,194	83,223	16,777
9	16,777	20%	3,355	86,578	13,422
10	13,422	20%	8,422*	95,000	5,000

\*Note: In the final year, depreciation does not equal the calculated amount of net book value multiplied by depreciation percentage ( $\$13,422 \times 20\% = \$2,684$ ). In the final year, the asset needs to be depreciated down to its residual value. The double-declining balance method will not result in precisely the right amount of depreciation being taken over the asset's useful life. This means that the final year's depreciation will need to be adjusted to bring the net book value to the residual value. Depending on the useful life of the asset, this final-year

depreciation amount may be higher or lower than the amount calculated by simply applying the percentage. Because depreciation is an estimate based on a number of assumptions, this type of adjustment in the final year is considered appropriate.

Also note that in the calculations above, unlike other methods, the residual value is not deducted when determining the depreciation expense each year. The residual value is considered only when adjusting the final year's depreciation expense.

### Units-of-Production Method

This method is the most theoretically supportable method for certain types of assets. The method charges depreciation on the basis of some measure of activity related to the asset. The measures are often output based, such as units produced. They can also be input based, such as machine hours used. Although output-based measures are the most accurate way to reflect the consumption of economic benefits, input-based measures are also commonly used. The benefit of this method is that it clearly links the actual usage of the asset to the expense being charged, rather than simply reflect the passage of time. Returning to our example, if the machine were expected to be able to package 1,000,000 boxes before requiring replacement, our depreciation rate would be calculated as follows:

$$\frac{\$100,000 - \$5,000}{1,000,000 \text{ boxes}} = \$0.095 \text{ per box}$$

Thus, if in a given year, the machine actually processed 102,000 boxes, the depreciation charge for that year would be as follows:

$$102,000 \times \$0.095 = \$9,690$$

In years of high production, depreciation will increase; in years of low production, depreciation will decrease. This is a reasonable result, as the costs are being matched to the benefits being generated. However, this method is appropriate only where measures of usage are meaningful. In some cases, assets cannot be easily measured by their use. An office building that houses the corporate headquarters cannot be easily defined in terms of productive capacity. For this type of asset, a time-based measure would make more sense.

## 10.2.4 Separate Components

As noted in Chapter 9, IFRS requires PPE assets be segregated into significant components. One of the reasons for doing this is that a significant component of the asset may have a different useful life than other parts of the asset. An airplane's engine does not have the

same useful life as the fuselage. It makes sense to segregate these components and charge depreciation separately, as this will provide a more accurate picture of the consumption of economic benefits from the use of the asset.

The process of determining what comprises a component requires some judgment from managers. A reasonable approach would be to first determine what constitutes a significant component of the whole and then determine which components have similar characteristics and patterns of use. Practical considerations, the availability of information, and cost versus benefit analyses (related to accounting costs) may all be relevant in determining how finely the components are defined. The goal is to create information that is meaningful for decision-making purposes without being overly burdensome to the company.

### 10.2.5 Partial Period Calculations

In the year of acquisition or disposal of a PPE asset, an additional calculation complication arises—namely, how to deal with depreciation for only part of a year. If the units-of-production method is being used, this isn't really a problem, as the depreciation will be based on the actual production in the partial period. However, for time-based methods, like straight line or diminishing balance, an adjustment to the calculation will be required.

Because accounting standards do not specify how to deal with this problem, companies have adopted a number of different practices. Although depreciation could be prorated on a daily basis, it is more usual to see companies prorate the calculation based on the nearest whole month that the asset was being used in the accounting period. Some companies will charge a full year of depreciation in the year of acquisition and none in the year of disposal, while other companies will reverse this pattern. Some companies charge half the normal rate in the years of acquisition and disposal. Whatever method is used, the total amount of depreciation charged over the life of the asset will be the same. As long as the method is applied consistently, there shouldn't be material differences in the reported results.

### 10.2.6 Revision of Depreciation

As noted previously, many elements of the depreciation calculation are based on estimates. IFRS requires that these estimates be reviewed on an annual basis for their reasonableness. If it turns out that the original estimate is no longer appropriate, how should the depreciation calculation be revised? The treatment of estimate changes requires prospective adjustment, which means that current and future periods are adjusted for the effect of the change. No adjustments should be made to depreciation amounts reported in prior periods. The reasoning behind this treatment is that estimates, by their nature, are subject to inaccuracies. As well, conditions may change; the asset may be used in a different fashion than originally intended, or the asset may lose function quicker or slower than originally anticipated. As long as the

original estimate was reasonable in relation to the information available at the time, there is no need to adjust prior periods once conditions change.

Consider our original example of straight-line depreciation. The initial calculation resulted in an annual depreciation charge of \$9,500. After two years of use, the company's management noticed that the asset's condition was deteriorating quicker than expected. The useful life of the asset was revised to seven years, and the residual value was reduced to \$2,000. The revision to the depreciation charge would be calculated as follows:

$$\frac{\text{Remaining book value} - \text{Revised residual value}}{\text{Remaining useful life}}$$

Thus, the calculation would be as follows:

$$\frac{\$100,000 - (\$9,500 \times 2) - \$2,000}{7 - 2 = 5 \text{ years remaining}} = \$15,800 \text{ per year}$$

The company would begin charging this amount in the third year and would not revise the previous depreciation that was recorded. This technique is also applied if the company changes its method of depreciation, because it believes the new method better reflects the pattern of use or benefits derived from the asset, or if improvements are made to the asset that add to its capital cost.

## 10.3 Impairment

For a variety of reasons, a PPE asset may sometimes become fully or partially obsolete to the business. If the value of the asset declines below its carrying value, the accounting question is whether this decline in value should be recorded or not. For current assets such as inventory, these types of declines in value are recorded so that a financial-statement reader is not misled into thinking the current asset will generate more cash than is actually realizable. This treatment is reasonable for a current asset, but should the same approach be used for PPE assets?

Impairment of PPE asset values can result from many different circumstances. IAS 36 discusses the following possible signs of impairment:

External indicators

- include observable indications of decline in value;

- include technological, market, economic, or legal changes that affect the asset or entity;
- include increases in interest rates that reduce the discounted value in use of the asset; and
- mean that the carrying value of the entity's net assets is greater than its market capitalization.

#### Internal indicators

- include obsolescence or physical damage;
- include significant changes in how the asset is used, such as excess capacity or plans for early disposal of the asset; and
- mean that economic performance of asset is worse than expected, including the cash needed to acquire and/or operate and maintain the asset.

These factors and other information will need to be considered carefully when reviewing for impairment; judgment will need to be applied. The company should assess whether there is any indication of asset impairment on an annual basis. If there is evidence of impairment, then the company will need to determine the amount of the impairment and account for this condition.

### 10.3.1 Accounting for Impairment

There is an assumption in the IFRS standards that an entity will act in a rational manner. This means that if selling the asset rather than using it can generate more economic benefit, it would make sense to do so. To determine impairment, we need to compare the carrying value of the asset with its recoverable amount.

The **recoverable amount** of an asset is defined as the greater of the asset's value in use and its fair value, less costs of disposal. The asset's value in use is calculated as the present value of all future cash flows related to the asset, assuming that it continues to be used. The fair value less costs of disposal refers to the actual net amount that the asset could be sold for based on current market conditions.

Consider the following example. During the annual review of asset impairment conditions, a company's management team decides that there is evidence of impairment of a particular asset. This asset is recorded on the books with a cost of \$30,000 and accumulated depreciation of \$10,000. Management estimates and discounts future cash flows related to the asset and determines the value in use to be \$15,000. The company also seeks the advice of an

equipment appraiser who indicates that the asset would likely sell at an auction for \$14,000, less a 10 percent commission.

The recoverable amount of the asset is \$15,000, as this value in use is greater than the fair value less costs of disposal ( $\$14,000 - \$1,400 = \$12,600$ ). The carrying value is \$20,000 ( $\$30,000 - \$10,000$ ). As the recoverable amount is less than the carrying value, the asset is impaired. The following journal entry must be recorded to account for this condition:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss on impairment .....		5,000	
	Accumulated impairment loss .....			5,000

Although a separate accumulated impairment loss account has been credited here, it is common in practice to simply credit accumulated depreciation. The net result of these two approaches will be exactly the same. Also note that if the asset were accounted for using the revaluation method, the impairment loss would first reduce any existing revaluation surplus (OCI), with the remaining loss being charged to the income statement.

If, in the future, the recoverable amount increases so that the asset is no longer impaired, the accumulated impairment loss can be reversed. However, the impairment loss can be reversed only to the extent that the new carrying value does not exceed the depreciated carrying value that would have existed had the impairment never occurred. Also note that in subsequent years, depreciation calculations will be based on the revised carrying value.

A different method is used to determine impairment under ASPE. This method is described in [10.7 Appendix A](#).

### 10.3.2 Cash-Generating Units

The usual situation when applying an impairment test would be to make the assessments on an asset-by-asset basis. However, in some circumstances, it may be impossible to determine the impairment of an individual asset. Some assets may have a value in use only when used in combination with other assets. Consider, for example, a petrochemical-processing plant. The plant is engineered with many customized components that work together to process and produce a final product. If any part of the plant were removed, the process could not be completed. In this case, the cash flows derived from the use of the group of assets are considered a single economic event. The cash flows from an individual asset component within the group cannot be determined separately. In these cases, IAS 36 allows the impairment test to be performed at the level of the cash-generating unit, rather than at the individual asset level.

IAS 36 defines a cash-generating unit as “the smallest identifiable group of assets that gener-

ates cash inflows that are largely independent of the cash inflows from other assets or groups of assets” (International Accounting Standards, n.d., 36.68). The definition of cash-generating units should be applied consistently from year to year. Obviously, significant judgment is required in making these determinations.

The impairment test is applied the same way to cash-generating units as with individual assets. The only difference is that any resulting impairment loss is allocated on a pro-rata basis to the individual assets within the cash-generating unit, based on the relative carrying amounts of those assets within the group. However, in this process, no individual asset should be reduced below the greater of its recoverable amount or zero.

Consider the following example. A petrochemical-processing plant is composed of a number of different assets, including the following:

	<b>Cost (\$)</b>	<b>Accumulated Depreciation (\$)</b>	<b>Carrying Amount (\$)</b>
Pumps, tanks, and drums	390,000	210,000	180,000
Reactors	1,100,000	650,000	450,000
Pipes and fittings	275,000	155,000	120,000
Distillation column	850,000	465,000	385,000
	<u>2,615,000</u>	<u>1,480,000</u>	<u>1,135,000</u>

Management considers this plant to be a cash-generating unit. Due to recent declines in commodity prices, management believes the plant may be impaired. After some investigation, management determines that the distillation column could be sold for net proceeds of \$435,000. All the other assets, however, are integrated into the plant structure and could not be sold separately. As well, due to local regulations, the plant cannot be sold in its entirety. Management has projected that by operating the plant for the next three years, cash flows of \$1,200,000 could be generated. The present value of these cash flows is \$950,000.

Impairment here is determined by comparing the carrying amount of \$1,135,000 with the recoverable amount of \$950,000. The value in use is the appropriate measure here, as the fair value less costs to sell of \$435,000 is lower. In this case, there is an impairment of \$185,000 (\$1,135,000–\$950,000). None of the impairment should be allocated to the distillation column, as the carrying value of \$385,000 is already less than the recoverable amount of \$435,000. For the remaining components, we cannot determine the recoverable amount, so the impairment loss will be allocated to these assets on a pro-rata basis.

	<b>Carrying Amount (\$)</b>	<b>Proportion</b>	<b>Impairment Loss (\$)</b>
Pumps, tanks, and drums	180,000	180/750	44,400
Reactors	450,000	450/750	111,000
Pipes and fittings	120,000	120/750	29,600
	<u>750,000</u>		<u>185,000</u>

The journal entry would record separate accumulated-impairment loss amounts for each of the above components.



A video is available on the Lyryx site. [Click here to watch the video.](#)



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## 10.4 Derecognition

At some point in a PPE asset's life, it will be sold, disposed, abandoned, or otherwise removed from use. The accounting treatment for these events will depend on the timing and nature of the transactions.

### 10.4.1 Held for Sale

When management first makes the decision to sell a noncurrent asset rather than continue to use it in operations, it should be reclassified as an asset that is **held for sale**. This is a class of current assets that is disclosed separately from other assets. For an asset to be classified as held for sale, the following conditions must be met:

- The asset must be available for immediate sale in its present condition, subject only to terms that are usual and customary for sales of such assets.
- The sale must be highly probable.
- Management must be committed to a plan to sell the asset.
- There must be the initiation of an active program to locate a buyer and complete the plan.
- The asking price must be reasonable in relation to the asset's current fair value.
- The sale should be expected within one year of the decision, unless circumstances beyond the entity's control delay the sale.
- It is unlikely that the plan will be withdrawn.

There are a number of accounting issues with held-for-sale assets. First, the asset needs to be revalued to the lower of its carrying value, or its fair value, less costs to sell. Because the

company expects to sell these assets in a short period of time, it is reasonable to report them at an amount that is no greater than the amount of cash that can be realized from their sale. Second, assets that are held for sale are no longer depreciated. This is reasonable, as these assets by definition are available for immediate sale. This means that they are no longer being used for productive purposes, so depreciating them would not be appropriate.

The result of the revaluation described above means that an impairment loss will occur if the expected proceeds (fair value less costs to sell) are less than the carrying value. This loss will be reported in the year that management makes the decision to sell the asset, even if the asset is not actually sold by the year-end. The impairment loss will be reported in a manner consistent with other impairment losses, as described in IAS 36. When the asset is actually sold, the difference between the actual proceeds and the amount expected will be treated as a gain or loss in that year, not as an increase or reversal of the previous impairment loss.

If, at the time of classification as held for sale, the expected proceeds are greater than the carrying amount, this gain will not be reported until the asset is actually sold. This gain will simply be reported as a gain consistent with the treatment of other gains.

Consider this example. A company purchases an asset for \$100,000 in 2015 and decides in late 2020 to sell the asset immediately. The accumulated depreciation at the time the decision is made is \$40,000. Management estimates that the asset can be sold for \$50,000, less disposal costs of \$2,000. In 2020, when the decision to sell the asset is made, the following journal entry will be required.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Asset held for sale.....		48,000	
	Accumulated depreciation.....		40,000	
	PPE asset.....			100,000
	Loss on impairment.....		12,000	
	For Asset HFS: (\$50,000 – \$2,000)			

In 2021, the asset is actually sold for net proceeds of \$49,000. The journal entry to record this transaction is as follows:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash.....		49,000	
	Asset held for sale.....			48,000
	Gain on sale of asset.....			1,000

Now, if in 2020, the amount management estimates the sales proceeds to be \$65,000 instead of \$50,000, less costs to sell of \$2,000, the journal entry would be as follows:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Asset held for sale.....		60,000	
	Accumulated depreciation.....		40,000	
	PPE asset.....			100,000

Note that we do not report the asset held for sale at its estimated realizable value (\$65,000 – \$2,000 = \$63,000), as this is greater than the carrying value. When the sale occurs in 2021, the following journal entry would be required:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash.....		49,000	
	Asset held for sale.....			60,000
	Loss on sale of asset.....		11,000	

As a practical matter, many companies may not immediately reclassify the asset as held for sale, as they expect to sell it within the same accounting period, or they do not meet the strict criteria for classification. If this occurs, then the disposal journal entry will simply remove the carrying value of the asset, report the net proceeds received, and report a gain or loss on disposal. This gain or loss will be reported on the income statement, but gains cannot be classified as revenues.

### 10.4.2 Other Derecognition Issues

There are times when assets may be disposed of in ways other than by direct sale. For example, an asset can be expropriated by a government agency that has the authority to do so, with compensation being paid. Insurance proceeds may be received for an asset destroyed in a fire. These types of transactions would be recorded much as a simple sale would be, with a resulting gain or loss (the difference between the compensation received and the carrying value of the assets) being reported on the income statement.

In other instances, a company may choose to simply abandon or scrap an asset for no proceeds. If this occurs, the asset should be derecognized, and a loss equal to the carrying value of the asset at the time of abandonment should be recognized.

A less common situation may occur when a business agrees to donate an asset to some other entity. For example, a land-development company may donate a piece of land to a municipality for use as a recreational space. The company may believe that this will help develop a positive business relationship with the municipality and its citizens. With this type of transaction, the fair value of the property needs to be determined. The disposal will then be recorded at this value, which will result in expense being recorded equal to this fair value. The carrying value

of the asset will also be derecognized, which will result in a gain or loss if the carrying value differs from the fair value.



A video is available on the Lyryx site. [Click here to watch the video.](#)

## 10.5 Presentation and Disclosure Requirements

IAS 16 details a number of required disclosures for property, plant, and equipment assets. Some of these disclosures are as follows:

- The measurement bases used
- Depreciation methods used
- Useful life or depreciation rates used
- A reconciliation of the gross carrying amount and accumulated depreciation at the beginning of the period to the amount at the end of the period, including
  - details of revaluations and impairment losses, including an indication of whether an independent appraiser was used;
  - details of additions and disposals, including assets held for sale;
  - the depreciation charged during the year; and
  - the effect on PPE of exchange rate differences
- Restrictions on the use of the assets pledged as security for liabilities
- Commitments to purchase assets
- Any compensation received from third parties when assets are impaired or abandoned
- Details of the effects of changes in estimates.

The scope and scale of these disclosure requirements reflect the fact that property, plant, and equipment assets are often a significant portion of a company's total asset base. As well, they reflect the variety of different methods and estimates required in accounting for PPE assets. The significant disclosures should help readers better understand how a company uses its assets to generate returns.

## 10.6 IFRS/ASPE Key Differences

IFRS	ASPE
The depreciable amount is calculated using the asset's residual value.	The depreciable amount is calculated using the lesser of salvage value or residual value. Salvage value is the estimated value of the asset at the end of its physical life, rather than its useful life.
The term used is <i>depreciation</i> .	The term used is <i>amortization</i> .
Cost, revaluation, and fair-value models can be used.	Only the cost model is allowed.
Assessment for indications of impairment should occur at least annually.	Impairment is tested only when circumstances indicate impairment may exist.
A one-step process to determine impairment, based on comparing recoverable amount with carrying amount, is used. Recoverable amount is the greater of value in use or fair value less costs to sell.	A two-step process is used. Impairment is tested first by comparing carrying value with undiscounted cash flows. If impaired, the loss is determined by subtracting the fair value from the carrying amount. See 10.7 Appendix A for details.
Impairment loss can be reversed when estimates change. However, amount of reversal may be limited.	Impairment loss cannot be reversed.
Assets that meet the criteria of held for sale are classified as current.	Assets held for sale can be classified as current only if the asset is sold before financial statements are completed.
More extensive disclosure requirements must be met.	Fewer disclosure requirements must be met.

## 10.7 Appendix A: ASPE Standards for Impairment

Under ASPE 3063, a different set of standards is applied to the issue of PPE impairment. The basic premise underlying these principles is that an asset is impaired if its carrying value cannot be recovered. Unlike IFRS, which requires annual impairment testing, the ASPE standard requires only impairment testing when events or changes in circumstances indicate that impairment may be present. Some of the possible indicators of an asset's impairment include the following:

- A significant decrease in its market price
- A significant adverse change in the extent or manner in which it is being used or in its physical condition

- A significant adverse change in legal factors or in the business climate that could affect its value, including an adverse action or assessment by a regulator
- An accumulation of costs significantly in excess of the amount originally expected for its acquisition or construction
- A current-period operating or cash flow loss combined with a history of operating or cash flow losses or a projection or forecast that demonstrates continuing losses associated with its use
- A current expectation that, more likely than not, it will be sold or otherwise disposed of significantly before the end of its previously estimated useful life (“more likely than not” means a level of likelihood that is more than 50 percent) (CPA Canada, 2016, 3063.10).

The accountant will need to apply judgment in assessing these criteria. Other factors could be present that could indicate impairment.

Once the determination is made that impairment may be present, the accountant must follow a two-step process:

1. Determine if the asset is, in fact, impaired.
2. Calculate and record the impairment loss.

Step 1 involves the application of a recoverability test. This test is applied by comparing the predicted, *undiscounted* future cash flows from the asset’s use and ultimate disposal with the carrying value of the asset. If the undiscounted future cash flows are less than the asset’s carrying value, the asset is impaired. The calculation of the predicted, undiscounted cash flows will be based primarily on the company’s own assessment of the possible uses of the asset. However, the accountant will need to apply diligence in assessing the reasonableness of these cash flow assumptions.

Step 2 involves a different calculation to then determine the impairment loss. The impairment loss is the difference between the asset’s carrying value and its fair value. The fair value is defined as “the amount of the consideration that would be agreed upon in an arm’s length transaction between knowledgeable, willing parties who are under no compulsion to act” (CPA Canada, 2016 3063.03b). Note that, unlike the IFRS calculation, disposal costs are not considered. The fair value should always be less than the undiscounted cash flows, as any knowledgeable party would discount the cash flows when determining an appropriate value. The best evidence of fair value would be obtained from transactions conducted in active markets. However, for some types of assets, active market data may not be available. In these cases, other techniques and evidence will be required to determine the fair value.

The application of this standard can be best illustrated with an example. Consider a company that believes a particular asset may be impaired, based on its current physical condition. Management has estimated the future undiscounted cash flows from the use and eventual sale of this asset to be \$125,000. Recent market sales of similar assets have indicated a fair value of \$90,000. The asset is carried on the books at a cost of \$200,000 less accumulated depreciation of \$85,000. In applying step 1, the recoverability test, management will compare the undiscounted cash flows (\$125,000) with the carrying value (\$115,000). In this case, because the undiscounted cash flows exceed the carrying value, no impairment is present, and no further action is required.

If, however, the future, undiscounted cash flows were \$110,000 instead of \$125,000, the result would be different:

Step 1:	Future undiscounted cash flows	\$110,000
	Carrying value	\$115,000
	Difference	<u>\$ (5,000)</u>

Because this result is less than zero, the asset is impaired. The impairment loss must then be calculated.

Step 2:	Fair value	\$ 90,000
	Carrying value	\$115,000
	Impairment loss	<u>\$(25,000)</u>

This loss would be recorded as follows:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss on impairment .....		25,000	
	Accumulated impairment loss .....			25,000

Although a separate accumulated impairment loss account has been credited here, it is common in practice to simply credit accumulated depreciation. The net result of these two approaches will be the same.

The new carrying value for the asset after the impairment loss is recorded becomes the new cost base for the asset. This result has two effects. First, the asset's depreciation rate will need to be recalculated to take into account the new cost base and any other changes that may be relevant. Second, any subsequent change in circumstances that results in the asset no longer being impaired cannot be recorded. Future impairment reversals are not allowed, because we are creating a new cost base for the asset.

One conceptual problem with this approach is that the carrying value of the asset may not always reflect the underlying economic value to the company. By not testing for impairment every year, it is possible that an asset that is becoming impaired incrementally may not be properly adjusted until the impairment is quite severe. Once the impairment is recorded, the inability to reverse this amount if future circumstances improve means the asset's economic potential is not properly reflected on the balance sheet. Although there are problems with this approach, it can be argued that annual impairment testing for all assets is a time-consuming and costly exercise. Thus, the standard results in a trade-off between theoretical and practical considerations. This is considered a reasonable trade-off for private enterprises, as they usually have a much smaller group of potential financial-statement readers, as well as fewer resources available to dedicate to accounting and reporting matters.

## Chapter Summary

### **LO 1: Identify the purpose of depreciation, and discuss the elements that are required to calculate depreciation.**

Depreciation is a systematic allocation of an asset's cost to the accounting periods in which the benefits of the asset are consumed. Depreciation is not an attempt to revalue the asset. To calculate depreciation, one needs to determine the depreciable amount, the useful life, and method of calculation. The depreciable amount is the cost less the residual value. The useful life of an asset will not necessarily be the same as the physical life of the asset. The method should systematically allocate the cost in a manner that reflects the consumption of economic benefits. Significant judgment will be required when applying these three elements.

### **LO 2: Calculate depreciation using straight-line, diminishing-balance, and units-of-production methods.**

Straight-line depreciation assumes that benefits are derived from the asset in equal proportions over the asset's life. The calculation divides the depreciable amount by the useful life and then allocates this equal charge over the life of the asset. The diminishing-balance approach assumes that greater benefits are derived earlier in an asset's life. This approach charges a constant percentage of the asset's carrying value each year to depreciation. The units-of-production method charges varying amounts of depreciation based on the asset's activity. Using output measures is more theoretically correct, but input measures may also be used. The calculation requires dividing the depreciable amount by the expected amount of productive output over the asset's life and then applying the resulting rate to the actual production in the reporting period.

**LO 3: Discuss the reasons for separate component accounting and the accounting problems that may arise from this approach.**

Component accounting is required because significant asset components may have different useful lives and different economic consumption patterns. By recording components separately, accountants are able to create more meaningful depreciation calculations. Problems that arise in this approach include the inability to measure component costs accurately, the judgment required in identifying significant components, and the additional accounting costs in maintaining component records.

**LO 4: Calculate depreciation when partial periods or changes in estimates are required.**

The depreciation charge in the period in which an asset is purchased or sold will need to be prorated based on time, except when using the units-of-production method. This proration can be calculated a number of ways but should be consistent from period to period. When changes in estimates regarding useful life, residual value, or pattern of consumption (method) are determined, these changes should be treated prospectively. The new estimate is applied to the current carrying amount, resulting a new depreciation charge for current and future periods. No adjustments are made to past period-depreciation charges.

**LO 5: Discuss indicators of impairment and calculate the amount of impairment.**

Impairment is indicated when external factors related to the environment in which the business operates or internal factors related to the asset itself indicate that the carrying value may not be ultimately realized. External factors include observable indications of loss of value; technological, market, or legal changes; increases in interest rates; and declines in market capitalization. Internal factors include physical damage, changes in the use of the asset, and declining productivity of the asset. Impairment is calculated as the difference between the carrying amount and the recoverable amount. The recoverable amount is the greater of the value in use or fair value, less costs of disposal. Impairment tests may sometimes be applied to cash-generating units if the effects on individual assets cannot be determined.

**LO 6: Identify the criteria required to classify an asset as held for sale.**

For an asset to be classified as held for sale, a number of conditions must be present. The asset must be available for immediate sale, and the sale must be highly probable. Management must be committed to the sale and must have an active program to locate a buyer. The asking

price must be reasonable in relation to the market. The sale should be expected within one year, and it should be unlikely that the plan will be withdrawn.

### **LO 7: Prepare journal entries for assets held for sale.**

When an asset is classified as held for sale, it must be revalued to the lower of its carrying value or fair value less costs to sell. As well, depreciation of the asset will cease once it is classified as held for sale. This treatment means that either no change in value will occur, or an impairment loss will be reported in the year when the classification occurs. When the asset is subsequently sold in a future period, the resulting gain or loss is not treated as an impairment loss or reversal.

### **LO 8: Discuss other derecognition issues.**

If an asset is expropriated or otherwise disposed, and proceeds are received, this transaction is treated the same as any other asset disposal, with the resulting gain or loss being reported on the income statement. If an asset is simply abandoned or scrapped, then that asset needs to be derecognized, and a loss will be reported equal to the carrying value of the asset. When an asset is donated, the asset needs to be derecognized, and an expense is recognized equal to the fair value of the asset. This means a gain or loss will likely result on this transaction.

### **LO 9 Identify the presentation and disclosure requirements for property, plant, and equipment.**

IFRS requires a significant amount of disclosure regarding PPE assets. Some of these disclosures include details of methods and assumptions that are used in depreciation calculations, the measurement base used, reconciliation of changes during the period, restrictions on and commitments for assets, details of any revaluations, details of changes in estimates, and other factors.

### **LO 10: Identify key differences between IFRS and ASPE.**

IFRS and ASPE share many similarities in the treatment of PPE assets. Some differences include the absence of fair value and revaluation methods under ASPE, a different test and criteria for impairment, different classification rules for held-for-sale assets, different methods of determining the depreciable amount, and greater disclosure requirements under IFRS.

## References

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## Exercises

### EXERCISE 10–1

Machado Inc. purchased a new robotic drill for its assembly line operation. The total cost of the asset was \$125,000, including shipping, installation, and testing. The asset is expected to have a useful life of five years and a residual value of \$10,000. The total service life, expressed in hours of operation, is 10,000 hours. The total output the machine is expected to produce over its life is 1,000,000 units.

The asset was purchased on January 1, 2020, and it is now December 31, 2021. In 2021, the asset was used for 2,150 hours and it produced 207,000 units.

**Required:** Calculate the 2021 depreciation charge using the following methods:

- a. Straight-line
- b. Activity, based on units of input
- c. Activity, based on units of production
- d. Double declining balance

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### EXERCISE 10–2

Cortazar Ltd. purchased a used delivery van for \$10,000 on June 23, 2020. The van is expected to last for three years and have a residual value of \$1,000. The company's year-end is December 31, and it follows the policy of charging depreciation in partial periods to the nearest whole month of use.

**Required:** Calculate the annual depreciation charge and ending carrying value of the asset for each of the following fiscal years using the straight-line method:

- a. December 31, 2020
  - b. December 31, 2021
  - c. December 31, 2022
  - d. December 31, 2023
- 

### EXERCISE 10–3

Equipment purchased for \$39,000 by Escarpit Inc. on January 1, 2018 was originally estimated to have a five-year useful life with a residual value of \$4,000. Depreciation has been recorded for the last three years based on these factors. In 2021, the asset's condition was reviewed, and it was determined that the total useful life will likely be seven years and the residual value \$5,000. The company uses straight-line depreciation.

**Required:**

- a. Prepare the journal entry to correct the prior years' depreciation.
  - b. Prepare the journal entry to record the 2021 depreciation.
- 

### EXERCISE 10–4

Michaux Ltd. purchased an office building on January 1, 2006, for \$450,000. At that time, it was estimated that the building would last for 30 years and would have a residual value of \$90,000. Early in 2012, a significant modification was made to the roof of the building at a cost of \$30,000. This modification could not be identified as a separate component, but it was believed that it would add an additional ten years to the useful life. As well, it was estimated the residual value would be reduced to \$50,000 at the end of the revised useful life. In 2020, due to a collapse in the local property market, the residual value was revised to nil. The useful life, however, was expected to remain as estimated in 2012. The company uses the straight-line method of depreciation.

**Required:**

- a. Calculate the annual depreciation that was charged from 2006 to 2011.

- b. Calculate the annual depreciation that was charged from 2012 to 2019.
- c. Calculate the annual depreciation that will be charged from 2020 onwards.

**EXERCISE 10–5**

In December 2020, the management of Bombal Inc. reviewed its property, plant, and equipment and determined that one machine showed evidence of impairment. The following information pertains to this machine:

Cost	\$325,000
Accumulated depreciation to date	\$175,000
Estimated future cash flows, undiscounted	\$140,000
Present value of estimated future cash flows	\$110,000
Fair value	\$125,000
Costs of disposal	\$ 9,000

Bombal Inc. intends to continue using the asset for the next three years, with no expected residual value at the end of that period. Bombal uses straight-line depreciation.

**Required:**

- a. Determine if the asset is impaired under IAS 36.
- b. If impairment is indicated in part (a), prepare the necessary journal entry at December 31, 2020, to record the impairment.
- c. Prepare the journal entry to record depreciation for 2021.
- d. After recording the depreciation for 2021, management reassesses the asset and determines that the fair value is now \$120,000, the undiscounted future cash flows are \$110,000, and the present value of the estimated future cash flows is \$90,000. There was no change to the costs of disposal. Prepare the journal entry, if any, to record the reversal of impairment.

**EXERCISE 10–6**

Repeat the requirements of the previous question, assuming the company reports under ASPE 3063.

**EXERCISE 10–7**

Reyes Technologies Ltd. has defined its computer repair division as a cash-generating unit under IFRS. The company reported the following carrying amounts for this division at December 31, 2020:

Computers	\$55,000
Furniture	\$27,000
Equipment	\$13,000

The computer repair division is being assessed for impairment. At December 31, 2020, the division's value in use is \$80,000.

**Required:**

- Determine if the computer repair division is impaired, assuming that none of the individual assets has a determinable recoverable amount.
- Prepare the journal to record the impairment from part (a), if any.
- Determine if the computer repair division is impaired, assuming that the computers have a fair value less cost to sell of \$60,000, but that none of the other assets have a determinable recoverable amount.
- Repeat part (c) assuming that the computers' fair value less cost to sell is \$50,000.

**EXERCISE 10–8**

Landolfi Inc. owns a property that has a carrying value on December 31, 2021, of \$520,000 (cost \$950,000, accumulated depreciation \$430,000).

**Required:**

For each of the following independent situations, prepare the journal entry to record the transaction. Assume that at no time prior to the transaction did the asset qualify as a held for sale asset. All transactions occur on December 31, 2021.

- The property was sold to Paz Inc. for \$450,000.
- The local government expropriated the property to provide land for an expansion of the rapid rail transit line. Compensation of \$750,000 was paid to Landolfi Inc.
- Due to a toxic mould problem, the property was deemed unsafe for use and was abandoned. Management does not believe there is any possibility of selling the property or recovering any amount from it.

- d. Landolfi Inc. donated the property to the local government for use as a future school site. At the time of the donation, the fair value of the property was \$600,000.
- 

### EXERCISE 10–9

Schulz Ltd. purchased a machine in 2017 for \$65,000. In late 2020, the company made a plan to dispose of the machine. At that time, the accumulated depreciation was \$25,000 and the estimated fair value was \$35,000. Estimated selling costs were \$1,000. Assume that the asset qualifies as a held for sale asset at December 31, 2020.

**Required:**

- a. Prepare the journal entry required at December 31, 2020.
- b. On March 3, 2021, the asset is sold for \$37,000. Prepare the journal entry to record the sale.
- c. Repeat parts (a) and (b) assuming that the estimated fair value on December 31, 2020, was \$45,000 instead of \$35,000.
-

# Chapter 11

## Intangible Assets and Goodwill

### Tesla Patents to be Shared With Competitors

In an unprecedented move, Tesla announced in 2014 that it intended to share its significant number of patents with all other companies making electric cars. This is a radical departure from its previous strategy to apply for as many patents as possible considering its concern that the big car companies would copy Tesla's technology. Tesla would be no match for these companies with their huge scale manufacturing facilities and their big budget sales and marketing. As it turned out, Tesla's fears about the big car companies copying Tesla's technology did not materialize because the electric vehicle market was not big enough to make the effort.

Since then, a new movement called "open source" has been gaining prominence in today's business world. Since the focus of Tesla Motors was to accelerate the growth of sustainable transport—including electric cars—it follows that they would change their philosophy from holding patents to sharing their technology with other electric car companies. Moreover, the global vehicle market has now reached about two billion cars, increasing the carbon crises concern held by many. This environmental concern creates an opportunity for the electric car industry sector to take a bigger slice of the car market, especially if like-minded companies such as Tesla band together and share their technologies. This could result in the development of a common technology platform that would further the sustainable transport sector as a better environmental alternative compared to hydrocarbon-based transportation, currently the focus of most big car companies.

(Source: Musk, 2014)

### Chapter 11 Learning Objectives

After completing this chapter, you should be able to:

LO 1: Describe intangible assets and goodwill and their role in accounting and business.

LO 2: Describe intangible assets and explain how they are recognized and measured.

LO 2.1: Describe purchased intangibles and explain how they are initially measured.

LO 2.2: Describe internally developed intangibles and explain how they are initially measured.

LO 2.3: Describe how intangible assets are subsequently measured.

LO 2.4: Describe how intangible assets are evaluated for impairment and derecognized.

LO 3: Describe goodwill and explain how it is recognized and measured.

LO 4: Identify the disclosure requirements for intangible assets and goodwill.

LO 5: Describe how intangible assets and goodwill affect the analysis of company performance.

LO 6: Explain the similarities and differences between ASPE and IFRS for recognition, measurement, and reporting for intangible assets and goodwill.

## Introduction

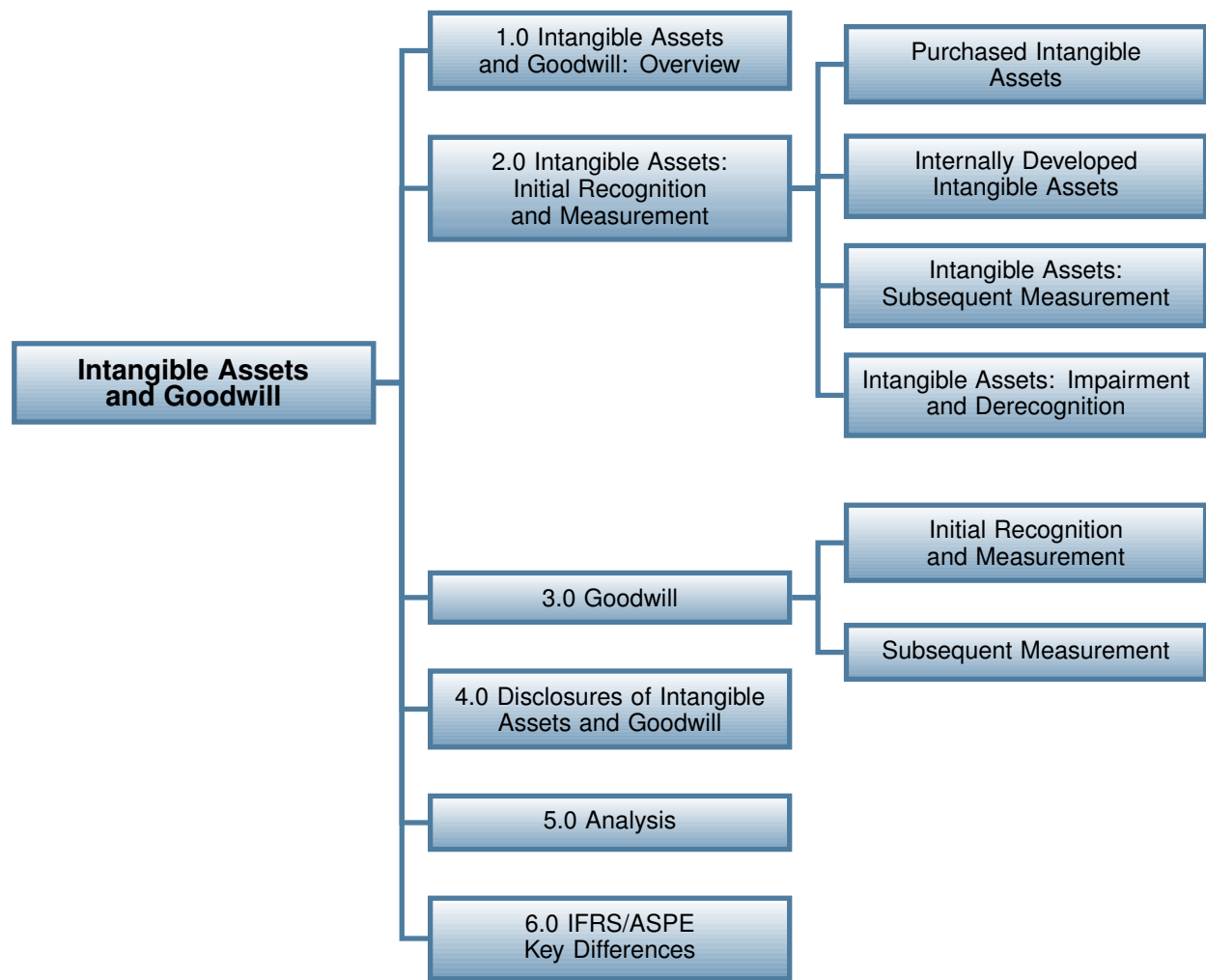
Why did Tesla purposely share its valuable and closely guarded patent secrets with its competitor electric car manufacturers? As the covering story explains, their largest competition does not come from within their own electric vehicle industry sector—it comes from the massive hydrocarbon-operated (i.e., gasoline, diesel) car market. If Tesla shares its critical intellectual property, such as its patents, with other electric car manufacturers at no cost, the electric car industry sector could strengthen enough to cause a shift in consumers from hydrocarbon vehicles to electric. In short, it is all about increasing the market share for electric cars. By sharing these valuable intangible assets within their industry sector, it increases these odds significantly.

Tesla thinks they can use their patents, which are some of Tesla's intangible assets, to make a difference and create a shift in demand from hydrocarbon to electric-powered vehicles. This must mean that there is a tremendous value regarding Tesla's patents. As intangibles assets, how might Tesla account for these patents? This chapter look at intangible assets and goodwill and how they impact business.

## Chapter Organization

Like property, plant, and equipment (PPE) assets, intangible assets are long-lived, non-monetary assets whose costs are capitalized and reported as long-term assets on the statement of financial position/balance sheet (SFP/BS). But unlike PPE, intangible assets have no physical presence. Patents and copyrights have often become the subject of news headlines when competitor companies attempt to infringe upon them. Many costly and prolonged court battles have occurred as a result. Significant value is associated with these intangible assets, so it is critical that they be accounted for as realistically as possible.

This chapter will focus on the various kinds of intangible assets and goodwill in terms of their use in business, as well as their recognition, measurement, reporting, and analysis.



## 11.1 Intangible Assets and Goodwill: Overview

Consider how important video game developers such as BioWare, the creators of Dragon Age, have become in this decade with their mass-market appeal for gaming software. Their major long-term assets are not physical assets as is the case with other companies that own mainly property, plant, and equipment. Instead, their assets are the software and the unique software development teams who are inspired and talented enough to create gaming products that are successfully marketed to millions of people around the world. Software gaming programs are copyrighted, just like published books. The copyright may have no physical presence but it has value, as will now be discussed.

In terms of accounting for intangible assets, IFRS, IAS 38 *Intangible Assets* (IFRS, 2014)

defines these as meeting *three conditions*:

- **identifiable, non-monetary asset without physical substance**
- **controllable by the business** (by purchase or internally created)
- from which **future benefits** are expected to occur.

*Identifiable*, in this case, means either being **separable** (can be sold, transferred, rented, or exchanged) or arising from **contractual or other legally enforceable rights**. Intangible assets are **non-monetary assets** because they have inherent values based on their use in business. Cash, on the other hand, is a **monetary asset** because its value is based on what it represents since the paper the cash is printed on has very little value by itself, as was discussed in the cash and receivables chapter.

Intangible assets are not to be confused with goodwill. If BioWare was to sell their entire business to a third party for more than the sum of the **fair values** of their identifiable assets net of liabilities (**net identifiable assets**), then the excess amount of the fair value of the consideration paid over the net identifiable assets by the purchaser would be classified as **goodwill**. The additional amount that the purchaser is willing to pay may be due to a brilliantly creative software development team with extraordinary talents that has value to the purchaser. Even though goodwill is inherently part of the purchase and has no physical presence, it is not classified as an intangible asset. This is because it is not *separately identifiable* from the other assets, nor does it have any contractual or other legally *enforceable rights*. For this reason, it does not meet the definition of an intangible asset and is therefore classified separately as goodwill, which is discussed later in the chapter.

Some types of intangible assets are listed below.

- Patents, copyrights, databases, software, and website development costs
- Trademarks and trade names
- Franchise agreements' initial fees and closing costs
- Purchased-only customer lists, brands, or publishing titles

In a Canadian context, intangible assets have the following characteristics:

- Patents are sole rights granted by the Canadian Patent Office to exclude others from making, using, or selling an invention. They expire after twenty years. Patents limit competition and therefore they provide incentive for companies or individuals to continue

developing innovative new products or services. For example, pharmaceutical companies spend large sums on research and development, so patents are essential to earning a profit.

- Copyrights grant exclusive legal right to the author to copy, publish, perform, film, or record literary, artistic, or musical material. A copyright protects authors during their lifetimes and for fifty years after that. A recent example of copyright infringement involves Michael Robertson, CEO of the now-bankrupt MP3.com. The former chief executive of the online music storage firm MP3Tunes was found liable in March 2014 for infringing copyrights for sound recordings, compositions, and cover art associated with artists including the Beatles, Coldplay, and David Bowie (Raymond, 2014).
- Trademarks are a symbol, logo, brand, emblem, word, or words legally registered or established by use as representing a company or product. Coca Cola is an example. Trademarks are renewable after fifteen years, so they can have an indefinite life.
- Industrial design (ID) creates and develops concepts and specifications that improve the function, value, and appearance of products and systems. Registration of the design results in exclusive rights being granted for ten years.

## 11.2 Intangible Assets: Initial Recognition and Measurement

Recognition as an intangible asset is based on both criteria being met:

1. the **probability that benefits will flow** to the business and
2. the asset cost can be **reliably measured**.

If these are **not** met, then the item is expensed when it is incurred.

If the three conditions of an intangible asset and the two recognition criteria above **are met**, then the intangible asset is:

- initially measured at cost
- subsequently measured at cost (or measured using the revaluation model for IFRS)
- amortized on a systematic basis over its useful life (unless the asset has an indefinite useful life, in which case it is not amortized). For IFRS, the intangible asset is tested annually for impairment.

Intangible assets can be acquired:

- as a separate purchase
- as part of a business combination (either through the purchase of the business's assets or acquiring the controlling shares of the business)
- by an exchange of assets
- by a government grant
- by self-creation (internally developed)

### 11.2.1 Purchased Intangible Assets

Costs are capitalized to intangible assets the same way as is done for property, plant, and equipment. As a basic review, capital costs include the acquisition cost, legal fees, and any direct costs required to get the intangible asset ready for use. If intangible assets are purchased with other assets, the cost is then allocated to each asset based on relative fair values (basket purchase). Other costs, such as training to use the asset, marketing, administration or general overhead, interest charges due to late payment for the asset purchase, and any costs incurred **after** the asset is put into its intended use, are expensed as incurred.

Like property, plant, and equipment, intangible assets that are purchased in exchange for other monetary and/or non-monetary assets are measured at either the fair value of the assets given up or the fair value of the intangible asset received, whichever is the most reliable measure, if there is commercial substance. When an exchange lacks commercial substance, the assets received are measured at *the lessor of* the carrying amount or the fair value of the assets given up.

If a company receives an intangible asset at no cost or for a nominal cost in the form of a government grant such as a grant of timber rights, then the fair value of the intangible asset acquired is typically the amount recorded.

### 11.2.2 Internally Developed Intangible Assets

All company activities to create new products or substantially improve existing products are to be separated into a **research phase** and a **development phase** for the various costs incurred. Below is a summary of the two phases and their accounting treatment (IFRS, 2014; IAS 38 Intangible Assets):

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<b>Research Phase:</b>	<b>Development Phase:</b>	
<p>All original and planned investigation activities including evaluating and selecting products or processes from several possible alternatives. If there is any uncertainty about which phase is appropriate for an activity, then the research phase is used.</p>	<p>This is where the application of research findings before commercial production begins. It includes designing, testing and constructing prototypes, models, pilot plants chosen from the alternatives identified in the research phase, as well as costs for any new tools, templates, or castings.</p>	
<p>All costs are expensed as incurred because the activities do not relate to an identifiable product or process.</p>	<p>IAS 38: the six criteria must ALL be met to be capitalized, otherwise costs are expensed as incurred.</p>	<p>1) <b>Technical feasibility</b> of completing the intangible asset must be proven.</p>
		<p>2) <b>Management intention</b> exists to complete it for use or for sale.</p>
		<p>3) The entity must be able to <b>use or sell</b> it.</p>
<p>4) <b>Adequate resources</b> to complete the development and to use or sell the intangible asset are available.</p>		
<p>5) Probability of <b>future economic benefits is clearly established</b> and are reasonably certain, such as the existence of a <b>market</b> or the <b>usefulness</b> of the intangible asset to the entity.</p>		
<p>6) Costs can be <b>reliably measured</b></p>		
<p>Costs that are initially expensed because they do not meet the six criteria above cannot be capitalized later.</p>		

	Typical ineligible costs for capitalization:	Business start-up costs, training, advertising and promotion, relocation, reorganization costs or any costs after the asset is ready for use/sale. Internally generated branding or customer lists are also excluded from capitalization because they are indistinguishable from other business costs.
	Once the six criteria are met, direct costs that are eligible:	Any external or internal costs <b>directly attributable</b> to the specific asset such as direct materials and direct labour (i.e., salaries and benefits), as well as other direct costs such as engineering costs, and any <b>directly attributable</b> overhead costs.
	Once the intangible asset is ready for its intended use, then any subsequent costs are expensed and no longer capitalized.	

For ASPE, CPA Handbook, Sec. 3064, Goodwill and Intangible Assets (CPA Canada, 2016), allows a choice between expensing the costs for internally developed intangibles or recognizing the intangible asset when certain criteria (similar to the criteria above) are met.



A video is available on the Lyryx site. [Click here to watch the video.](#)

### 11.2.3 Intangible Assets: Subsequent Measurement

After the initial recognition and measurement, subsequent measurement is as follows:

- ASPE—Cost model only
- IFRS—Cost model. If the intangible asset has its fair values determined in an active

market, then the Revaluation model can be used. The Revaluation model is not widely used in actual practice since an active market for intangible assets usually does not exist.

The accounting treatment under both models is applied the same way as is applied to property, plant, and equipment. Since intangible assets rarely have an active market to provide readily available fair values, discussions in this chapter will focus on the cost model.

### **Cost Model**

- Asset is initially recorded upon acquisition at its cost.
- Subsequently, its carrying value will be at cost less accumulated amortization and accumulated impairment losses since acquisition, if any.
- On disposal, its carrying value is removed from the accounts and any gain or loss (sales proceeds minus the carrying value) is reported in net income.

An intangible asset with a limited useful life will be amortized over its estimated useful life, like plant and equipment, as follows:

- Amortization can be calculated using the units of production or straight-line methods, but usually assuming a residual value of zero (unless it can be sold to a third party). The method to use is determined using similar criteria as plant and equipment. Nearly all intangible assets are amortized using the straight-line method with no residual value unless there is compelling evidence to prove otherwise.
- Estimating useful life considers criteria such as expected use of the assets, any limits imposed by law, statute, or contract, and the impact on value from obsolescence and technology advances. If a patent has a legal life of twenty years but expects a competing product to emerge in fifteen years, then the useful life would be the lesser of the two, or fifteen years.
- Amortization begins and ends according to when the asset is ready for use and when it is to be disposed of or sold.
- Amortization policy is reviewed in terms of the asset's useful life, amortization method, and residual value, if any.
- Changes in useful life, residual value (if any), and amortization method are changes in accounting estimates and accounted for prospectively.
- Intangible assets are reviewed for impairment at the end of each reporting period (IFRS), or whenever circumstances indicate that the carrying value of the asset may not be recoverable (ASPE).

If the intangible asset has an indefinite life, no amortization is recorded, but it will be subject to review at the end of each reporting period. Should this status change to a definite life, it is treated as a change in estimate and accounted for prospectively. Indefinite life assets are also subject to impairment reviews and adjustments.

### 11.2.4 Intangible Assets: Impairment and Derecognition

The process of impairment and derecognition of intangible assets is like that of property, plant, and equipment. Below is a summary of two models used for definite-life and indefinite-life intangible assets.

<b>ASPE Cost Recovery Impairment Model</b>		<b>IFRS: Rational Entity Impairment Model</b>	
Assumes that the asset will continue to be used. The asset is impaired only if the carrying value of the asset is more than the sum of the net future <i>undiscounted</i> cash flows from both the use and eventual disposal of the asset.		Assumes that the asset will either continue to be used or disposed of, depending upon which results in a higher return. The asset is impaired only if the carrying value of the asset is more than the asset's recoverable amount (a discounted cash flow concept), being the higher of its value in use and its fair value less costs to sell.	
<b>Definite-Life Intangible Assets</b>			
Impairment recognition	Only when events and circumstances indicate that the carrying value may not be recoverable, as determined by a recoverability test.	Impairment recognition	An assessment is made at the end of each reporting period as to whether there is any indication that the asset is impaired.
Recoverability test	If the carrying value is greater than the <i>undiscounted</i> future cash flows, then the asset is impaired, and the impairment loss is calculated.	Recoverability test	None

Impairment loss	The asset carrying value less fair value.	Impairment loss	1) Calculate the recoverable amount as the <b>higher</b> of the value in use and the fair value less costs to sell. 2) If the asset carrying value is more than the recoverable amount, then the asset is impaired by the difference between these two amounts.
Impairment reversal	Not permitted	Impairment reversal	If the recoverable amount has increased, then a reversal is allowed, but it cannot exceed the asset's carrying value excluding any impairments.
<b>Indefinite-Life Intangible Assets</b>			
Impairment recognition	Only when events and circumstances indicate impairment is possible as determined by a fair value test.	Impairment recognition	Tested for impairment annually.
Fair value test	If the carrying value is greater than the fair value, then the asset is impaired, and the loss is calculated.	Fair value test	None
Impairment loss	Equal to the difference resulting from the fair value test.	Impairment loss	Same as for definite-life intangible assets above.
Impairment reversal	Not permitted.	Impairment reversal	Same as for definite-life intangible assets above.

The entry for impairment for both ASPE and IFRS is:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss on impairment .....		\$\$	
	Accumulated impairment losses, intangible asset .....			\$\$
	Accumulated impairment losses is a contra asset account.			

Amortization calculation after impairment for both ASPE and IFRS is based on the adjusted carrying value after impairment, the revised residual value (if any), and the asset's estimated remaining useful life.

$$\text{Revised amortization} = \frac{\text{carrying value after impairment} - \text{revised residual value (if any)}}{\text{Estimated remaining useful life}}$$

When an intangible asset is disposed of, the difference between the net proceeds and the asset's carrying value is the gain or loss reported in net income. The asset and its accumulated amortization are removed from the accounts.



A video is available on the Lyryx site. [Click here to watch the video.](#)



A video is available on the Lyryx site. [Click here to watch the video.](#)

## 11.3 Goodwill

### 11.3.1 Initial Recognition and Measurement

Goodwill arises when one company purchases another business and pays more than the fair value of its net identifiable assets (total identifiable assets – identifiable liabilities). This excess amount of consideration paid by the purchaser is classified as goodwill. As discussed at the beginning of this chapter, since goodwill is not a separately identifiable asset and has no contractual or other legally enforceable rights, it does not meet the definition of an intangible asset. It is therefore classified separately as goodwill on the SFP/BS. Also, a third-party purchase is the only circumstance where goodwill can be recognized. This is due to the complexities of recognizing and measuring internally generated goodwill, which lacks any arm's-length third-party associations.

All the identifiable assets and identifiable liabilities received are initially recorded by the purchaser *at their fair values at the date of purchase*. The difference between the sum of the fair values and the purchase price (or the fair value of any consideration given up) is classified and recorded as goodwill. Consideration can be cash or other assets, notes payable, shares, or other equity instruments.

For example, on January 1, Otis Equipment Ltd. purchases the net identifiable assets of Waverly Corp. for \$40M cash and a short-term promissory note for \$12M. Waverly's unclassified year-end balance sheet as at December 31 is shown below.

Waverly Corp.  
Balance Sheet  
December 31, 2019  
(in \$000s)

<b>Assets</b>		<b>Liabilities and shareholders' equity</b>	
Cash	\$ 50,000	Accounts payable	\$ 85,000
Accounts receivable (net)	15,000	Mortgage payable due Dec 31, 2029	100,000
Inventory	35,000	Share capital	40,000
Building (net)	100,000	Retained earnings	5,000
Equipment (net)	25,000		
Patent (net)	5,000		
Total assets	<u>\$230,000</u>	Total liabilities and equity	<u>\$230,000</u>

To determine the amount of consideration (cash and short-term promissory note) to offer Waverly, Otis completed a detailed fair value analysis of the net identifiable assets, as shown below.

Fair Values  
December 31, 2019  
(in \$000s)

Cash	\$ 50,000
Accounts receivable	12,000
Inventory	33,000
Building	125,000
Equipment	15,000
Patent	0
Accounts payable	(85,000)
Mortgage payable, due Dec 31, 2029	<u>(100,000)</u>
Total fair value of net identifiable assets	<u>\$ 50,000</u>

Differences between fair values and the carrying values of the net identifiable assets are common. For example, the accounts receivable may be adjusted because the bad debt

estimate was not sufficient. Inventory may be adjusted due to obsolescence or due to a recent decline in prices from the supplier. Long-term assets values for property, plant, and equipment are usually determined either by independent appraisals or from published pricing guides such as those used for vehicles. Vehicles will lose value as they age, but land and buildings can appreciate over time. The patent may have been assessed a zero value because it was almost fully amortized and was due to expire the next year. Fair values for current liabilities such as accounts payable are usually the same as their book values. Long-term liabilities may require adjustments if interest rates have significantly changed.

The total consideration given up by Otis is \$52M combined cash and short-term promissory note compared to the fair value of the net identifiable assets of \$50M. The \$2M difference will be classified as goodwill. As previously stated, goodwill is not an identifiable asset on its own but simply that portion of the purchase price not specifically accounted for by the net identifiable assets. In other words, **goodwill represents the future economic benefits arising from other assets acquired in the business acquisition that cannot be identified separately.**

Otis would make a journal entry as shown below.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1	Cash .....		50,000	
	Accounts receivable .....		12,000	
	Inventory .....		33,000	
	Building .....		125,000	
	Equipment .....		15,000	
	Goodwill .....		2,000	
	Accounts payable .....			85,000
	Short-term promissory note payable .....			12,000
	Mortgage payable .....			100,000
	Cash .....			40,000

Any transaction costs incurred by Otis associated with the purchase would be expensed as incurred.

There are many reasons why Otis was willing to pay an additional \$2M to purchase Waverly. Waverly may possess a top credit rating with its creditors, an excellent reputation for quality products and service, a highly competent management team, or highly skilled employees. These factors will positively affect the total future earning power and hence the value of the business entity.

If Waverly accepted an offer from Otis of \$49M and the fair values of the net identifiable assets of \$50M were re-examined and considered accurate, then the \$1M difference would be recorded by Otis as a gain (credit) from the acquisition of assets in net income. This is referred to as a bargain purchase.



A video is available on the Lyryx site. [Click here to watch the video.](#)

### 11.3.2 Subsequent Measurement of Goodwill

Once purchased, goodwill is deemed to have an indefinite life and not amortized, but it is evaluated for impairment. Under IFRS, this is done annually and whenever there is an indication that impairment exists. For ASPE this is done whenever circumstances indicate that an impairment exists.

Since goodwill is not a separately identifiable asset, it is allocated to reporting (ASPE) or cash generating units (CGUs; IFRS) expected to benefit from the business acquisition on the acquisition date.

For ASPE, after testing and adjusting the individual assets of the CGU as required, impairment is then applied to the whole reporting unit the same as for intangible assets with an indefinite life. If the carrying value of the reporting unit is greater than its fair value, this difference is the impairment amount.

For IFRS, if the carrying value of the CGU is greater than the recoverable amount (which is the higher of the CGU's value in use or fair value less costs to sell) then this difference is the impairment amount. Impairment is allocated first to goodwill (accumulated impairment losses, goodwill account), with any further excess allocated to the remaining assets' carrying values in the CGU on a proportional basis.

Goodwill impairment reversals are not permitted for ASPE or IFRS.

For example, assume that Calter Ltd. purchased Turnton Inc. and identified it as a reporting unit (CGU). The goodwill amount that was recorded at acquisition was \$40,000 and the carrying amount of the whole unit, including goodwill was \$360,000. One year later, due to an economic downturn in that industry sector, management is assessing whether the unit has incurred an impairment of its net identifiable assets. The fair value of the unit was evaluated to be \$330,000. The direct costs to sell would be \$9,300 and the unit's value in use is \$340,000.

Under ASPE:

After testing and adjusting the individual assets within the unit, the whole unit was evaluated at a fair value of \$330,000 as stated in the scenario above.

Carrying amount of whole unit, including goodwill	\$360,000
Fair value of the unit	330,000
Goodwill impairment loss	\$ 30,000

The entry to record the loss is shown below.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss on impairment .....		30,000	
	Accumulated impairment losses, goodwill ..			30,000
	Accumulated impairment losses is a contra asset account.			

The net carrying value for goodwill will be \$10,000 (\$40,000 – 30,000). Since individual asset testing and adjustments within the unit was done prior to the evaluation of the whole unit, the impairment amount would not exceed goodwill.

Under IFRS:

Carrying amount of CGU as a unit, including goodwill	\$360,000
Recoverable amount of unit	340,000
(Higher of value in use of \$340,000 and fair value less costs to sell 330,000 – 9,300 = \$320,700)	
Goodwill impairment loss	\$ 20,000

Entry to record the loss is shown below.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss on impairment .....		20,000	
	Accumulated impairment losses, goodwill ..			20,000
	Accumulated impairment losses is a contra asset account.			

The net carrying value for goodwill after the impairment is \$20,000 (\$40,000 – 20,000). Had the impairment amount exceeded the \$40,000 goodwill carrying value, the amount of the difference would be allocated to the remaining net identifiable assets on a prorated basis, since there had been no impairment testing of individual assets as was done for ASPE above.



A video is available on the Lyryx site. [Click here to watch the video.](#)

## 11.4 Disclosures of Intangible Assets and Goodwill

For reporting purposes, intangible assets are grouped together with similar other intangible assets. Some examples of these classes are patents, copyrights, computer software, or

industrial designs. Most of the disclosures will be in the notes to the financial statements. Disclosures for ASPE are simpler than IFRS. For each class, some of the most important disclosures are listed below.

- Identify if the intangible assets have a definite or indefinite life, or were purchased or internally developed.
- Identify useful life, amortization policy and rate, the accumulated amortization for definite-life assets, and carrying amount for both definite- and indefinite-life assets.
- Disclose amortization amounts included in the line items of the statement of income or comprehensive income.
- Disclose the amount of research and development costs expensed through net income.
- Reconcile the beginning and ending balances of each class of intangibles, including acquisitions, increases in internally generated intangibles, amortizations, and impairments.
- Goodwill is reported as a separate line item with its carrying value and impairments amounts disclosed.
- Disclose capitalization policies.

## 11.5 Analysis

Analysis of financial statements will be affected by how intangible assets are accounted for. For example, companies that follow ASPE can either capitalize or expense their internally developed intangibles, depending upon company policy. More flexibility means less comparability when evaluating performance with other companies within the industry sector. Policy changes regarding intangible assets are treated prospectively within a company. This can also impact comparability within the company when analyzing performance trends over time. For IFRS companies, once the six conditions and criteria are met for internally developed intangibles, they are capitalized as assets. This results in greater comparability when analyzing performance.

Another issue involves company valuations. The SFP/BS does not always capture the company's true value. This in turn will affect performance evaluation within the company and within its industry sector. Recall the discussion at the beginning of this chapter regarding BioWare, whereby the company's total value can increase due to the development of creative software development teams with extraordinary talents or perhaps a superior management team. Since these cannot be measured reliably, they are not reported in any of the financial statements. There is no doubt that these attributes are relevant and will positively affect the company's total value, but without quantification within the financial statements, they will likely have little impact

on decision-making such as what a creditor would be willing to loan the company to expand their markets, or what additional monies a purchaser might be willing to pay to purchase the company.

## 11.6 IFRS/ASPE Key Differences

Item	ASPE (Sec. 3064)	IFRS (IAS 38)
<b>Intangible assets: internally developed</b>	Those development costs meeting ALL the six criteria in the development phase <b>may be capitalized or expensed.</b>	Costs are separated into research and development. All research costs are expensed. Those development costs meeting ALL the six criteria in the development phase are to be capitalized: 1) technical feasibility 2) management intention to complete 3) ability to use or sell 4) adequate resources 5) future economic benefits and existence of a <b>market or usefulness</b> of the intangible asset to the entity 6) costs are reliably measurable.
<b>Intangible assets: subsequent measurement</b>	Cost model: measured at cost less accumulated amortization (definite-life assets only) and impairment losses since acquisition.	Policy choice to use either cost model (usually) or revaluation model (only if an active market exists).
<b>Intangible assets: impairment</b>	For definite-life intangible assets: if the carrying value is greater than the <i>undiscounted</i> future cash flows, then asset is impaired. The impairment loss is calculated as the difference between the carrying value and fair value.	For both definite-life and indefinite-life intangible assets:  1) Calculate the recoverable amount as the <b>higher</b> of the value in use and the fair value less costs to sell.

	<p>For indefinite-life intangible assets: if carrying value is greater than fair value then asset is impaired for that amount.</p> <p>Impairment is not reversible.</p>	<p>2) If the asset carrying value is more than the recoverable amount, then the asset is impaired by the difference between these two amounts.</p> <p>Impairment is reversible but the amount is limited to the asset's carrying value had no impairment occurred.</p>
<b>Disclosure of intangible assets and goodwill</b>	<p>Basic disclosures are required such as reporting intangible assets by class with details about amortization policy and impairment losses. Goodwill impairment details also disclosed.</p>	<p>Detailed disclosures are required for intangibles and goodwill. For each class, identify amortization policy, impairment losses, reconciliation of opening to closing balances details, and capitalization policies. Disclose research and development costs that were expensed.</p>

(Sources: CPA Canada, 2016; IFRS, 2014)

## Chapter Summary

### LO 1: Describe intangible assets and goodwill and their role in accounting and business.

Intangible assets and goodwill can have significant balances reported in a company's SFP/BS. To be classified as an intangible asset, it must be identifiable, non-monetary, without physical substance, be controllable by business, and with expected future benefits. Some examples of intangible assets are patents, copyrights, trademarks, and purchased customer lists. Goodwill, on the other hand, can only occur because of a purchase of another company's net identifiable assets. Any excess proceeds paid over the total fair value of these net identifiable assets will be classified and reported separately as goodwill.

## LO 2: Describe intangible assets and explain how they are recognized and measured.

To be recognized as an intangible asset for accounting purposes, there must be a probability that future benefits will accrue to the business and that they can be reliably measured. If not, the item is expensed as incurred. Intangible assets can be acquired as a separate purchase or as part of a business combination, in exchange for other assets, as part of a government grant or as internally developed. Intangible assets are initially measured at cost. Initial costs that can be capitalized to the asset are any direct costs required to get the asset ready for use. Any costs incurred after the asset is put into use are expensed.

Intangible assets that are internally developed are subject to more stringent criteria and are separated into research and development phases. Research phase costs are expensed as incurred because there is no identifiable product or process yet. Development phase costs meeting all six criteria can be capitalized. Initial costs that can be capitalized are any direct costs required to get the asset ready for use. All other costs are expensed and cannot be capitalized at later.

Once the asset is in use, it is usually subsequently measured at amortized cost or cost (ASPE or IFRS) or, less often, using the fair-value based revaluation model (IFRS only). Definite-life intangible assets are amortized on a systematic basis the same as property, plant, and equipment. Indefinite-life assets are not amortized but the indefinite-life status is subject to review.

Evaluation for impairment is undertaken at certain points over time for all intangible assets the same as is done for property, plant, and equipment. For definite life intangibles, ASPE evaluates for indicators of impairment only when circumstances indicate impairment is a possibility as determined by a recoverability test that compares the carrying value with the *undiscounted* future cash flows. If impaired, the asset's carrying value is reduced to equal the fair value at that date and the loss on impairment is reported in net income. Impairment reversals are not permitted.

IFRS evaluates for indicators of impairment at the end of each year. There is no impairment test. If impaired, the asset carrying value is reduced to equal the recoverable amount (the higher of the value in use and the fair value less costs to sell). Impairment reversals are limited and cannot exceed the asset's carrying value without any impairment adjustments.

For indefinite intangible assets, ASPE evaluates for indicators of impairment only when circumstances indicate impairment is a possibility as determined by a fair value test that compares the carrying value with the fair value. If impaired, the asset's carrying value is reduced to equal the fair value at that date and the loss on impairment is reported in net income. As was the case for definite-life intangibles, impairment reversal is not permitted.

For IFRS, indefinite-life intangibles are treated the same as definite-life intangibles regarding

impairment evaluation and measurement.

Amortization is based on the adjusted carrying value after impairment, the revised residual value, and the estimated remaining useful life.

On disposal, the asset is removed from the accounts and any gain or loss reported in net income.

### **LO 3: Describe goodwill and explain how it is recognized and measured.**

Goodwill can only arise from a third-party purchase of another company's net identifiable assets. Goodwill is calculated as the difference between the consideration price (e.g., cash, other assets, notes payable, shares) and the fair value of the net identifiable assets; it is reported separately as a long-term asset on the SFP/BS. The purchaser records all the net identifiable assets at their fair values and any resulting goodwill on the SFP/BS as at the purchase date. If the purchase price were to be less than the fair value of the net identifiable assets, the difference would be credited as a gain from the acquisition of assets in net income.

Goodwill is considered to have an indefinite life, so it is not amortized. Goodwill is assigned as part of a reporting or cash-generating unit (CGU), and the whole unit is assessed for impairment using the same measurement criteria as for intangible assets with an indefinite life. The only difference is that goodwill impairment reversals are not allowed for either ASPE or IFRS.

### **LO 4: Identify the disclosure requirements for intangible assets and goodwill.**

For reporting purposes, intangible assets are usually grouped with other intangibles with similar characteristics. For ASPE, the disclosures are simpler than for IFRS companies. Most of the disclosures are made in the notes to the financial statements. Disclosures include separate reporting into various classes for definite-life and indefinite-life intangibles, with goodwill being reported separately. Amortization and capitalization policies, amortization amounts, impairment assessments and amounts, and reconciliations of beginning to ending balances for each class of intangible asset disclosures are also required. Amounts expensed for amortization expense and research and development costs are also disclosed.

## LO 5: Describe how intangible assets and goodwill affect the analysis of company performance.

Comparability is affected by the differences between how the accounting standards are applied for purchased assets versus internally developed intangibles and goodwill for both ASPE and IFRS companies. Any changes in accounting policies are treated prospectively, making comparability within a company or between companies over time more difficult. Valuation issues are significant regarding unreported intangible assets that have been expensed because the conditions and criteria identified in the ASPE and IFRS standards to qualify as an asset were not met. Since these are not reported on the SFP/BS, valuation of these companies becomes increasingly more difficult.

## LO 6: Explain the similarities and differences between ASPE and IFRS for recognition, measurement, and reporting for intangible assets and goodwill.

The differences between ASPE and IFRS arise regarding the following.

1. There is a choice to capitalize or expense internally developed intangible assets for ASPE companies. For IFRS, there is no choice: if they meet the conditions and criteria, then these expenses are to be capitalized.
2. Evaluation and measurement of impairment losses.
3. The extent of the required disclosures in the financial statements.

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## Exercises

### EXERCISE 11-1

Indicate whether the items below are to be capitalized as an intangible asset or expensed. Which account(s) would each item be recorded to?

- a. Salaries of research staff
- b. Costs to test prototypes
- c. Borrowing costs for development of a qualifying intangible asset
- d. Executive salaries for time spent on development of an intangible asset
- e. Costs to launch a new product
- f. Purchase cost of a patent from a third party
- g. Product research costs
- h. Costs internally incurred to create goodwill
- i. Legal costs to successfully defend a patent
- j. Purchase price of new software
- k. Training costs for new software
- l. Direct costs of special programming needed when purchasing new software
- m. Costs incurred in forming a corporation for purposes of commercializing a new product
- n. Operating losses incurred in the start-up of a business to manufacture a patented produce
- o. The purchase cost of a franchise
- p. The cost of developing a patent
- q. The cost of purchasing a patent from an inventor
- r. Legal costs incurred in securing a patent
- s. The cost of purchasing a copyright
- t. Product development costs
- u. Consulting fees paid to a third party for advice on a research project

- v. The cost of an annual update on payroll software
  - w. Interest or borrowing costs specifically identifiable with an internally developed intangible asset
  - x. Materials consumed in the development of a product at the manufacturing stage for an IFRS company
  - y. Materials consumed in research projects
  - z. General borrowing costs on the company's line of credit
- aa. Indirect costs allocated to research and development projects
- 

### EXERCISE 11–2

Harman Beauty Products Ltd. produces organic aromatherapy hand soaps and bath oils to retail health stores across North America. The company purchased the trademark and patented recipes for this unique line of soaps and oils, called Aromatica Organica, five years ago for \$150,000. Each type of soap or oil is made from a secret recipe only known to the head “chef” at Harman who distributes the ingredients for each type of soap or oil to small groups of “cooks” who then combine the unknown ingredients into a small batch of a particular type of soap or oil. These are then packaged and shipped to fill each order placed by the retail stores through the colourful and user-friendly website developed by Harman.

#### Required:

- a. Identify any intangible assets that may appear on the company's SFP/BS.
  - b. Discuss the importance of the intangible assets to the company's business.
  - c. Why it is important to record intangible assets on a company's SFP/BS?
- 

### EXERCISE 11–3

On January 1, 2020, a patent with a book value of \$288,000 and a remaining useful life of fourteen years was reported on the December 31, 2019 post-closing trial balance. In 2020, a further \$140,000 of research costs was incurred during the research phase. A lawsuit was also brought against a competitor company regarding the use of a patented process for which legal costs of \$42,000 were spent. On September 1, 2020, the lawsuit was concluded successfully, and the courts upheld the patent as valid, so the competitor would not be able to continue using the patented process. The company year-end is December 31 and follows IFRS.

**Required:** What amount should be reported on the SFP at December 31, 2020, assuming straight-line amortization?

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#### EXERCISE 11–4

Indicate how the items below are to be reported as assets in the SFP/BS as at December 31, 2020:

- a. January 1, copyright obtained for a book developed internally for \$25,000, which is estimated to have a useful life of five years. Assume the straight-line method for amortization and that all costs were incurred on January 1.
  - b. January 1, copyright obtained for a book purchased from Athabasca University for \$35,000 cash with an indefinite useful life.
  - c. On January 1, 2020, an Internet domain name with an indefinite life was purchased in exchange for a three-year, note. The market rate at that time was 8%. The note is repayable in three annual principal and interest payments of \$14,500 each December 31.
- 

#### EXERCISE 11–5

Trembeld Ltd. was developing a new product, and the following timeline occurred during 2020:

January 1 to March 31, 2020 incurred the following costs:	
Materials	\$180,000
Direct labour	64,000
April 1, criteria to capitalize costs were met	
May 1 to July 31, 2020, incurred the following costs:	
Materials	270,000
Direct labour	86,000
Directly related legal fees	25,400
Borrowing costs	8,600

**Required:**

- a. How would Trembeld account for the costs above if the company followed ASPE?
- b. How would Trembeld account for the costs above if the company followed IFRS?

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**EXERCISE 11–6**

Crellerin Ltd. has a trademark with a carrying value of \$100,500 that has an expected life of fifteen years. At December 31, 2020 year-end, an evaluation of the trademark was completed. The following estimates follow:

Fair value	\$ 55,000
Fair value less costs to sell	\$ 50,000
Value in use	\$115,000
Undiscounted cash flows	\$152,000

**Required:**

- Determine if the trademark is impaired as at December 31, 2020, if Crellerin follows ASPE and indicators of an impairment exist.
  - Determine if the trademark is impaired as at December 31, 2020, if Crellerin follows IFRS and trademark has been assessed for positive conditions of impairment.
  - How would the answers to part (a) and (b) change if the trademark had an unlimited expected life?
- 

**EXERCISE 11–7**

Fredickson Ltd. purchased a trade name, a patented process and a customer list for \$1.2 million cash. The fair values of these are:

Trade name	\$380,000
Patented process	\$400,000
Customer list	\$450,000

**Required:** Prepare the journal entry for the purchase.

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**EXERCISE 11–8**

Below are three independent situations that occurred for Bartek Corporation during 2020. Bartek's year-end is December 31, 2020.

- i. On January 1, 2017, Bartek purchased a patent from Apex Co. for \$800,000. The patent expires on the same date in 2025 and Bartek has been amortizing the patent over the eight years. During 2020, management reviewed the patent and determined that its economic benefits will last seven years from the date it was acquired.
- ii. On January 1, 2020, Bartek bought a perpetual franchise from Amoot Inc. for \$500,000. On this date, the carrying value of the franchise on Amoot's accounts was \$600,000. Assume that Bartek can only provide evidence of clearly identifiable cash flows for twenty years but estimates that the franchise could provide economic benefits for up to sixty years.
- iii. On January 1, 2017, Bartek incurred development costs of \$250,000. These costs meet the six criteria, and Bartek is amortizing these costs over five years.

**Required:**

- a. For situation (i), how would the patent be reported on the SFP/BS as at December 31, 2020?
  - b. For situation (ii), what would be the amortization expense for December 31, 2020?
  - c. For situation (iii), how would these development costs be reported as at December 31, 2020?
- 

**EXERCISE 11–9**

On September 1, 2020, Verstag Co. acquired the net identifiable assets of Ace Ltd. for a cash payment of \$863,000. At the time of the purchase, Ace's SFP/BS showed assets of \$900,000, liabilities of \$460,000, and shareholders' equity of \$440,000. The fair value of Ace's assets is estimated at \$1,160,000 and liabilities have a fair value equal to their carrying value.

**Required:**

- a. Calculate the amount of goodwill and record the entry for the purchase.
- b. Three years later, determine if there is an impairment, and calculate the impairment loss assuming that Verstag follows IFRS and that goodwill was allocated to one cash-generating unit (CGU). The carrying value of the unit was \$1,925,000, the fair value was \$1,700,000, the costs to sell were \$100,000, and the value in use was \$1,850,000.
- c. How would the answer for part b) be different if Verstag follows ASPE? Fair value is \$1,860,000.

**EXERCISE 11–10**

Indicate how each of the following items would be classified:

- a. Excess of purchase price over the fair value of net identifiable assets of another business
- b. Research costs
- c. Annual franchise fee paid
- d. Organizations costs
- e. Cash
- f. Accounts receivable
- g. Prepaid expenses
- h. Notes receivable
- i. Research and development acquired in a business combination
- j. Leasehold improvements
- k. Brand names
- l. Music copyrights
- m. Investments in affiliated companies
- n. Film contract rights
- o. Discount on notes payable
- p. Property, plant, and equipment
- q. Land
- r. Development phase activities (meets the 6 criteria for development phase)
- s. Purchased trademarks
- t. Excess of cost over fair value of net assets of acquired subsidiary
- u. Costs of researching a secret formula for a product that is expected to be marketed for at least fifteen years

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**EXERCISE 11–11**

On January 1, 2019, Josey Corp. received approval for a patent from the Patent Office. Legal costs incurred were \$25,000. On June 30, 2020, Josey incurred further legal costs of \$35,000 to defend its patent against a competitor trying to sell a knock-off product. The court action was successful. The patent has a life of twenty years.

**Required:**

- a. What are the variables to consider in determining the useful life of a patent?
  - b. Calculate the carrying value of the patent as at December 31, 2019, and December 31, 2020.
  - c. Calculate the carrying value of the patent as at December 31, 2020, if management decides on January 1, 2020 that the patent's life is only fifteen years from the approval date.
  - d. What are the accounting treatment and the issues if the patent was assessed to have an indefinite life?
- 

**EXERCISE 11–12**

Below is select information for the following independent transactions for Hilde Co., an ASPE company:

- i. On January 1, 2020, a patent was purchased from another company for \$900,000. The useful life is estimated to be fifteen years. At the time of the sale, the patent had a carrying value on the seller's books of \$915,000. A year later, Hilde re-assessed the patent to have only ten years' useful life at that time.
- ii. During 2020, Hilde incurred \$350,000 in costs to develop a new electronic product. Of this amount, \$180,000 was incurred before the product was deemed to be technologically and financially feasible. By December 31, 2020, the project was completed. The company estimates that the useful life of the product to be ten years, and earnings are estimated to be \$3.6 million over its useful life. Hilde's policy is to capitalize any costs meeting the ASPE criteria.
- iii. On January 1, 2020, a franchise was purchased for \$1.8 million. In addition, Hilde must also pay 2% of revenue from operations to the franchisor. For the year ended 2020, the revenue from the franchise was \$5.6 million. Hilde estimates that the useful life of the franchise is forty years.

- iv. During 2020, the following research costs were incurred; materials and equipment of \$25,000; salaries and benefits of \$250,000; and indirect overhead costs of \$15,000. (Assume a single entry in 2020 for these costs.)

**Required:**

- a. For each independent situation above, prepare all relevant journal entries including any adjusting entries for 2020 (and 2021 for situation i) for Hilde Co. Hilde's year-end is December 31 and follows ASPE.
  - b. Prepare a partial income statement and balance sheet for 2020, including all required disclosures. Income tax rate is 27%.
  - c. Explain how the accounting treatment for each of the situations above would differ if Hilde was a public company that followed IFRS.
  - d. Explain how limited-life intangibles are tested for impairment for ASPE and IFRS companies. How is the impairment calculated for each standard?
- 

**EXERCISE 11–13**

On January 1, 2020, Nickleback Ltd. purchased a patent from Soriato Corp. for \$50,000 plus a \$60,000, five-year note bearing interest at 8% payable annually. Upon maturity a single lump sum amount of \$60,000 will be payable. The market-rate for a note of a similar risk and characteristics is 9%. Nickleback estimates that the patent will have a future life of twenty years. Nickleback follows ASPE.

**Required:** Prepare the journal entry for the patent purchase. (Hint: refer to chapter on long-term notes receivable.)

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**EXERCISE 11–14**

On January 4, 2020, a research project undertaken by Nasja Ltd. was completed and a patent was approved. The research phase of the project incurred costs of \$150,000, and legal costs incurred to obtain the patent approval were \$20,000. The patent is assessed to have a useful life to 2030, or for ten years. Early in 2021, Nasja successfully defended the patent against a competitor, incurring a legal cost of \$22,000. This set a precedent for Nasja who was able to reassess the patent's useful life to 2035. During 2022, Nasja was able to create a product design that was feasible for commercialization, but no more certainty was known at that time. Costs to get the product design to this stage were \$250,000. Additional engineering and consulting fees of \$50,000 were incurred to advance the design to the manufacturing stage. Nasja follows IFRS.

**Required:**

- a. Prepare all the relevant journal entries for the project for 2020 to 2022, inclusive.
- b. What is the accounting treatment for the engineering and consulting fees of \$50,000?

**EXERCISE 11–15**

On December 31, 2020, a franchise that is owned by Horten Holdings Ltd. has a remaining life of thirty-two years and a carrying amount of \$1,000,000. Management estimates the following information about the franchise:

Fair value	1,000,000
Disposal costs	45,000
Discounted cash flows (value in use)	1,100,000
Undiscounted future cash flows	1,200,000

**Required:**

- a. Determine if the franchise was impaired at the end of 2020 and prepare the journal entry, if any, if Horten follows IFRS.
- b. Assume now that the recoverable amount was \$950,000. Prepare the journal entry for the impairment, if any (IFRS).
- c. How would your answer in part (a) change if the fair value at the end of 2020 was \$1.35M?
- d. Assume the amounts used for part (a). How would your answers change for parts (a) to (c), if the franchise was estimated to have an indefinite life and last into perpetuity (IFRS)?
- e. How would your answers change for parts (a) to (c), if the company followed ASPE and an indication of impairment existed?
- f. How would your answer change for part (d) if the franchise was estimated to have an indefinite life and last into perpetuity (ASPE)?

**EXERCISE 11–16**

On January 1, 2020, Boxlight Inc. purchased the net assets from Candelabra Ltd. for \$230,000 cash and a note for \$50,000. On that date, Candelabra's list of balance sheet accounts was:

	Carrying value	Fair value – if different than carrying value
Cash	\$ 55,000	
Accounts receivable (net)	125,000	
Inventory	200,000	
Land	15,000	\$35,000
Buildings (net)	125,000	95,000
Equipment (net)	15,000	5,000
Patent (net)	25,000	0
Customer list (net)	5,000	0
Accounts payable	300,000	
Common shares	100,000	
Retained earnings	165,000	

Accounts receivable is shown net of estimated bad debt of \$10,000. Buildings, equipment, patent, and customer list are shown net of depreciation/amortization of \$75,000, 15,000, 5,000, and 1,000, respectively.

**Required:**

- Prepare the journal entry to record the purchase.
- What would Boxlight have considered when determining the purchase price for \$280,000?
- On December 15, 2020, Boxlight suspected a possible impairment of the reporting entity so it assessed the net assets that had a carrying value of \$200,000 on that date. Management determined that the fair value of the net assets, including goodwill, was \$180,000. Determine if there was any impairment of the reporting entity and record the journal entry, if any. Boxlight follows ASPE.
- Assume now that Boxlight follows IFRS and assesses the cash-generating unit annually for impairment. How would the answer in part (c) change, given the CGU's values as follows:

Carrying amount	\$180,000
Fair value	160,000
Disposal costs	10,000
Value in use	170,000

- How would your answer in (c) and (d) change if, one year later, there was an increase in the fair value and recoverable amount to \$190,000?
-

### Chapter 2 Solutions

#### EXERCISE 2–1

Information asymmetry simply means that one party to a business transaction has more information than the other party. This problem is demonstrated by the situation where business managers know more about the business's operations than outside parties (e.g., investors and lenders). The information asymmetry problem can take two forms—adverse selection and moral hazard. With adverse selection, a manager may choose to act on inside knowledge of the business in a way that harms outside parties. Insider trading by managers using non-public knowledge may distort market prices of securities and create distrust in investors. Accounting attempts to deal with the problem by providing as much timely information to the market as possible. Moral hazard occurs when a manager shirks or otherwise performs in a substandard fashion, knowing that his or her performance as an agent is not directly observable by the principal (owner). Accounting tries to deal with this problem by providing information to business owners that can help assess management's level of performance. Although the field of accounting does attempt to solve these problems through the provision of high quality information, information asymmetry can never be completely eliminated, so the accounting profession will always seek ways to improve the usefulness of accounting information.

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#### EXERCISE 2–2

Canada allows privately-owned businesses to use Accounting Standards for Private Enterprise (ASPE) or International Financial Reporting Standards (IFRS), while requiring publicly accountable enterprises to use IFRS. IFRS is partially or fully recognized in over 125 countries as the appropriate accounting standard for companies that trade shares in public markets. The main advantage of using a consistent standard around the world is that investors can understand and compare investment opportunities in different countries without having to make conversions or adjustments to reported results. This is an important feature as markets have become more globalized and capital more mobile. By requiring IFRS for publicly-traded companies, Canada has attempted to maintain the competitiveness of these companies in international financial markets. By allowing private companies the option to report under

ASPE instead, standard setters have created an environment that could be more responsive to local needs and unique, Canadian business circumstances. As well, many features of ASPE are simpler to apply than IFRS, which may reduce accounting costs for small, non-public businesses.

The major disadvantage of maintaining two sets of standards is cost. The burden of standard setters is increased, and these costs will ultimately be passed on to businesses that are required to report. As well, having two sets of standards may create confusion among investors and lenders, as public and private company financial statements may not be directly comparable.

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### **EXERCISE 2–3**

The conceptual framework is a high-level structure of concepts established by accounting standard setters to help facilitate the consistent and logical formulation of standards, and provide a basis for the use of judgment in resolving accounting issues. This framework is essential to standard setters as they develop new accounting standards in response to changes in the economic environment. The framework gives the standard setters a basis and set of defining principles from which to develop new standards. The framework is also useful to practicing accountants, as it can provide guidance to them when interpreting unusual or new business transactions. The framework gives practicing accountants the tools and support to critically evaluate accounting treatments of specific transactions that may not appear to fit into standard definitions or norms. Without a proper conceptual framework, accounting standards may become inconsistent and ad-hoc, and their application may result in financial statements that are not comparable, resulting in less confidence in capital markets.

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### **EXERCISE 2–4**

The two fundamental characteristics of good accounting information are relevance and faithful representation. Relevance means that the piece of information has the ability to influence one's decisions. This characteristic exists if the information helps predict future events or confirm predictions made in the past. Some relevant information may have both predictive and confirmatory value, or it may only meet one of these needs. Faithful representation means that the information being presented represents the true economic state or condition of the item being reported on. Faithful representation is achieved if the information is complete, neutral, and free from error. Complete information reports all the factors necessary for the reader to fully understand the underlying nature of the economic event. This may mean that additional narrative disclosures are required as well as the quantitative value. Neutral information is unbiased and does not favour one particular outcome or prediction over another. Freedom from error means that the reported information is correct, but it does not have to be 100% error free. The concept of materiality allows for insignificant errors to still be present in the information, as

long as those errors have no influence on a reader's decisions. Although both relevance and faithful representation need to be present for information to be considered useful, accountants face difficulties in achieving maximum levels of both characteristics simultaneously. As a result, trade-offs are often required, which may lead to imperfect information. Accountants are also often faced with a trade-off between costs and benefits. It may be too costly to guarantee 100% accuracy, so a little faithful representation may need to be given up to maintain the relevance of the information. This means that the accountant will need to apply good judgment in balancing the trade-offs in a way that maximizes the usefulness of the information.

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### EXERCISE 2-5

The four enhancing qualitative characteristics are comparability, verifiability, timeliness, and understandability. Comparability means information from two or more different businesses or from the same business over different time periods can be compared. Verifiability means two independent and knowledgeable observers could come to the same conclusion about the information being presented. Timeliness means that information needs to be current and not out of date. The older the information, the less useful it becomes for decision-making purposes. Understandability means that a reader with a reasonable understanding of business transactions should be able to understand the meaning of the accounting information being disclosed. Timeliness is often in conflict with verifiability, as verification of information takes time. Financial statements are almost always issued under deadlines; the optimal level of verification may not be achieved. Likewise, understandability may be enhanced with more careful drafting of the supplemental disclosures, but time constraints may interfere with this function. Understandability and comparability may both be influenced by the company's need to keep certain information confidential in order to avoid giving away a competitive advantage. All of these characteristics may be influenced by matters of cost. Businesses will make rational decisions by weighing the costs of certain actions against the benefits received. Cost considerations may result in accounting information not achieving the maximum levels of all of the qualitative characteristics. Balancing the trade-offs of these characteristics with the cost considerations is one of the largest challenges faced by practicing accountants.

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### EXERCISE 2-6

- a. A reduction of both assets and equity
- b. An exchange of equal value assets
- c. An exchange of assets of unequal value resulting in income and expense and a resulting increase in equity (assumes goods are sold for an amount greater than cost)
- d. Recognition of an expense, resulting in a decrease in equity and a liability

- e. An asset is received and an equal value liability is recognized
  - f. Recognition of an expense, resulting in a decrease in equity and a liability
  - g. An equal increase in an asset and equity
  - h. An equal increase in an asset and a liability
  - i. An exchange of assets of unequal value, resulting in income and an increase in equity
  - j. A recognition of an expense, resulting in a decrease in equity, and a contra-asset
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### EXERCISE 2–7

An item is recognized in the financial statements if it: (a) meets the definition of an element, (b) can result in probable future economic benefits to or from the entity, and (c) can be measured reliably. These criteria can be applied as follows.

- a. The company has received an asset, but the company has not yet achieved substantial performance of the contract. The contract will be performed as issues of the magazines are delivered. Thus, the appropriate offsetting element to the asset is a liability, as a future obligation is created. As each issue is delivered, the liability is reduced and income can be recognized. The amount can be measured reliably, as the cash has already been received and the price of each magazine issue has already been determined.
- b. The appropriate element here is the liability that is being created by the lawsuit. Because the lawsuit results from a past event that creates a present obligation to pay an amount in the future, the definition of a liability is met. It also appears that the outflow of economic benefits is probable, based on the lawyer's evaluation. However, if there really is no way to reliably measure the amount, then the liability should not be recognized. However, the lawyers should make a reasonable effort based on prior case law, the facts of the case, and so forth, to see if an amount can be reliably estimated. Even if the amount is not recognized, the lawsuit should still be disclosed in the notes to the financial statements as this information is likely relevant to those reading the financial statement.
- c. An asset is normally created and income recognized when the invoice is issued. The future economic benefit exists, is the result of a past event, and can be measured reliably, based on the terms of the contract. In this case, however, there is some issue regarding the probability of realizing the future economic benefits. A careful analysis of the situation is required to determine if recognition of an asset is appropriate. Only the amount whose collection can be deemed probable should be recognized. Even if the amount is not recognized, the contract should still be disclosed in the supplemental information, as this information is likely relevant to financial statement readers.

- d. The question of whether this meets the definition of an asset needs to be addressed. Is the goodwill being recorded a “resource controlled by the entity”? Goodwill, by definition, is intangible, but it is not clear what exactly is generating the goodwill in this case. It is difficult to say that this even meets the definition of an asset. If this definitional argument is stretched, it would still be difficult to recognize the element, as it is unlikely to pass the reliable measurement test. An asset based on the current share price is not reliably measured, as share prices are volatile and transitory. No recognition of the asset and corresponding equity amount is warranted in this case.
- e. This does appear to meet the definition of a liability, as the past event (the drilling) results in a present obligation (the requirement to clean up the site) in the future. This type of liability should normally be recorded at the present value of the expected outflow of resources in 10 years time, as this outflow is probable. The company may have some difficulty measuring the amount, as they have no experience with this type of operation. However, an estimate should be able to be made using engineering estimates, industry data, and so forth. The other item that needs to be estimated is the appropriate discount rate for the present value calculation. Again, the company can use its cost of capital or other appropriate measure for this purpose. This liability and an expense should be recognized, although estimation will be required. Additional details of the method of estimation would also need to be disclosed.

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### EXERCISE 2–8

The four measurement bases are historical cost, current cost, realizable (settlement) value, and present value. Historical cost represents the actual transaction cost of an element. This is normally very reliably measured, but may not be particularly relevant for current decision making purposes. Current cost represents the amount required to replace the current capacity of the particular asset being considered, or the amount of undiscounted cash currently required to settle the liability. This base is considered more relevant than historical cost, as it attempts to use current market information to value the item. However, many items, particularly special purpose assets, do not have active markets and are, thus, not reliably measured by this approach. Realizable value represents the amount that an asset can currently be sold for in an orderly fashion (i.e., not a “fire-sale” price) or the amount required to settle a liability in the normal course of business. Again, this has the advantage of using current market conditions, making it more relevant than historical cost. However, as with current cost, active disposal markets for the asset may not exist. As well, realizable value is criticized as being irrelevant in cases where the company has no intention of disposing of the asset for many years. Present value is, perhaps, the most theoretically justified measurement base. In this case, all assets and liabilities are measured at the present value of the related future cash flows. This measure is highly relevant, as it represents the value in use to the organization. The problem with this approach is that it is difficult to reliably estimate the timing and probability of the future cash flows. As well, determinations need to be made regarding the appropriate discount rate, which may not always have a clear answer.

**EXERCISE 2–9**

Capital maintenance refers to the amount of capital that investors would want to be maintained within the business. This concept is important to investors, as the level of capital maintenance required may influence an investor's choice as to which company to invest in. The measurement of an investor's capital can be defined in terms of financial capital or physical capital.

Financial capital maintenance simply looks at the amount of money in a business, measured by changes in the owners' equity. This can be measured simply by looking at monetary amounts reported in the financial statements. The problem with this approach is that it doesn't take into account purchasing power changes over time. The constant purchasing power model attempts to get around this problem by adjusting capital requirements for inflation by using a broadly based index, such as the Consumer Price Index. The problem with this approach is that the index chosen may not accurately reflect the actual level of inflation experienced by the company. Physical capital maintenance tries to get around this problem by measuring the physical capacity of the business, rather than the financial capacity. The advantage of this approach is that it measures the actual productivity of the business and is not affected by inflation. The disadvantage of this method is that it is not easy or cost-effective to measure the productive capacity of each asset within the business.

Because each capital maintenance model involves trade-offs, the conceptual framework does not draw a conclusion on which approach is the best. Rather, it suggests that end needs of the financial statement users be considered when determining to apply capital maintenance concepts to specific accounting standards.

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**EXERCISE 2–10**

Principles-based standards present a series of basic concepts that professional accountants can use to make decisions about the appropriate accounting treatment of individual transactions. Rules-based standards, on the other hand, are more prescriptive and detailed. These standards attempt to create a rule for any situation the accountant may encounter. The main advantage of principles-based systems is their flexibility. They allow the accountant the latitude to apply judgment to deal with new situations or unusual circumstances. This flexibility, however, can also cause problems for the accountant, as there could be pressure to stretch the professional judgment in a way that creates misleading financial statements. As well, the application of judgment in the preparation of financial statement could result in reports that are not comparable, as other accountants may arrive at different conclusions for similar transactions. This suggests that the verifiability characteristic may also be compromised. The main advantage of rules-based approaches is the certainty and comparability offered by detailed rules. Readers can have confidence that similar transactions are reported in similar ways. As well, this may reduce the accountant's professional liability, as long as the rules have

been applied correctly. The main disadvantage of the rules-based systems is their inflexibility. Prescription of specific accounting treatments can result in financial engineering, wherein new transactions are designed solely for the purpose of circumventing the rules. This can create misleading financial reports, where the true nature of the transactions is not reflected correctly. As well, overly detailed rules can create a problem of understandability, not only for the readers, but even for the professional accountants themselves. As a practical matter, all systems of accounting regulation contain both broad principles and detailed rules. The challenge for accounting standard setters is to find the right balance of rules and principles.

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### EXERCISE 2-11

Managers may attempt to influence the outcome of financial reporting for a number of reasons. Managers may have bonus or other compensation schemes that are directly tied to reported results. Managers are rational in attempting to influence their own compensation, as they understand that compensation earned now is more valuable than compensation that is deferred to future periods. Even if the manager's compensation is not directly tied to financial results, the manager may still have an incentive to make the company's results look as good as possible, as this would enhance the manager's reputation and future employment prospects. Managers will also feel pressure from shareholders to maintain a certain level of financial performance, as public securities markets can be very punitive to a company's share price when earnings targets are not reached. Shareholders do not like to see the price of the share fall drastically. On the other hand, shareholders also want to have a realistic assessment of the company's earning potential. These conflicting goals may create a complicated dynamic for the manager's behaviour in crafting the financial statements. Managers are also influenced by the conditions of certain contracts, such as loan agreements. Loan covenants may require the maintenance of certain financial ratios, which clearly puts pressure on managers to influence the financial reports in a certain fashion. Managers may also feel pressure to keep earnings low where there are political consequences of being too profitable. This may occur when a company has disproportionate power over the market, or where there is a public interest in the operations of the business. The company does not want to demonstrate earnings that are too high, as it risks attracting additional taxation, penalties, or other actions that may restrict future business.

The pressures that managers feel to influence financial results will eventually find their way to the accountant, as the accountant is ultimately responsible for creating the financial statements. Whether the accountant is internal or external to the business, his or her work must be performed ethically and professionally. The accountant must always act with integrity and objectivity, and must avoid being influenced by the pressures that may be exerted by managers or other parties. The accountant must demonstrate professional competence and must keep client information confidential. The accountant should not engage in any work that falls outside of the scope of that accountant's professional capabilities. As well, the accountant must not engage in any behaviour that discredits the profession. Although it is easy to describe the accountant's professional responsibilities, it is not always easy to put

these concepts into practice. The accountant needs to be aware of the pressures faced in the reporting environment, and may need to seek outside advice when faced with ethical or professional problems. Ultimately, the accountant is a key player in establishing the overall credibility of financial reporting, and financial markets rely on this credibility to function in an efficient manner.

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### EXERCISE 2–12

The vice-president finance's comments hint at a threat to my objectivity as financial controller. The potential reward of the vice-president finance position should not influence how I perform my professional duties. The specific issues identified by the vice-president finance can be addressed as follows.

- a. This lawsuit appears to meet the definition of a liability, as it is a present obligation that results from a past transaction and will require a future outflow of economic resources. As well, it appears to have satisfied the recognition criteria, as the payment is probable and the amount can be estimated. This amount should be accrued this year, although prior years' financial statements do not need to be adjusted. Further consultation with the lawyers is required to determine the most reasonable amount to accrue within the range provided. Also, IFRS and ASPE use different approaches to accounting for provisions based on a range of values.
- b. A change in accounting policy should be disclosed in the notes to the financial statements. However, the change should also be accounted for in a retrospective fashion, where prior years' results are restated to show the effect of the change on those years. This retrospective treatment may result in a change in the effect on the current year's income. This treatment is necessary to maintain comparability with prior years' results.
- c. Prepayments from customers appear to meet the definition of a liability, as they represent a present obligation to deliver future resources to the customers (in this case, products to be manufactured). The recognition criteria also appear to have been met, so these amounts should be disclosed as liabilities. It is generally not appropriate to net assets and liabilities together, as this distorts the underlying nature of the individual financial statement elements.
- d. It is unlikely that this even meets the definition of an asset, as it cannot be said that we control the resource. Although we pay the research and development director's salary and likely have proprietary rights to his inventions, we cannot really say that the resource, his knowledge, is controlled by the company. Even if we stretch the definition of an asset here to include this knowledge, it still doesn't meet the recognition criteria, as there is no demonstration that the future flow of economic resources is either probable or measurable.

- e. The vice-president finance is indicating that year-end accounting adjustments need to be considered for their effects on the debt-to-equity ratio. All of the accounting treatments proposed by the vice-president finance would improve this ratio. However, all of the proposed accounting treatments are likely unsupported under the conceptual framework. It appears that the vice-president finance's objectivity may have been impaired by his requirement to prevent a debt covenant violation. It is likely that the vice-president finance's proposed accounting treatments will be challenged by the company's external auditors, which may create delays and other problems in issuing the financial statements. This could also cause problems with the bank. In performing my duties as the financial controller, I need to be aware of the threats to my objectivity. Although there is no evidence of any ethical conflict yet, I will need to perform my duties with integrity. If my actions do result in a conflict with the vice-president finance, I will need to carefully consider my actions. I may need to seek outside advice from my professional association and others, if necessary. Ultimately, I must ensure that I do not prepare financial statements that are false or misleading in any way.

## Chapter 3 Solutions

### EXERCISE 3-1

- a. Income from continuing operations = Income from operations + Gain on sale of FNVI investments – Income tax on income from continuing operations = \$125,000 + \$1,500 – \$34,155\* = \$92,345

$$* (125,000 + 1,500) \times 27\% = 34,155$$

$$\text{Net income} = \text{Income from continuing operations} - \text{Loss from operation of discontinued division (net of tax)} - \text{Loss from disposal of discontinued division (net of tax)} = \$92,345 - \$2,500 - \$3,500 = \$86,345$$

$$\text{Other comprehensive income} = \text{Unrealized holding gain} - \text{OCI (net of tax)} = \$12,000$$

$$\text{Total comprehensive income} = \text{Net income} + \text{other comprehensive income} = \$86,345 + \$12,000 = \$98,345$$

- b. Under ASPE, other comprehensive income and comprehensive income do not apply.

### EXERCISE 3-2

**Quality of Earnings:** In terms of earnings quality, there are issues. The company's net income includes a significant gain on sale of idle assets, which means that a sizeable portion of earnings were not generated from ongoing core business activities. Wozzie also changed their inventory policy from FIFO to weighted average, which is contrary to the method used within their industry sector. This is cause for concern as it raises questions about whether management is purposely trying to manipulate income. A change in accounting policy is only allowed as a result of changes in a primary source of GAAP or may be applied voluntarily by management to enhance the relevance and reliability of information contained in the financial statements for IFRS. Unless Wozzie's inventory pricing is better reflected by the weighted average method, contrary to the other companies in their industry sector, the measurement of inventory and cost of goods sold may be biased.

**Investing in the Company:** Investors and analysts will review the financial statements and see that part of the company's net income results from a significant gain generated from non-core business activities (the sale of idle assets) and will also detect the lower cost of goods sold resulting from the change in inventory pricing policy disclosed in the notes to the financial statements. As a result, investors will assess the earnings reported as lower quality, and the capital markets will discount the earnings reported to compensate for the biased information. Had Wozzie not fully disclosed the accounting policy change for inventory, the market may have taken a bit longer to discount that portion of the company's net income due to lower quality information.

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### EXERCISE 3–3

Eastern Cycles' sale of the corporate-owned stores to a franchisee would not qualify for discontinued operations treatment because the corporate-owned stores are not a separate major line of business. Under IFRS, a component of an entity comprises operations, cash flows, and financial elements that can be clearly distinguished from the rest of the enterprise, which is not the case as stated in the question information.

Under ASPE, selling the corporate-owned stores would also not qualify for discontinued operations treatment. The corporate-owned stores are likely a component of the company, but the franchisor is still involved with the franchisees because Eastern Cycles continues to provide product to them as well as advertising, training, and support. The cash flows of Eastern Cycles (the franchisor) are still affected by those of the franchisee since Eastern Cycles collects monthly fees based on revenues.

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### EXERCISE 3–4

a.

Bunsheim Ltd. Statement of Changes in Equity For the Year Ended December 31, 2020					
	Total	Common Shares	Comprehensive Income	Retained Earnings	Accumulated Other Comprehensive Income
Beginning balance as reported	\$707,000	\$480,000		\$ 50,000	\$177,000
Correction of understatement in travel expenses from 2019 of \$80,000 (net of tax of \$21,600)	(58,400)			(58,400)	
Beginning balance as adjusted	\$648,600	\$480,000		\$ (8,400)	\$177,000
Comprehensive income:					
Net income	130,853		\$130,853	130,853	
Other comprehensive Income:					
Unrealized gain – FVOCI investments**	25,000		25,000		25,000
Dividends declared	(45,000)			(45,000)	
Comprehensive income			\$155,853		
Ending balance	\$759,453	\$480,000		\$ 77,453	\$202,000

\*\* net of tax of \$5,000. May be reclassified subsequently to net income or loss

$$\text{Net income} = (\$680,000 - \$425,750 - \$75,000) = 179,250 \times (1 - 27\%) = \$130,853$$

Disclosures – prior period adjustments are to be reported net of tax with the tax amount disclosed. Unrealized gain on FVOCI investments is to be disclosed net of tax with tax amount disclosed and that it may be reclassified subsequently to net income or loss.

b.

Bunsheim Ltd. Statement of Retained Earnings For the Year Ended December 31, 2020	
Balance, January 1, as reported	\$ 50,000
Correction for understatement in travel expenses from 2019 of \$80,000 (net of tax of \$21,600)	(58,400)
Balance, January 1, as adjusted	(8,400)
Add: Net income	130,853
	122,453
Less: Dividends	45,000
Balance, December 31	<u>\$ 77,453</u>

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### EXERCISE 3–5

a.

Patsy Inc.  
 Partial Statement of Comprehensive Income  
 For the Year Ended December 31, 2020

Income from continuing operations		\$1,500,000
Discontinued operations		
Loss from operation of discontinued Calgary division (net of tax of \$52,500)	\$(122,500)	
Loss from disposal of Calgary division (net of tax of \$37,500)	(87,500)	(210,000)
Net income		1,290,000
Other comprehensive income		
Items that may be reclassified subsequently to net income or loss:		
Unrealized gain on FVOCI investments (net of tax of \$11,786*)		27,500
Total comprehensive income		\$1,317,500
Earnings per share		
Income from continuing operations**		\$ 30.00
Discontinued operations		(4.20)
Net income		\$ 25.80

\*  $(27,500 \div (1 - 0.3) = \$39,286$  before tax.  $\$39,286 - 27,500 = \$11,786$  tax)

\*\*Continuing operations  $\$1,500,000 \div 50,000$ ; discontinued operations  $(\$210,000 \div 50,000)$

Required disclosures: Items reported at their net of tax amounts must also disclose the tax amount. Earnings per share information related to income from continuing operations and discontinued operations are required under IFRS but earnings per share information related to comprehensive income are not required under IFRS.

- b. Had Patsy followed ASPE, other comprehensive income and total comprehensive income do not apply. Investments that are not quoted in an active market are accounted for at cost. This also assumes that the discontinued operations meet the definition of a discontinued operation under ASPE.

### EXERCISE 3-6

Calculation of increase or (decrease) in shareholders' equity:

Increase in assets:	\$41,670 + \$15,800 + \$218,400 - \$46,500 + 14,000	=	\$243,370
Increase in liabilities:	(\$23,400) + 45,200 + \$46,500	=	68,300
Increase in shareholders' equity:			\$175,070

Breakdown of shareholders' equity account:

Net increase		\$175,070
Increase in common shares	\$ 87,000	
Increase in contributed surplus	18,600	
Decrease in retained earnings due to dividend declaration	(44,000)	61,600
Increase in retained earnings due to net income		<u>\$113,470</u>

To solve algebraically use the basic accounting equation:

$$\text{Assets} = \text{Liabilities} + \text{Equity}$$

Restated:

$$\begin{aligned} \text{Change in assets} &= \text{change in liabilities} + \text{change in equity} \\ 243,370 &= 68,300 + X(\text{equity}) \end{aligned}$$

$$X = 243,370 - 68,300 = \$175,070 \text{ change in equity}$$

Since equity is made up of common shares + contributed surplus + retained earnings = \$175,070 then:

Change in equity – change in common shares – change in contributed surplus + dividends = change in retained earnings due to net income

$$175,070 - 87,000 - 18,600 + 44,000 = \$113,470$$

### EXERCISE 3–7

$$\frac{\$575,000 - \$75,000}{66,000} = \underline{\underline{\$7.58}} \text{ per share}$$

### EXERCISE 3–8

a.

Opi Co.  
Income Statement  
For the Year Ended December 31, 2020

Revenues	
Net sales revenue*	\$1,778,400
Gain on sale of land	39,000
Rent revenue	23,400
Total revenues	1,840,800
Expenses	
Cost of goods sold	1,020,500
Selling expenses**	587,600
Administrative expenses***	130,260
Total expenses	1,738,360
Income before income tax	102,440
Income tax	30,732
Income from continuing operations	71,708
Discontinued operations	
Gain on disposal of discontinued operations – South Division (net of tax of \$8,268)	19,292
Net income	\$ 91,000

\*  $\$1,820,000 - \$18,850 - \$22,750 = \$1,778,400$

\*\*  $\$561,600 + \$26,000 = \$587,600$

\*\*\*  $\$128,700 + \$1,560 = \$130,260$

Disclosure notes – COGS and most Other Revenue and Expense items are to be disclosed separately. Discontinued operations items are to be separately disclosed, net of tax, with tax amount disclosed.

Opi Co.  
Statement of Retained Earnings  
For the Year Ended December 31, 2020

Retained earnings, January 1 as reported	\$338,000
Less error correction (net of tax of \$4,050)	9,450
Retained earnings, January 1, as adjusted	328,550
Add: net income	91,000
	419,550
Less: dividends	58,500
Retained earnings, December 31	\$361,050

Prior period adjustments reported in retained earnings must be separately reported, net of tax with tax amount disclosed.

b.

Opi Co.  
Income Statement  
For the Year Ended December 31, 2020

Revenues	
Net sales revenue*	\$1,778,400
Gain on sale of land	39,000
Rent revenue	23,400
Total revenues	1,840,800
Expenses	
Cost of goods sold	1,020,500
Selling expenses**	587,600
Administrative expenses***	130,260
Total expenses	1,738,360
Income before income tax	102,440
Income tax	30,732
Income from continuing operations	71,708
Discontinued operations:	
Gain on disposal of discontinued operations – South Division (net of tax of \$8,268)	19,292
Net income	91,000
Retained earnings, January 1 as reported	338,000
Less error correction (net of tax of \$4,050)	9,450
Retained earnings, January 1, as adjusted	328,550
	419,550
Less dividends	58,500
Retained earnings, December 31	\$ 361,050

\*  $\$1,820,000 - \$18,850 - \$22,750 = \$1,778,400$

\*\*  $\$561,600 + \$26,000 = \$587,600$

\*\*\*  $\$128,700 + \$1,560 = \$130,260$

Disclosure notes – COGS and most Other Revenue and Expense items are to be disclosed separately. Discontinued operations items are to be separately disclosed, net of tax, with tax amount disclosed. Prior period adjustments reported in retained earnings must be separately reported, net of tax with tax amount disclosed.

### EXERCISE 3–9

a.

Ace Retailing Ltd.  
Statement of Income  
For the Year Ended December 31, 2020

Sales revenue		\$1,500,000
Less cost of goods sold		<u>750,000</u>
Gross profit		750,000
Less selling and administrative expenses		<u>245,000</u>
Income from operations		505,000
Other revenues and gains		
Interest income	\$ 15,000	
Gain on sale of FFNI investments	<u>45,000</u>	60,000
		<u>565,000</u>
Other expenses and losses		
Loss on impairment of goodwill	12,000	
Loss on disposal of equipment	82,000	
Loss from warehouse fire	<u>175,000</u>	269,000
Income from continuing operations before income tax		<u>296,000</u>
Income tax expense		79,920
Income from continuing operations		<u>216,080</u>
Discontinued operations		
Loss from operations, net of income tax recovery of \$76,950	208,050	
Gain from disposal, net of income taxes of \$31,050	<u>83,950</u>	124,100
Net income		<u>\$ 91,980</u>
Earnings per share		
Income from continuing operations*		\$ 0.34
Discontinued operations**		(0.31)
Net income		<u>\$ 0.03</u>
		(rounded)

\*  $(\$216,080 - \$82,000) \div 400,000 = 0.34$

\*\*  $(\$124,100) \div 400,000 \text{ shares} = (0.31)$

b.

Ace Retailing Ltd.  
Statement of Income and Comprehensive Income  
For the Year Ended December 31, 2020

Sales revenue	\$1,500,000	
Less cost of goods sold	750,000	
Gross profit	<u>750,000</u>	
Less selling and administrative expenses	245,000	
Income from operations	<u>505,000</u>	
Other revenues and gains		
Interest income	\$ 15,000	
Gain on sale of FVNI investments	45,000	60,000
	<u>60,000</u>	<u>565,000</u>
Other expenses and losses		
Loss on impairment of goodwill	12,000	
Loss on disposal of equipment	82,000	
Loss from warehouse fire	175,000	269,000
Income from continuing operations before income tax		<u>296,000</u>
Income tax expense		79,920
Income from continuing operations		<u>216,080</u>
Discontinued operations		
Loss from operations, net of tax recovery of \$76,950	208,050	
Gain from disposal, net of tax of \$31,050	83,950	124,100
Net income		<u>\$ 91,980</u>
Other comprehensive income		
Items that may be reclassified subsequently to net income or loss:		
Unrealized gain on FVOCI investments, net of income tax of \$5,022		13,578
Total comprehensive income		<u><u>\$ 105,558</u></u>
Earnings per share		
Income from continuing operations*		\$ 0.34
Discontinued operations**		(0.31)
Net income		<u>\$ 0.03</u>
		(rounded)

\*  $(\$216,080 - \$82,000) \div 400,000 = 0.34$

\*\*  $(\$124,100) \div 400,000 \text{ shares} = (0.31)$

C.

Ace Retailing Ltd.  
Statement of Comprehensive Income  
For the Year Ended December 31, 2020

Net income	\$ 91,980
Other comprehensive income	
Items that may be reclassified subsequently to net income or loss:	
Unrealized gain on FVOCI investments, net of income tax of \$5,022	13,578
Total comprehensive income	<u><u>\$105,558</u></u>

d.

Ace Retailing Ltd. Income Statement For the Year Ended December 31, 2020	
Revenues	
Sales revenue	\$1,500,000
Interest income	15,000
Gain on sale of FVNI investments	45,000
Total revenues	1,560,000
Expenses	
Cost of goods sold	750,000
Selling and administrative expenses	245,000
Loss on impairment of goodwill	12,000
Loss on disposal of equipment	82,000
Loss from warehouse fire	175,000
Total expenses	1,264,000
Income from continuing operations before income tax	296,000
Income tax	79,920
Income from continuing operations	216,080
Discontinued operations	
Loss from operations, net of income tax recovery of \$76,950	208,050
Gain from disposal, net of income taxes of \$31,050	83,950
	124,100
Net income	\$ 91,980
Earnings per share	
Income from continuing operations*	\$ 0.34
Discontinued operations**	(0.31)
Net income	\$ 0.03
	(rounded)

\*  $(\$216,080 - \$82,000) \div 400,000 = 0.34$

\*\*  $(\$124,100) \div 400,000 \text{ shares} = (0.31)$

e. Items are to be reported as Other Revenue and Expenses when using the multiple-step format for the statement of income. These are revenues, expenses, gains, and losses that are not realized or incurred as part of ongoing operations (for a retail business in this case). Examples of items that do not normally recur in a retail business are:

- Dividend revenue (from investments)
- Gain or loss on sale or disposal of current or long-term assets (i.e., investments, property, plant, equipment, and certain intangible assets such as patents and copyrights)
- Interest income or expense from receivables or investments
- Impairment losses on various assets not recorded through OCI
- Loss from fire, flood, and storm damages in areas not known for this activity

- Loss on inventory due to decline in NRV
- Rent revenue or other revenues not normally associated with the usual business of the company
- Unrealized gains or losses on investments not recorded to OCI

Note that as a rule, if the item is unusual *and material*, (consider size, nature, and frequency), the item is presented separately but included in income from continuing operations. If the item is unusual but *immaterial*, the item is combined with other items in income from continuing operations. So, there is a trade-off between additional disclosures of relevant information and too much disclosure resulting in information overload. Moreover, IFRS and ASPE reporting requirements vary and the standards change over time, so different items may need to be separately reported in one standard but not necessarily in the other standard. It is important to check the standards periodically to ensure that the latest reporting requirements are known.

### EXERCISE 3–10

Vivando Ltd.  
Income Statement (Partial)  
For the Year Ended December 31, 2020

Income from continuing operations before income tax		\$1,891,000*
Income tax		472,750
Income from continuing operations		<u>1,418,250</u>
Discontinued operations		
Loss from operation of discontinued subsidiary (net of tax of \$17,000)	\$(51,000)	
Loss from disposal of subsidiary (net of tax of \$28,150)	<u>(84,450)</u>	135,450
Net income		<u><u>\$ 1,282,800</u></u>
Earnings per share		
Income from continuing operations		\$ 6.30
Discontinued operations		<u>(0.60)</u>
Net income		<u><u>\$ 5.70</u></u>
*Income from continuing operations before income tax:		
As previously stated		\$ 1,820,000
Gain on sale of equipment (92,000 – 33,400 – 75,000)		16,400
Settlement of lawsuit		180,200
Write-off of accounts receivable		<u>(125,600)</u>
Restated		<u><u>\$ 1,891,000</u></u>

Note: The prior year error related to the intangible asset was correctly charged to opening retained earnings.

**EXERCISE 3–11**

a.

Spyder Inc.  
Income Statement  
For the Year Ended September 30, 2020

Sales Revenue			
Sales revenue			\$2,699,900
Less: Sales discounts	\$ 21,000		
Sales returns and allowances	87,220	108,220	
Net sales revenue			<u>2,591,680</u>
Cost of goods sold			1,500,478
Gross profit			<u>1,091,202</u>
Operating Expenses			
Selling expenses:			
Sales commissions expenses	\$136,640		
Entertainment expenses	20,748		
Freight-out	40,502		
Telephone and Internet expenses	12,642		
Depreciation expense	6,972	217,504	
Administrative expenses:			
Salaries and wages expenses	78,764		
Depreciation expense	10,150		
Supplies expense	4,830		
Telephone and Internet expense	3,948		
Miscellaneous expense	6,601	104,293	321,797
Income from operations			<u>769,405</u>
Other Revenues			
Gain on sale of land			78,400
Dividend revenue			53,200
			<u>901,005</u>
Other Expenses			
Interest expense			25,200
Income from continuing operations before income tax			<u>875,805</u>
Income tax			262,742
Income from continuing operations			<u>613,063</u>
Discontinued operations			
Loss on disposal of discontinued operations –			
Aphfflek Division (net of taxes of \$14,700)			34,300
Net income			<u>\$ 578,763</u>
Earnings per share from continuing operations			\$ 4.94*
from discontinued operations			(0.28)**
Net income			<u>\$ 4.66</u>

\* \$613,063 ÷ 124,000 common shares

\*\* \$34,300 ÷ 124,000

b.

Spyder Inc.  
Statement of Changes in Shareholders' Equity  
For the Year Ended September 30, 2020

	Common Shares	Retained Earnings	Accumulated Other Comprehensive Income	Total
Beginning balance as reported	\$454,000	\$215,600	\$162,000	\$831,600
Correction of error for depreciation expense from 2019 (net of tax recovery of \$7,434)		(17,346)		(17,346)
Beginning balance as restated	<u>454,000</u>	<u>198,254</u>	<u>162,000</u>	<u>814,254</u>
Comprehensive income:				
Net income		<u>578,763</u>		<u>578,763</u>
Total comprehensive income		<u>578,763</u>		<u>578,763</u>
Dividends – common shares		<u>(12,600)</u>		<u>(12,600)</u>
Ending balance	<u><u>\$454,000</u></u>	<u><u>\$764,417</u></u>	<u><u>\$162,000</u></u>	<u><u>\$1,380,417</u></u>

c.

Spyder Inc.  
Income Statement  
For the Year Ended September 30, 2020

Revenues	
Net sales revenue	\$2,591,680
Gain on sale of land	78,400
Dividend revenue	53,200
Total revenues	2,723,280
Expenses	
Cost of goods sold	1,500,478
Sales commissions expense	136,640
Entertainment expense	20,748
Freight-out	40,502
Telephone and Internet expense*	16,590
Depreciation expense**	17,122
Salaries and wages expense	78,764
Supplies expense	4,830
Miscellaneous operating expense	6,601
Interest expense	25,200
Total expenses	1,847,475
Net income from continuing operations before income tax	875,805
Income tax	262,742
Income from continuing operations	613,063
Discontinued operations	
Loss on disposal of discontinued operations – Aphfflek Division (net of taxes of \$14,700)	34,300
Net income	\$ 578,763
Earnings per share from continuing operations	4.84***
from discontinued operations	(0.28)****
Net income	\$ 4.56

\* \$12,642 + \$3,948

\*\* \$6,972 + \$10,150

\*\*\*  $(\$613,063 - \$12,600) \div 124,000$  common shares

\*\*\*\*  $\$34,300 \div 124,000$

d.

Spyder Inc.  
Statement of Comprehensive Income  
For the Year Ended September 30, 2020

Net income	\$578,763
Other Comprehensive Income:	
Items that may be reclassified subsequently to net income or loss:	
Unrealized gain on FVOCI investments (net of tax of \$7,500)	17,500
Comprehensive Income	\$596,263

## Chapter 4 Solutions

### EXERCISE 4-1

Account name	Classification
Preferred shares	Cap
Franchise agreement	IA
Salaries and wages payable	CL
Accounts payable	CL
Buildings (net)	PPE
Investment – Held for Trading	CA
Current portion of long-term debt	CL
Allowance for doubtful accounts	CA
Accounts receivable	CA
Bond payable (maturing in 10 years)	NCL
Notes payable (due next year)	CL
Office supplies	CA
Mortgage payable (maturing next year)	CL
Land	PPE
Bond sinking fund	LI
Inventory	CA
Prepaid insurance	CA
Income tax payable	CL
Cumulative unrealized gain or loss from an OCI investment	AOCI
Investment in associate	LI
Unearned subscriptions revenue	CL
Advances to suppliers	CA
Unearned rent revenue	CL
Copyrights	IA
Petty cash	CA
Foreign currency bank account or cash	CA

### EXERCISE 4-2

a.

Aztec Artworks Ltd.  
Statement of Financial Position  
As at December 31, 2021

Assets			
Current assets			
Cash			\$ 143,000
Investments (held for trading at fair value)			135,000
Accounts receivable	\$ 332,000		
Allowance for doubtful accounts	(12,000)		320,000
Inventory (at lower of FIFO cost and NRV)	<u>\$ 960,000</u>		
Inventory on consignment	20,000		980,000
Prepaid expenses			<u>30,000</u>
Total current assets			1,608,000
Long-term investments:			
Investment in bonds (held to maturity at amortized cost)			200,000
Bond sinking fund			100,000
Land held for investment (at cost)			<u>200,000</u>
			500,000
Property, plant, and equipment			
Building under construction	\$ 220,000		
Land (at cost)	<u>220,000</u>	440,000	
Building (at cost)	<u>\$1,950,000</u>		
Accumulated depreciation	(450,000)	1,500,000	
Equipment (at cost)	<u>500,000</u>		
Accumulated depreciation	(120,000)	<u>380,000</u>	2,320,000
Intangible assets:			
Patents (net of accumulated amortization for \$9,000)			<u>21,000</u>
Total assets			<u><u>\$4,449,000</u></u>
Liabilities and Shareholders' Equity			
Current liabilities			
Bank indebtedness	\$ 18,000		
Accounts payable	370,000		
Rent payable	120,000		
Notes payable	300,000		
Other payables	35,000		
Income tax payable	<u>80,000</u>		
Total current liabilities			\$ 923,000
Long-term liabilities:			
Bonds payable (20-year 5% bonds, due August 31, 2025)	800,000		
Pension obligation	<u>210,000</u>	1,010,000	
Total liabilities			1,933,000
Shareholders' equity			
Paid in capital			
Preferred, (\$2, non-cumulative, participating—authorized 50,000, issued and outstanding, 20,000 shares)	\$ 900,000		
Common (authorized, 900,000 shares; issued and outstanding 700,000 shares)	700,000		
Contributed surplus	<u>430,000</u>	2,030,000	
Retained earnings		326,000	
Accumulated other comprehensive income		<u>160,000</u>	2,516,000
Total liabilities and shareholders' equity			<u><u>\$4,449,000</u></u>

1	Cash balance, Dec 31	\$ 225,000	
	Plus bank overdraft	18,000	
	Less bond sinking fund	(100,000)	
	Adjusted cash balance, December 31	<u>\$ 143,000</u>	
2	Account receivable, Dec 31	\$ 285,000	
	Plus AFDA	12,000	
	Plus credit balances to be separately reported	35,000	
	Adjusted balance, Dec 31	<u>\$ 332,000</u>	
3	Inventory, Dec 31	\$ 960,000	
	Plus inventory on consignment	20,000	
	Adjusted balance, Dec 31	<u>\$ 980,000</u>	
	Inventory, net realizable value, Dec 31	985,000	
4	Land, Dec 31	\$ 420,000	
	Less land held for investment	(200,000)	
	Adjusted land, Dec 31	<u>\$ 220,000</u>	
5		Building	Equipment
	Balance, Dec 31	\$1,500,000	\$ 380,000
	Plus accumulated depreciation	450,000	120,000
	Adjusted balance, Dec 31	<u>\$1,950,000</u>	<u>\$ 500,000</u>
6	Goodwill, Dec 31	\$ 190,000	
	Removed – internally generated goodwill cannot be recognized	(190,000)	
	Adjust balance, Dec 31	<u>\$ –</u>	
7	Patents, Dec 31	\$ 21,000	
	Accum. amortization for 3 years ( $\$30,000 \div 10 \times 3$ yrs)	\$ 9,000	

Retained earnings =  $(\$501,000 + \$20,000 \text{ consignment inventory} - \$190,000 \text{ goodwill adjustment} - \$5,000 \text{ unrealized holding loss for trading investments}) = \$326,000$   
OR  $(\$4,449,000 - 1,933,000 - 2,030,000 - 160,000) = \$326,000$

b. Liquidity ratios:

$$\text{Current ratio} = 1,608,000 \div 923,000 = 1.74$$

$$\text{Quick ratio} = (143,000 + 135,000 + 320,000 = 598,000) \div 923,000 = 0.65$$

Activity ratios:

$$\begin{aligned}
 \text{Accounts receivable turnover} &= 3,000,000 \div 320,000 \\
 &= 9.38 \text{ times per year or every } 38.9 \text{ days } (365 \div 9.38) \\
 \text{Days' sales uncollected} &= 365 \div 3,000,000 \times 320,000 \\
 &= 40.4 \text{ days} \\
 \text{Inventory turnover} &= (3,000,000 \times 60\%) \div 980,000 \\
 &= 1.84 \text{ times per year or every } 198.4 \text{ days } (365 \div 1.84) \\
 \text{Asset turnover} &= 3,000,000 \div 4,449,000 \\
 &= 0.67 \text{ times}
 \end{aligned}$$

**Comments:**

In terms of liquidity, Aztec's current ratio of 1.74 suggests at first glance that it can meet its short-term obligations. However, when inventory and prepaid expenses are removed, the ratio drops to .65, which is short of the general rule of 1:1 for quick ratios. This may mean that inventory levels are too high. The inventory turnover ratio below will confirm if this is the case or not.

Activity ratios, such as the accounts receivable turnover, measure how quickly accounts are converted into cash. For Aztec, accounts receivable are collected every 38.9 days on average. Looking at days' sales uncollected, if a guideline of 30–40 days to collect is considered reasonable, then Aztec is close to the top end of the 40-day benchmark. Management would be wise to take steps to improve its receivables collections somewhat.

Inventory turnover of every 200 days or so appears to be very low, which could mean that too much cash is being tied up in inventory or there is too much obsolete inventory that cannot be sold. A turnover ratio that is too high can signal inventory shortages that may result in lost sales. A turnover ratio for each major inventory category will help to determine if the situation is wide-spread or limited to a particular inventory category.

Asset turnover for .67 times appears low but without industry standard ratios to use as a comparison benchmark, ratios become less meaningful.

**EXERCISE 4–3**

a.

Johnson Berthgate Corp.  
Statement of Financial Position  
As at December 31, 2021

Assets			
Current assets			
Cash		\$	131,000
Investments (held for trading at fair value)			120,000
Accounts receivable	\$330,000		
Allowance for doubtful accounts	(15,000)		315,000
Inventory (at lower of FIFO cost and NRV)			430,000
Prepaid expenses			6,000
Total current assets			1,002,000
Long-term investments:			
Investment in bonds (held to maturity at amortized cost)	190,000		
Investment, FVOCI	180,000		370,000
Property, plant, and equipment			
Land (at cost)		170,000	
Building (at cost)	\$ 660,000		
Accumulated depreciation	(110,000)	550,000	
Equipment (at cost)	390,000		
Accumulated depreciation	(50,000)	340,000	1,060,000
Intangible assets:			
Patents (net of accum. amort. of \$80,000 on a straight-line basis)	125,000		
Franchise (net of accum. amort. of \$45,000 on a straight-line basis)	115,000		240,000
Goodwill			30,000
Total assets			\$2,702,000
Liabilities and Shareholders' Equity			
Current liabilities			
Accounts payable	\$350,000		
Accrued liabilities	70,000		
Commissions payable	90,000		
Notes payable	60,000		
Unearned consulting fees	13,000		
Total current liabilities			583,000
Long-term liabilities:			
Bonds payable (20-year 5% bonds, due December 31, 2025)	655,684		
Note payable (3%, 5-year, due December 31, 2024)	571,875		1,227,559
Total liabilities			1,810,559
Shareholders' equity			
Paid in capital			
Preferred, (\$3, non-cumulative, authorized 1200, issued and outstanding, 800 shares)	\$ 80,000		
Common (unlimited authorized, issued and outstanding 260,000 shares)	520,000	600,000	
Retained earnings*		236,441	
Accumulated other comprehensive income		55,000	891,441
Total liabilities and shareholders' equity			\$2,702,000

\* 290,941 – 90,000 + 20,000 investment trading adj – 10,000 inventory adj + NI of \$25,500 = \$236,441

Net income = (4,858,000 + 40,000 + 102,000 – 3,050,000 – 11,000 – 8,500 – 135,000 –

$$1,190,000 - 580,000 = \$25,500$$

b.

$$\text{Debt ratio} = 1,810,559 \div 2,702,000 = 67.01\%$$

$$\text{Equity ratio} = 891,441 \div 2,702,000 = 32.99\%$$

Nearly 70% of all assets are provided by creditors, which is significant. Digging deeper and looking at the current ratio for 1.72 ( $1,002,000 \div 583,000$ ), it appears that the current assets will adequately cover the current liabilities. It follows that the \$1.2M in long-term obligations is the true risk for this company. The company may have to re-finance the note payable when comes due in 3 more years, or sell off any assets not currently contributing to profit. Selling off long-term assets is a reasonable step provided that the assets are idle and will not be used in the foreseeable future to earn profits. This company's debt ratio is high, so it has very little financial flexibility.

c. The credit balances in accounts receivable represent amounts owing to specific customers. IFRS requires that significant credit balances be separated and reported as a current liability.

$$\text{Current ratio without separation of the credit } 1,002,000 \div 583,000 = 1.72$$

$$\text{Current ratio with separation of the credit } (1,002,000 + 250,000) \div (583,000 + 250,000) = 1.50$$

Managers may not be aware of the impact that the reporting requirement (to classify credit receivables as current liabilities) can have on the current ratio. In this case, this ratio has weakened significantly once the credit amount of \$250,000 is reclassified from a current asset to a current liability. If the company had a restrictive covenant to maintain a current ratio of 1.7 times, this could spell disaster for the company in two ways. First, creditors expect a restrictive covenant ratio to be maintained *at all times*. If this ratio slips below that threshold, any short-term notes owing to the creditor would become payable immediately as a demand loan. This would create significant pressure to raise enough cash in a short period of time to make the single, large payment. Second, if the debt owing to that creditor also includes any long-term debt, the creditor could also force the company to reclassify the long-term balances to *current liabilities*, driving the current ratio even lower. This might be all that it takes to drive a marginally performing company into bankruptcy, which is a no-win for either the company or its creditors.

The following are possible conditions or situations that would give rise to a credit balance in accounts receivable customer accounts.

- Customers returned goods after the account was paid.
- A customer has overpaid an account in error.
- The company policy may be no cash refunds. Any returns would therefore be credited to the customer account to be used later for a future purchase.

- Most of the accounting software applications apply customer prepayments (un-earned revenues) as a credit balance in accounts receivable, since eventually the actual amounts when owed by the customer at the time the goods and services provided will be debited to the accounts receivable sub-ledger when the invoice is prepared.
  - On the basis of materiality, the credit balances, if insignificant, will likely remain with the existing accounts receivable as small credit balances.
- 

**EXERCISE 4-4**

a.

Hughey Ltd.  
Statement of Financial Position  
As at December 31, 2021

Assets			
Current assets			
Cash		\$	250,000
Accounts receivable	\$ 1,015,000		
Less allowance for doubtful accounts	(55,000)		960,000
Inventory—at lower of FIFO cost and NRV			1,300,000
Prepaid insurance			40,000
Total current assets			\$2,550,000
Long-term investments			
Investments, FVOCI, of which investments costing \$800,000 have been pledged as security for notes payable to bank			2,250,000
Property, plant, and equipment			
Land			530,000
Building	770,000		
Accumulated depreciation	(300,000)		470,000
Equipment	2,500,000		
Accumulated depreciation	(1,200,000)		1,300,000
Total property, plant, and equipment			2,300,000
Intangible assets			
Patents (net of accumulated amortization of \$35,000)			25,000
Total assets			\$7,125,000
Liabilities and Shareholders' Equity			
Current liabilities			
7% notes payable to bank, secured by investments which cost \$800,000;		\$	600,000
Accounts payable			900,000
Accrued liabilities			300,000
Total current liabilities			1,800,000
Long-term liabilities			
Bonds payable, 25-yr, 8%, due December 31, 2030, at amortized cost			1,100,000
Total liabilities			2,900,000
Shareholders' equity			
Paid-in capital			
Common shares; 100,000 shares authorized, 80,000 shares issued and outstanding			2,500,000
Retained earnings			1,330,000
Accumulated other comprehensive income		395,000*	4,225,000
Total liabilities and shareholders' equity			\$7,125,000

\* Opening balance of \$245,000 + \$150,000(\$2,250,000 – 2,100,000) for unrealized holding gain – OCI on FVOCI investments.

b. Patent annual amortization:

$60,000 - 25,000 = 35,000$  total amortization for the period January 1, 2015 to December 31, 2021 or 7 years amortized since its purchase.

$$\$35,000 \div 7 \text{ years} = \$5,000 \text{ per year}$$

- c. This company follows IFRS because it has classified and reported some of its investments as available for sale (OCI) which is a classification only permitted by IFRS companies. ASPE does not have this classification.

**EXERCISE 4–5**

Description	Section	Amount
Issue of bonds payable of \$500 cash	Financing	500
Sale of land and building of \$60,000 cash	Investing	60,000
Retirement of bonds payable of \$20,000 cash	Financing	(20,000)
Current portion of long-term debt changed from \$56,000 to \$50,000	Financing	*
Repurchase of company's own shares of \$120,000 cash	Financing	(120,000)
Issuance of common shares of \$80,000 cash	Financing	80,000
Payment of cash dividend of \$25,000 recorded to retained earnings	Financing	(25,000)
Purchase of land of \$60,000 cash and a \$100,000 note	Investing	(60,000)
Cash dividends received from a trading investment of \$5,000	Operating	5,000
Interest income received in cash from an investment of \$2,000	Operating	2,000
Interest and finance charges paid of \$15,000	Operating	(15,000)
Purchase of equipment for \$32,000	Investing	(32,000)
Increase in accounts receivable of \$75,000	Operating	(75,000)
Decrease in a short-term note payable of \$10,000	Operating	(10,000)
Increase in income taxes payable of \$3,000	Operating	3,000
Purchase of equipment in exchange for a \$14,000 long-term note	None: non-cash	-

\* The current portion of long-term debt for both years would be added to their respective long-term debt payable accounts and reported as a single line item in the financing section.

**EXERCISE 4–6**

- a.

Carmel Corp.  
Balance Sheet  
As at December 31, 2021

Assets			
Current assets			
Cash		\$	247,600
Accounts receivable (net) *			<u>109,040</u>
Total current assets			<u>356,640</u>
Investment in land (at cost)			220,000
Property, plant, and equipment			
Land	\$200,000		
Building (net)	87,200		
Equipment (net)	<u>198,000</u>	485,200	
Total assets			<u><u>\$1,061,840</u></u>
Liabilities and Shareholders' Equity			
Current liabilities			
Accounts payable		\$	55,200
Current portion of long-term debt			<u>32,000</u>
Total current liabilities			<u>87,200</u>
Long-term liabilities			
Mortgage payable			<u>110,200</u>
Total liabilities			<u>197,400</u>
Shareholders' equity			
Common shares	\$470,000		
Retained earnings	<u>394,440</u>	864,440	
Total liabilities and shareholders' equity			<u><u>\$1,061,840</u></u>

The required disclosures discussed in Chapter 3 that were missed were the AFDA, the accumulated depreciation for the building and equipment, the interest rate, securitization and due date for the mortgage payable classified as a long-term liability, and the authorized and issued common shares in the equity section.

Calculations Worksheet:

Adjustments					
		Dr	Cr	Dr	Cr
Cash	\$ 84,000	1,356,600 <sup>1</sup>	1,193,000 <sup>2</sup>	247,600	
Accounts receivable (net)	89,040	1,000,000	980,000	109,040	
Investments – trading	134,400		134,400	-	
Buildings (net)	340,200		225,000		
			28,000	87,200	
Equipment (net)	168,000	50,000	20,000	198,000	
Land	200,000	220,000		420,000	
	<u>\$1,015,640</u>			<u>\$1,061,840</u>	
Accounts payable	\$146,000	900,000	809,200		55,200
Mortgage payable	172,200	30,000			142,200
Common shares	400,000		70,000		470,000
Retained earnings	297,440	8,000	105,000		394,440
	<u>\$1,015,640</u>			2,123,680	<u>\$1,061,840</u>
Revenues	\$1,000,000	A/R	1,000,000		
Gain	2,200		2,200		
Total revenue	1,002,200				
Expenses					
Operating expenses	809,200	809,200			
Interest expenses	35,000	35,000			
Depreciation	48,000	48,000			
Loss	5,000	5,000			
	897,200				
Net Income	\$ 105,000	4,461,800	4,566,800		
			-105,000	net income	
		4,461,800	4,461,800	to retained earnings	

b.

<sup>1</sup>Cash increases due to 980,000 A/R collections, 136,600 proceeds from the sale of the trading investments, 220,000 from the sale of the building and 20,000 from the issuance of additional common shares = 1,356,600

<sup>2</sup>Cash decreases due to 900,000 payments of accounts payable, 8,000 payment of cash dividends, 220,000 for additional land, and 65,000 for payments for the mortgage payable = 1,193,000

Carmel Corp.  
Statement of Cash Flows  
For the Year Ended December 31, 2021

Cash flows from operating activities		
Net income		\$ 105,000
Adjustments for non-cash revenue and expense items in the income statement:		
Depreciation expense	\$ 48,000	
Gain on sale of investments	(2,200)	
Loss on sale of building	5,000	
Decrease in investments – trading	136,600	
Increase in accounts receivable (\$109,040 – \$89,040)	(20,000)	
Decrease in accounts payable (\$146,000 – \$55,200)	(90,800)	76,600
Net cash from operating activities		181,600
Cash flows from investing activities		
Proceeds from sale of building (\$225,000 – \$5,000)	220,000	
Purchase of land	(220,000)	
Net cash from investing activities		0
Cash flows from financing activities		
Reduction in long-term mortgage principal	(30,000)	
Issuance of common shares	20,000	
Payment of cash dividends	(8,000)	
Net cash from financing activities		(18,000)
Net increase in cash		163,600
Cash at beginning of year		84,000
Cash at end of year		\$247,600

## Note:

- The purchase of equipment through the issuance of \$50,000 of common shares is a significant non-cash financing transaction that would be disclosed in the notes to the financial statements.
- Cash paid interest     \$35,000  
Had there been cash paid income taxes, this would also be disclosed.

## c. Free cash flow:

Net cash provided by operating activities	\$ 181,600
Capital purchases – land	(220,000)
Cash paid dividends	(8,000)
Free cash flow	\$(46,400)

An analysis of Carmel's free cash flow indicates it is negative as shown above. Including dividends paid is optional, but it would not have made a difference in this case. What does make the difference in this case is that the capital expenditures are those needed

to sustain the current level of operations. In Carmel's case, the land was purchased for investment purposes and not to meet operational requirements. The free cash flow would more accurately be:

Net cash from operating activities	\$ 181,600
Capital purchases	0
Cash paid dividends	<u>(8,000)</u>
Free cash flow	<u><u>\$ 173,600</u></u>

This makes intuitive sense and is supported by the results from one of the coverage ratios.

The current cash debt coverage provides information about how well Carmel can cover its current liabilities from its net cash flows from operations:

$$\frac{\text{Net cash from operating activities}}{\text{Average current liabilities}}$$

Carmel's current cash debt coverage is  $(\$181,600 \div ((87,200 + 176,000) \times 50\%)) = 1.38$ . The company has adequate cash flows to cover its current liabilities as they come due and so overall, its financial flexibility looks positive.

In terms of cash flow patterns, Carmel has managed to more than triple its cash balance in the year mainly from cash generated from operating activities, which is a good trend. Carmel was able to pay \$8,000 in dividends, or a 1.7% return. If dividends are paid several times throughout the year, the return is more than adequate to investors. Carmel also sold off its traded investments for a profit and some idle buildings at a small loss to obtain sufficient internal funding for some land that it wants as an investment. Carmel also managed to lower its accounts payable levels by close to 60%. All this supports the assessment that Carmel's financial flexibility looks reasonable.

- d. The information reported in the statement of cash flows is useful for assessing the amount, timing, and uncertainty of future cash flows. The statement identifies the specific cash inflows and outflows from operating activities, investing activities, and financing activities. This gives stakeholders a better understanding of the liquidity and financial flexibility of the enterprise. Some stakeholders have concerns about the quality of the earnings because of the various bases that can be used to record accruals and estimates, which can vary widely and be subjective. As a result, the higher the ratio of cash provided by operating activities to net income, the more stakeholders can rely on the earnings reported.

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#### EXERCISE 4-7

Lambrinetta Industries Ltd.  
Statement of Cash Flows  
Year Ended December 31, 2021

Cash flows from operating activities	
Net income	\$ 161,500
Adjustments	
Depreciation expense*	\$ 25,500
Change in A/R	27,200
Change in A/P	11,900
Unrealized loss on investments—trading**	5,200
Investments purchased	<u>(12,000)</u>
	57,800
Net cash from operating activities	<u>219,300</u>
Cash flows from investing activities	
Sold plant assets	37,400
Purchase plant assets***	(130,900)
Net cash from investing activities	(93,500)
Cash flows from financing activities	
Note issued****	42,500
Shares issued for cash (81,600+37,400 in exch for land – 130,900 ending balance)	11,900
Cash dividends paid*****	(188,700)
Net cash from financing activities	<u>(134,300)</u>
Net decrease in cash	(8,500)
Cash at beginning of year	40,800
Cash at end of year	<u><u>\$ 32,300</u></u>

\* \$136,000 – 13,600 – 147,900

\*\* \$81,600 + 12,000 – 88,400

\*\*\* \$345,100 – 51,000 – 425,000

\*\*\*\* \$75,000 + 10,000 – 119,500 – 8,000

\*\*\*\*\* \$314,500 + 161,500 – 287,300

Disclosures:

Additional land for \$37,400 was acquired in exchange for issuing additional common shares.

**EXERCISE 4–8**

a.

Egglestone Vibe Inc.  
Statement of Cash Flows  
For the Year Ended December 31, 2021

Cash flows from operating activities		
Net income		\$ 24,700
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation expense (Note 1)	\$ 55,900	
Loss on sale of equipment (Note 2)	10,100	
Gain on sale of land (Note 3)	(38,200)	
Impairment loss—goodwill	63,700	
Increase in accounts receivable	(36,400)	
Increase in inventory	(67,600)	
Decrease in accounts payable	(28,200)	(40,700)
Net cash used by operating activities		<u>(16,000)</u>
Cash flows from investing activities		
Purchase of investments (FVOCI)	(20,000)	
Proceeds from sale of equipment	27,300	
Purchase of land (Note 4)	62,400	
Proceeds from sale of land	150,000	
Net cash provided by investing activities		94,900
Cash flows used by financing activities		
Payment of cash dividends (Note 5)	(42,600)	
Issuance of notes payable	10,500	
Net cash used by financing activities		<u>(32,100)</u>
Net increase in cash		46,800
Cash at beginning of year		37,700
Cash at end of year		<u><u>\$ 84,500</u></u>

Note: During the year, \$160,000 in notes payable were retired by issuing common shares.

Notes:

1.  $\$111,800 - \$15,600 + X = \$152,100; X = 55,900$

2.  $\$27,300 - (\$53,000 - \$15,600)$

3.  $\$150,000 - \$111,800$

4.  $\$133,900 - 111,800 + X = \$84,500$

5. Retained earnings account:  $\$370,200 + 24,700 - X = \$374,400$ ; Dividend declared but not paid =  $\$20,500$

Dividends payable account:  $\$41,600 + 20,500 - 19,500 = \$42,600$  cash paid dividends

- b. Negative cash flows from operating activities may signal trouble ahead with regard to Egglestone's daily operations, including profitability of operations and management of its current assets such as accounts receivable, inventory and accounts payable. All three of these increased the cash outflows over the year. In fact, net cash provided by

investing activities funded the net cash used by both operating and financing activities. Specifically, proceeds from sale of equipment and land were used to fund operating and financing activities, which may be cause for concern if the assets sold were used to generate significant revenue. Shareholders did receive cash dividends, but investors may wonder if these payments will be sustainable over the long term. Consider that dividends declared was \$20,500, which was quite high compared to the net income for \$24,700. In addition, the dividends payable account still had a balance payable for \$41,600 from prior dividend declarations not yet paid. All this adds up to increasing the pressure on the company to find enough funds to catch up with the cash payments to investors. Egglestone may not be able to sustain payment of cash dividends of this size in the long term if improvement regarding its profitability and management of receivables, payables and inventory are not implemented quickly.

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## Chapter 5 Solutions

### EXERCISE 5-1

Scenario 1: Amount to be received =  $\$80 \times 36 \text{ months} = \$2,880$

Allocate using relative fair values:

$$\text{Phone: } [500 \div (500 + (600 \times 3))] \times 2,880 = 626$$

$$\text{Air-time: } [(600 \times 3) \div (500 + (600 \times 3))] \times 2,880 = 2,254$$

Therefore, \$626 will be recognized immediately and \$2,254 will be deferred and recognized over the 3-year term of the contract.

Scenario 2: Amount to be received =  $(\$100 \times 24 \text{ months}) + \$300 = \$2,700$

Allocate using relative fair values:

$$\text{Phone: } [500 \div (500 + (600 \times 2))] \times 2,700 = 794$$

$$\text{Air-time: } [(600 \times 2) \div (500 + (600 \times 2))] \times 2,700 = 1,906$$

Therefore, \$794 will be recognized immediately and \$1,906 will be deferred and recognized over the 2-year term of the contract.

**EXERCISE 5–2**

Scenario 1: Allocate using residual values:

$$\begin{aligned} \text{Phone:} & \quad 2,880 - (600 \times 3) = 1,080 \\ \text{Air-time:} & \quad \quad \quad 600 \times 3 = 1,800 \end{aligned}$$

Therefore, \$1,080 will be recognized immediately and \$1,800 will be deferred and recognized over the 3-year term of the contract.

Scenario 2: Allocate using residual values:

$$\begin{aligned} \text{Phone:} & \quad 2,700 - (600 \times 2) = 1,500 \\ \text{Air-time:} & \quad \quad \quad 600 \times 2 = 1,200 \end{aligned}$$

Therefore, \$1,500 will be recognized immediately and \$1,200 will be deferred and recognized over the 2-year term of the contract.

**EXERCISE 5–3**

Art Attack Ltd. (consignor)

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Inventory on consignment .....		58,000	
	Finished goods inventory .....			58,000
	To segregate consignment goods.			
	Inventory on consignment .....		2,200	
	Cash .....			2,200
	To record freight.			
	Cash .....		67,700	
	Advertising expense .....		3,400	
	Commission expense .....		7,900	
	Consignment revenue .....			79,000
	To record receipt of net sales.			
	Cost of goods sold .....		48,160	
	Inventory on consignment .....			48,160
	To record COGS: [(58,000 + 2,200) x 80%]			

The Print Haus. (consignee)

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Account receivable .....		3,400	
	Cash .....			3,400
	To record payment of advertising.			
	Cash .....		79,000	
	Accounts payable .....			79,000
	To record sales of consigned goods.			
	Accounts payable .....		79,000	
	Accounts receivable .....			3,400
	Revenue from consignment sales .....			7,900
	Cash .....			67,700
	To record payment to consignor.			

**EXERCISE 5-4**

a.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash (800 × \$3,000) .....		2,400,000	
	Sales revenue (800 × \$3,000 × 99.5%) .....			2,388,000
	Refund liability (800 × \$3,000 × 0.5%) .....			12,000
	Cost of goods sold (800 × \$2,000 × 99.5%) .....		1,592,000	
	Refund asset (800 × \$2,000 × 0.5%) .....		8,000	
	Inventory (800 × \$2,000) .....			1,600,000

b.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Refund liability (1 × \$3,000) .....		3,000	
	Inventory (1 × \$2,000) .....		2,000	
	Cash .....			3,000
	Refund asset .....			2,000

At the time of sale, it was estimated that 4 desks would be returned during the refund period ( $800 \times 0.5\% = 4$ ). If a further 3 desks are returned before the refund period ends, journal entries similar to the one above would be made. If the refund period expires and the number of desks returned differs from the original estimate, the refund asset and

refund liability account will need to be adjusted through net income. As a practical matter, the company will likely review the balances of the refund asset and liability accounts as part of the year-end adjustment process.

**EXERCISE 5–5**

October journal entry:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Computer equipment .....		3,000	
	Unearned revenue .....			3,000
	Unearned revenue .....		250	
	Service revenue .....			250

November journal entry:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Unearned revenue .....		250	
	Service revenue .....			250

December journal entry:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Unearned revenue .....		250	
	Service revenue .....			250

**EXERCISE 5–6**

a. Construction Contract

	2020	2021
Costs to date (A)	\$20,000,000	\$ 31,000,000
Estimated costs to complete project	10,000,000	0
Total estimated project costs (B)	<u>30,000,000</u>	<u>31,000,000</u>
Percent complete (C = A ÷ B)	<u>66.67%</u>	<u>100.00%</u>
Total contract price (D)	35,000,000	35,000,000
Revenue to date (C × D)	23,333,333	35,000,000
Less previously recognized revenue	-	(23,333,333)
Revenue to recognize in the year	<u>23,333,333</u>	<u>11,666,667</u>
Costs incurred the year	<u>20,000,000</u>	<u>11,000,000</u>
Gross profit for the year	<u>\$ 3,333,333</u>	<u>\$ 666,667</u>

b. 2020 Journal Entry:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Construction in progress .....		20,000,000	
	Materials, payables, cash, etc. ....			20,000,000
	To record construction costs.			
	Accounts receivable .....		18,000,000	
	Billings on construction .....			18,000,000
	To record billings.			
	Cash .....		17,000,000	
	Accounts receivable .....			17,000,000
	To record collections.			
	Construction in progress .....		3,333,333	
	Construction expenses .....		20,000,000	
	Revenue .....			23,333,333
	To recognize revenue.			

2021 Journal Entry:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Construction in progress.....		11,000,000	
	Materials, payables, cash, etc. ....			11,000,000
	To record construction costs.			
	Accounts receivable.....		17,000,000	
	Billings on construction.....			17,000,000
	To record billings.			
	Cash.....		15,000,000	
	Accounts receivable.....			15,000,000
	To record collections.			
	Construction in progress.....		666,667	
	Construction expenses.....		11,000,000	
	Revenue.....			11,666,667
	To recognize revenue.			

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Billings on construction.....		35,000,000	
	Construction in progress.....			35,000,000
	To record completion.			

## EXERCISE 5-7

### a. Construction Contract

	2021	2022	2023
Costs to date (A)	\$1,100,000	\$ 3,400,000	\$ 4,500,000
Estimated costs to complete project	3,200,000	1,000,000	-
Total estimated project costs (B)	4,300,000	4,400,000	4,500,000
Percent complete (C = A ÷ B)	25.58%	77.27%	100.00%
Total contract price (D)	5,200,000	5,200,000	5,200,000
Revenue to date (C × D)	1,330,160	4,018,040	5,200,000
Less previously recognized revenue	-	(1,330,160)	(4,018,040)
Revenue to recognize in the year	1,330,160	2,687,880	1,181,960
Costs incurred the year	1,100,000	2,300,000	1,100,000
Gross profit for the year	\$ 230,160	\$ 387,880	\$ 81,960

### b. Balance Sheet

Current assets	
Accounts receivable	300,000*
Recognized contract revenues in excess of billings	718,040**

\* calculated as  $3,300,000 - 3,000,000 = 300,000$

\*\* calculated as  $(3,400,000 + 230,160 + 387,880) - 3,300,000 = 718,040$

### Income Statement

Contract revenues	2,687,880
Contract costs	<u>2,300,000</u>
Gross profit	<u>387,880</u>

## EXERCISE 5–8

### a. Construction Contract

	2020	2021	2022
Costs to date (A)	\$ 800,000	\$2,400,000	\$ 3,900,000
Estimated costs to complete project	2,100,000	1,600,000	-
Total estimated project costs (B)	<u>2,900,000</u>	<u>4,000,000</u>	<u>3,900,000</u>
Percent complete (C = A ÷ B)	<u>27.59%</u>	<u>60.00%</u>	<u>100.00%</u>
Total contract price (D)	3,500,000	3,800,000	3,800,000
Revenue to date (C × D)	965,650	2,280,000	3,800,000
Less previously recognized revenue	-	(965,650)	(2,280,000)
Revenue to recognize in the year	<u>965,650</u>	<u>1,314,350</u>	<u>1,520,000</u>
Costs incurred the year	<u>800,000</u>	<u>1,600,000</u>	<u>1,500,000</u>
Gross profit (loss) for the year	<u>\$ 165,650</u>	<u>(285,650)</u>	<u>20,000</u>
Additional loss to recognize (NOTE)		<u>(80,000)</u>	<u>80,000</u>
Gross profit (loss) for the year		<u>\$ (365,650)</u>	<u>\$ 100,000</u>

NOTE: Additional loss represents the expected loss on work not yet completed  $(3,800,000 - 4,000,000) \times 40\% = 80,000$

### b. Journal Entries

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Construction in progress .....		1,600,000	
	Materials, payables, cash, etc. ....			1,600,000
	To record construction costs.			
	Accounts receivable .....		1,100,000	
	Billings on construction .....			1,100,000
	To record billings.			
	Cash .....		1,000,000	
	Accounts receivable .....			1,000,000
	To record collections.			
	Construction expenses* .....		1,680,000	
	Construction in progress .....			365,650
	Revenue .....			1,314,350
	To recognize revenue.			

\* includes actual costs incurred plus additional loss to recognize

### EXERCISE 5-9

#### a. Zero Profit Method

	2020	2021	2022
Revenues recognized	800,000	1,600,000	1,400,000
Expenses	800,000	1,800,000	1,300,000
Gross profit		(200,000)	100,000

#### b. Completed Contract Method

	2020	2021	2022
Revenues recognized	0	0	3,800,000
Expenses	0	0	3,700,000
Gross profit	0	0	100,000
Loss on unprofitable contract		(200,000)	

## Chapter 6 Solutions

### EXERCISE 6–1

- a. Cash \$600,000
- b. Cash equivalent \$22,000
- c. Cash advance received from customer of \$2,670 should be included as a debit to cash and a credit to a liability account
- d. Cash advance of \$5,000 to company executive should be reported as a receivable
- e. Refundable deposit of \$13,000 to developer should be reported as a receivable or a prepaid expense
- f. Cash restricted for future plant expansion of \$545,000 should be reported as restricted cash in noncurrent assets
- g. The certificate of deposit of \$575,000 matures in nine months so it should be reported as a temporary investment
- h. The utility deposit of \$500 should be identified as a receivable or prepaid expense from the utility company
- i. The cash advance to subsidiary of \$100,000 should be reported as a receivable
- j. The post-dated cheque of \$30,000 should be reported as a payment of receivable when the post-date occurs; until the post-date, the \$30,000 is classified as a receivable
- k. Details of the \$115,000 cash restriction are to be separately disclosed in the balance sheet with further disclosures in the notes to the financial statements indicating the type of arrangement and amounts
- l. Cash \$13,000
- m. Postage stamps on hand are reported as part of supplies or prepaid expenses
- n. Cash \$520,000
- o. Cash held in a bond sinking fund is restricted; since the bonds are noncurrent, the restricted cash is also reported as noncurrent
- p. Cash \$1,200
- q. Cash \$13,000
- r. Cash equivalent \$75,400

- s. The NSF cheque of \$8,000 should be reported as a receivable

### EXERCISE 6–2

- a. (Partial SFP):

Current assets	
Cash and cash equivalent*	\$3,385,750
Restricted cash balance	175,000
Non-current assets	
Cash restricted for retirement of long-term debt	2,000,000
Current liabilities	
Bank indebtedness**	150,000

For Cash and cash equivalent\*:

Commercial savings account – First Royal Bank (\$575,000 – 175,000)	\$ 400,000
Commercial chequing account – First Royal Bank	450,000
Money market fund – Commercial Bank of British Columbia	2,500,000
Petty cash	1,500
Cash floats (5 × \$250)	1,250
60-day treasury bill**	18,000
Currency and coin on hand	15,000
Cash reported on December 31, 2020 balance sheet as a current asset	<u>\$3,385,750</u>

\*\* The treasury bill for \$18,000 is to be classified as a cash equivalent because the original maturity is less than 90 days.

\*\*\* The bank overdraft at the Lemon Bank for \$150,000 is to be reported separately as a current liability because there are no other accounts at Lemon Bank available for offset.

- b. Other items classified as follows:

- ii. The minimum balance at First Royal Bank of \$175,000 is reported separately as a restricted cash balance as a current asset cash balance. In addition, a description of the details of the arrangement should be disclosed in the notes.
- vii. The post-dated cheque for \$25,000 is for a payment on accounts receivable and should not be recognized until the cheque is deposited on January 18. It will be held in a secure location until then.
- viii. The post-dated cheque for \$1,800 is for unearned revenue and will not be recorded as unearned revenue until the cheque can be deposited on January 12. It will be held in a secure location until then. Revenue will be recorded and unearned revenue offset when legal title to the goods passes to the customer on January 20.

- ix. Travel advances for \$15,000 are to be reported as prepaid travel.
- x. The \$2,300 amount paid to the employee is to be reported as a receivable from the employee. It will be offset when collected from salary in January.
- xi. The treasury bill for \$50,000 should be classified as a temporary investment (current asset). It cannot be reported as a cash equivalent because the original maturity exceeds 90 days.
- xiv. Commercial paper should be reported as temporary investments (current asset).
- xv. Investments in shares should be classified with trading securities (current asset) at their fair value of \$4,060 ( $\$4.06 \times 1,000$  shares).

**EXERCISE 6–3**

Partial classified balance sheet:

Current assets		
Accounts receivable		
Customer Accounts (of which accounts in the amount of		
\$30,000 have been pledged as security for a bank loan)	\$275,000	
Other* (\$2,500 + \$6,000)	<u>8,500</u>	\$283,500
Non-Current Assets		
Accounts Receivable		
Advance to related company**		30,000
Instalment accounts receivable due after December 31, 2021		50,000

\* These items could be separately classified, if considered material.

\*\* This classification assumes that these receivables are not collectible in the near term based on the fact that they were advanced in 2015 and remain outstanding.

**EXERCISE 6–4**

a.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
July 1	Accounts receivable .....		120,000	
	Freight-out (operating expense).....		3,200	
	Cost of goods sold .....		60,000	
	Sales revenue .....			120,000
	Inventory .....			60,000
	Cash .....			3,200
July 5	Sales returns and allowances .....		9,000	
	Accounts receivable.....			9,000
	(3 × \$3,000)			
July 10	Cash .....		109,890	
	Sales discounts .....		1,110	
	Accounts receivable.....			111,000
	For Sales discounts: (((\$120,000 – 9,000) × 1%)			
July 14	Merchandise inventory .....		79,000	
	Accounts payable .....			79,000
	(\$1,500 × 50 + 4,000)			
July 17	Accounts receivable .....		224,000	
	Cost of goods sold .....		112,000	
	Inventory .....			112,000
	Sales revenue .....			224,000
July 26	Cash .....		110,320	
	Sales discounts .....		1,680	
	Accounts receivable.....			112,000
	For Sales discounts: (\$224,000 × 1.5% × 50%),			
	for Accounts receivable: (\$224,000 × 50%)			
Aug 30	Cash .....		112,000	
	Accounts receivable.....			112,000

b. The implied interest rate on accounts receivable paid to Busy Beaver from Heintoch within the 15-day discount period =  $1\% \div [(30 - 15) \div 365] = 24.33\%$ . This means that Heintoch would be using funds from the bank at a lower rate of 8% to save 24.33% interest on early payment of amounts owing to Busy Beaver. It is worthwhile to take advantage of the early payment discount terms in this case.

c.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
July 1	Accounts receivable .....		118,800	
	Freight-out (operating expense).....		3,200	
	Cost of goods sold .....		60,000	
	Sales revenue .....			118,800
	Inventory .....			60,000
	Cash .....			3,200
	For Accounts receivable and Sales revenue: \$120,000 × 99%			
July 5	Refund liability .....		8,910	
	Accounts receivable.....			8,910
	(\$9,000 × 99%)			
July 10	Cash .....		109,890	
	Accounts receivable.....			109,890
	(\$118,000 – 8,910)			
July 14	Merchandise inventory .....		79,000	
	Accounts payable .....			79,000
	(\$1,500 × 50 + 4,000)			
July 17	Accounts receivable .....		220,640	
	Cost of goods sold .....		112,000	
	Inventory .....			112,000
	Sales revenue .....			220,640
	For Accounts receivable and Sales revenue: \$224,000 × 98.5%			
July 26	Cash .....		110,320	
	Accounts receivable.....			110,320
Aug 30	Cash .....		112,000	
	Accounts receivable.....			110,320
	Sales discounts forfeited .....			1,680
Aug 30	Sales revenue .....		29,910	
	Refund liability .....			29,910
	(\$23,000 – 8,910 – 44,000)			

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**EXERCISE 6–5**

a.

Calculation of cost of goods sold:	
Opening inventory	\$ 35,000
Merchandise purchased	600,000
Less: Ending inventory	<u>225,000</u>
Cost of goods sold	<u>\$410,000</u>
Sales on account ( $\$410,000 \times 1.35$ )	553,500
Less collections deposited in bank	<u>420,000</u>
Uncollected balance	133,500
Balance per ledger	85,000
Unaccounted for shortage	<u>\$ 48,500</u>

- b. Accounts receivable balance per ledger of \$85,000 is less than estimated accounts receivable of \$133,500, suggesting that some accounts receivable collections may have been received but not actually deposited to the company's bank account.

Controls to help prevent theft include proper segregation of duties among the person initially in receipt of the cheque, the person depositing it, and the person recording the collection. Customers should be encouraged to pay by cheque so an audit trail is maintained. A timely completion of the monthly bank reconciliation would help detect if any cash was recorded as collected, but not actually deposited to the company's bank account.

### EXERCISE 6-6

a.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Bad debt expense .....		11,340	
	AFDA .....			11,340
	(( $\$225,000 \times 4%$ ) + 2,340)			
	Bad debt expense .....		8,995	
	AFDA .....			8,995
	( $141,000 \times 1\% + 53,500 \times 3\% + 10,500 \times 8\% + 20,000 \times 14\%$ ) = 6,655 + 2,340			
	Bad debt expense .....		2,160	
	AFDA .....			2,160
	(( $\$225,000 \times 2%$ ) - 2,340)			

- b. An unadjusted debit balance in the AFDA at year-end is usually the result of write-offs during the year exceeding the total AFDA opening credit balance. The purpose of the AFDA is to ensure that the net accounts receivable is valued at net realizable value on the balance sheet.

**EXERCISE 6–7**

a.

Balance, January 1, 2020	\$575,000
Bad debt expense accrual (1% × (\$16,000,000 × 0.75))	120,000
	695,000
Uncollectible receivables written off	(40,000)
Balance, December 31, 2020, before adjustment	655,000
Allowance adjustment	155,000
Balance, December 31, 2020	\$500,000

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Allowance for doubtful accounts .....		155,000	
	Bad debt expense .....			155,000

b. (Partial classified balance sheet as at December 31)

Current assets	
Accounts receivable	\$50,950,000
Less allowance for doubtful accounts	500,000
Net accounts receivable	50,450,000

The net accounts receivable balance is intended to measure the *net realizable value* of the accounts receivable at December 31.

c. The direct write-off approach is not in compliance with GAAP unless the amount of the write-off is immaterial. Direct write-off does not match (bad debt) expense with revenues of the period, nor does it result in receivables being stated at estimated net realizable value on the balance sheet.

**EXERCISE 6–8**

a.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
May 1 2020	Notes receivable .....		228,676	
	Services revenue .....			228,676
	PV = (0 PMT, 8 I/Y, 5 N, 336000 FV)			
Dec 31 2020	Notes receivable .....		12,196	
	Interest income .....			12,196
	(\$228,676 × 8% × 8 ÷ 12)			
Dec 31 2021	Notes receivable .....		19,270	
	Interest income .....			19,270
	([228,676 + 12,196] × 8%)			
Dec 31 2022	Notes receivable .....		20,811	
	Interest income .....			20,811
	([228,676 + 12,196 + 19,270] × 8%)			
Dec 31 2023	Notes receivable .....		22,476	
	Interest income .....			22,476
	([228,676 + 12,196 + 19,270 + 20,811] × 8%)			
Dec 31 2024	Notes receivable .....		24,274	
	Interest income .....			24,274
	([228,676 + 12,196 + 19,270 + 20,811 + 22,476] × 8%)			
May 1 2025	Cash .....		336,000	
	Notes receivable*** .....		8,297	
	Notes receivable*** .....			336,000
	Interest income** .....			8,297
	Interest = ([228,676 + 12,196 + 19,270 + 20,811 + 22,476 + 24,274] × 8%) × 4 ÷ 12 (rounded)			

\*\* rounded so that the carrying value was equal to \$336,000 at maturity

\*\*\* can be netted together into one amount for \$327,703 credit

b. Using a financial calculator input the following variables:

$$\begin{aligned} \text{Interest} &= +/- 228676 \text{ PV, } 0 \text{ PMT, } 5 \text{ N, } 336000 \text{ FV} \\ &= 7.99 \text{ or } 8\% \text{ rounded} \end{aligned}$$

c. (Partial balance sheet):

Non-current assets	
Notes receivable, no-interest-bearing, due May 1, 2025	\$260,142*

\* \$228,676 + 12,196 + 19,270

Unamortized discount as at December 31, 2021, is  $\$336,000 - 260,142 = 75,858$ .

As at December 31, 2024, the note would be classified as a current asset on the SFP because the maturity date of May 1, 2025, is within the next fiscal year.

- d. The fair value of the services provided can be used to value and record the transaction, instead of fair value of the note received.

**EXERCISE 6–9**

a.

Scenario i:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
July 1	Note receivable .....		120,000	
	Accounts receivable.....			120,000
Dec 31	Interest receivable.....		3,000	
	Interest income .....			3,000
	(\$120,000 × 5% × 6 months)			

Scenario ii:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
July 1	Note receivable .....		105,000	
	Accounts receivable.....			105,000
Dec 31	Note receivable .....		2,625	
	Interest income .....			2,625
	(\$105,000 × 5% × 6 ÷ 12))			

Scenario iii:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
July 1	Note receivable .....		104,545	
	Accounts receivable.....			104,545
	PV = (1 N, 10 I/Y, 115000 FV)			
Dec 31	Note receivable .....		5,227	
	Interest income .....			5,227
	(\$104,545 × 10% × 6 months)			

b.

Calculate interest from January 1 to July 1:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
July 1	Note receivable .....		5,228	
	Interest income .....			5,228
	(\$104,545 + \$5,227 – \$115,000)			

Calculate the loss from impairment:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
July 1	Cash .....		86,250	
	Loss on impairment of notes receivable .....		33,750	
	Note receivable .....			115,000
	For Cash: (115,000 × 75%)			

**EXERCISE 6–10**

a.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1	Notes receivable .....		13,478	
	Accumulated depreciation – equipment .....		65,400	
	Equipment .....			78,000
	Gain on sale of equipment .....			878
	For Accum. dep.: (\$78,000 – \$12,600)			

$$PV = (0 \text{ PMT}, 4 \text{ N}, 7.5 \text{ I/Y}, 18000 \text{ FV}) = \$13,478$$

Fair value of equipment (present value of note)	\$13,478
Carrying amount	12,600
Gain on sale of equipment	<u>\$ 878</u>

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Note receivable .....		1,011	
	Interest revenue .....			1,011
	First year interest: (\$13,478 × 7.5%)			
Dec 31	Cash .....		18,000	
	Note receivable .....			18,000
	Collection at maturity.			

- b. Since Harrison uses ASPE, either straight-line or the effective interest method can be used for recognizing interest income. Below is the calculation using the straight-line method. Interest income for \$1,131 for each of the next four consecutive years will be recorded.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Notes Receivable .....		1,131	
	Interest Income .....			1,131
	First year interest: $(\$18,000 - 13,478 =$ $\$4,522 \div 4 \text{ yrs} = 1,131)$			

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### EXERCISE 6-11

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash .....		472,000	
	Finance expense .....		28,000	
	Notes payable .....			500,000
	For a. $(800,000 \times 3.5\%)$			
	Cash .....		750,000	
	Accounts receivable .....			750,000
	For b.			
	Notes payable .....		500,000	
	Interest expense .....		9,375	
	Cash .....			509,375
	For c. $(\$500,000 \times 7.5\% \times 3 \div 12)$			

- d. To be recorded as a sale under IFRS, both of the following conditions must be met:
- The transferred assets risks and rewards of ownership have been transferred to the transferee. This is evidenced by transferring the rights to receive the cash flows from the receivables. Where the transferor continues to receive the cash flows, there must be a contractual obligation to pay these cash flows to the transferee without material delay.
  - The transferee has obtained the right to pledge or to sell the transferred assets to an unrelated party (concept of control).

To be recorded as a sale under ASPE, the *control over the receivables has been surrendered* as evidenced by **all of the following three conditions** being met:

- The transferred assets have been isolated from the transferor.

- ii. The transferee has obtained the right to pledge or to sell the transferred assets.
  - iii. The transferor does not maintain effective control of the transferred assets through a repurchase agreement.
- e. Management would likely prefer the receivables transfer transaction to be treated as a sale and derecognized from the accounts rather than a secured borrowing because the company would not have to record and report the additional debt in the SFP.

**EXERCISE 6–12**

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash .....		1,500,000	
	Loss on sale of receivables .....		200,000	
	Accounts receivable .....			1,450,000
	Recourse liability .....			250,000
	For Loss on sale: (\$250,000 – \$50,000)			

**EXERCISE 6–13**

a.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Feb 1 2020	Cash* .....		748,000	
	Due from Factor** .....		32,000	
	Loss on sale of receivables .....		30,000	
	Recourse liability .....			10,000
	Accounts receivable .....			800,000

\*  $\$800,000 \times (100\% - 2.5\% + 4\%)$ \*\*  $\$800,000 \times 4\%$ 

- b. Factoring the accounts receivable will improve the accounts receivable turnover ratio immediately after recording the entry on February 1 because the average accounts receivable amount in the denominator will decrease, making the ratio larger. For example, if sales were \$3.2M and accounts receivable before the sale was \$1.8M, the turnover ratio would be 1.78 ( $3.2M \div 1.8M$ ) compared to 3.2 ( $3.2M \div 1M$ ). If the calculation is made at the December 31 fiscal year-end, the balances of sales and average accounts receivable would no longer be affected by this transaction, and the accounts receivable

turnover ratio would not be affected. This is because time has passed and many of the accounts would have been collected by year-end, had the company not sold them to a factor.

**EXERCISE 6-14**

- a. i. Land in exchange for a note:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Notes Receivable .....		387,531	
	Land.....			250,000
	Gain on sale of land.....			137,531

$PV = (0 \text{ PMT}, 3 \text{ N}, 11 \text{ I/Y}, 530,000 \text{ FV}) = \$387,531$

- ii. Services in exchange for a note:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Notes Receivable .....		330,778	
	Service Revenue.....			330,778

$\text{Interest payment} = \$500,000 \times 3\% = \$15,000$

$PV = (15000 \text{ PMT}, 6 \text{ N}, 11 \text{ I/Y}, 500,000 \text{ FV}) = \$330,778$

- iii. Partial settlement of account in exchange for a note:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Notes receivable .....		43,257	
	Accounts receivable.....			43,257

$PV = (12000 \text{ PMT}, 5 \text{ N}, 12 \text{ I/Y}, 0 \text{ FV}) = \$43,257$

- b.

Instalment Note Receivable Effective Interest Method				
	Cash Payment	Interest @ 12%	Amortization	Carrying Amount of Note
				\$43,257
Oct 1 – Dec 31		1,298*	6,809	36,448
Jan 1 – Oct 1	\$12,000	3,893**		
Oct 1 – Dec 31		1,094	7,626	28,822
Jan 1 – Oct 1	12,000	3,280		
Oct 1 – Dec 31		865	8,541	20,281
Jan 1 – Oct 1	12,000	2,594		
Oct 1 – Dec 31		609	9,566	10,715
Jan 1 – Oct 1	12,000	1,825		
Oct 1 – Dec 31		322	10,715	–
Jan 1 – Oct 1	12,000	964		

\*  $\$43,257 \times 12\% \times 3 \div 12$

\*\*  $\$43,257 \times 12\% \times 9 \div 12$

Note – Some rounding differences will occur when calculating interest.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Interest receivable .....		1,298	
	Interest income .....			1,298
Oct 1	Cash .....		12,000	
	Note receivable .....			6,809*
	Interest income .....			3,893
	Interest receivable .....			1,298

\* See schedule above for the reduction in the principal amount after the first payment was made for \$12,000.

- c. From the perspective of Brew It Again, an instalment note reduces the risk of non-collection when compared to a non-interest-bearing note. In the case of the non-interest-bearing note, the full amount is due at the maturity of the note. The instalment note provides a regular reduction of the principal balance in every payment received annually. This is demonstrated in the effective interest table illustrated above for the instalment note.

**EXERCISE 6–15**

- a.

$$\begin{aligned} \text{Accounts Receivable Turnover} &= \frac{\text{Net Credit Sales}}{\text{Average Trade Receivables (net)}} \\ \text{(Using credit sales)} &= \frac{\$1,022,020^*}{(\$123,000 + \$281,760^{**}) \div 2} \\ &= 5.05 \text{ times or about 72 days} \end{aligned}$$

\*  $\$1,865,000 \times 54.8\% = 1,022,020$

\*\* Opening balance  $\$123,000 + 1,022,020 - 863,260 = 281,760$  closing balance. Note that the write-off of  $\$12,500$  does not affect net accounts receivable.

The average receivable is therefore about 72 days old ( $365 \div 5.05$ ).

- b. Credit sales are a better measure in the calculation of accounts receivable turnover ratio since cash sales do not affect accounts receivable balances. On this basis, Petervale Corporation’s accounts receivable turnover ratio has declined from the previous year. The average number of days to collect the accounts was 62 days ( $365 \div 5.85$ ) compared to 72 days for 2020. This could be an unfavourable trend for future liquidity, if customers continue to pay slowly. Petervale Corporation may want to consider offering discounts for early payments of accounts or tighten their credit policy.

It should be noted that credit sales are not always available when performing analysis and calculating the accounts receivables turnover ratio. When not available, the figure of net sales should be used. As long as the calculation is done consistently between years, or between businesses, the comparison will remain relevant.

**EXERCISE 6–16**

a.

Jersey Shores:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash .....		1,143,750	
	Due from factor .....		62,500	
	Loss on sale of receivables .....		43,750	
	Accounts Receivable .....			1,250,000
	For Due from factor: $(\$1,250,000 \times 5\%)$ , for			
	Loss on sale: $(\$1,250,000 \times 3.5\%)$			

Fast factors:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Accounts receivable .....		1,250,000	
	Due to customer .....			62,500
	Financing revenue .....			43,750
	Cash .....			1,142,750
	For Due to customer: ( $\$1,250,000 \times 5\%$ ), for Financing revenue: ( $\$1,250,000 \times 3.5\%$ )			

b.

Jersey Shores:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash .....		1,143,750	
	Due from factor .....		62,500	
	Loss on sale of receivables .....		51,150	
	Accounts receivable .....			1,250,000
	Recourse liability .....			7,400
	For Loss on sale: ( $\$43,750 + \$7,400$ )			

**EXERCISE 6–17**

General Journal				
Date	Account/Explanation	PR	Debit	Credit
July 11	Cash* .....		380,000	
	Loss on sale of receivables** .....		46,000	
	Recourse liability .....			12,000
	Accrued liabilities .....			14,000
	Accounts receivable .....			400,000

\*  $\$400,000 \times 95\%$ \*\*  $\$400,000 \times 95\% - \$14,000 - \$12,000 = \$354,000 - \$400,000$  carrying value of accounts receivable =  $\$46,000$ **Chapter 7 Solutions****EXERCISE 7–1**

Inventory would normally include the following items:

- Salaries of assembly line workers
- Raw materials
- Salary of factory foreman
- Heating cost for the factory
- Miscellaneous supplies used in production process
- Costs to ship raw materials from the supplier to the factory
- Electricity cost for the factory
- Depreciation of factory machines
- Property taxes on factory building
- Discounts for early payment of raw material purchases
- Salaries of the factory's janitorial staff

All of these costs can be considered either direct costs or attributable overhead costs. The CEO's and sales team salaries would not be considered costs directly attributable to the purchase and conversion of inventory.

### EXERCISE 7-2

	FOB Shipping	FOB Destination
Owns the goods while in transit	P	S
Is responsible for the loss if goods are damaged in transit	P	S
Pays for the shipping costs	P	S

### EXERCISE 7-3

- The company would allocate \$150,000 of overhead at the rate of  $\$150,000 \div 105,000 = \$1.4286$  per unit. As a practical matter, the company may choose to simply allocate based on the standard rate of \$1.50 per unit and record a small overhead recovery through cost of sales. This would be reasonable as the volume produced is close to the standard volume used to determine the rate.

- b. The company would allocate \$45,000 of overhead, using the standard rate of \$1.50 per unit. The remaining overhead would need to be expensed. This is necessary to avoid over-valuing the inventory.
- c. The company would allocate \$150,000 of overhead at the rate of  $\$150,000 \div 160,000 = \$0.9375$  per unit. The standard rate cannot be used here, as it would over-absorb the overhead cost into inventory.

**EXERCISE 7-4**

Date	Purchase	Sale	Balance	Balance of Units
May 1			$8 \times \$550.00 = \mathbf{\$4,400}$	8
May 5	$50 \times \$560.00$		$(8 \times \$550.00) + (50 \times \$560.00) = \mathbf{\$32,400}$	58
May 8	$10 \times \$575.00$		$(8 \times \$550.00) + (50 \times \$560.00) + (10 \times \$575.00) = \mathbf{\$38,150}$	68
May 15		$(8 \times \$550.00) + (7 \times \$560.00) = \mathbf{\$8,320}$	$(43 \times \$560.00) + (10 \times \$575.00) = \mathbf{\$29,830}$	53
May 22	$12 \times \$572.00$		$(43 \times \$560.00) + (10 \times \$575.00) + (12 \times \$572) = \mathbf{\$36,694}$	65
May 25		$(23 \times \$560.00) = \mathbf{\$12,880}$	$(20 \times \$560.00) + (10 \times \$575.00) + (12 \times \$572) = \mathbf{\$23,814}$	<b>42</b>

Cost of Goods Sold for May =  $(8,320 + 12,880) = \$21,200$

Ending Inventory on May 31 = \$23,814

**EXERCISE 7-5**

Date	Purchase	Sale	Balance	Average Cost	Balance of Units
May 1			$8 \times \$550.00 = \mathbf{\$4,400}$		8
May 5	$50 \times \$560.00$		$(8 \times \$550.00) + (50 \times \$560.00) = \mathbf{\$32,400}$		58
May 8	$10 \times \$575.00$		$(8 \times \$550.00) + (50 \times \$560.00) + (10 \times \$575.00) = \mathbf{\$38,150}$	\$561.03	68
May 15		$15 \times (\$38,150 \div 68) = \mathbf{\$8,415.45}$	$(53 \times \$561.03) = \mathbf{\$29,734.55}$	\$561.03	53
May 22	$12 \times \$572.00$		$(53 \times \$561.03) + (12 \times \$572.00) = \mathbf{\$36,598.55}$	\$563.05	65
May 25		$23 \times (\$36,598.55 \div 65) = \mathbf{\$12,950.15}$	$(42 \times \$563.05) = \mathbf{\$23,648.40}$	<b>\$563.05</b>	<b>42</b>

Cost of Goods Sold for May =  $(8,415.45 + 12,950.15) = \$21,365.60$

Ending Inventory on May 31 = \$23,648.40

**EXERCISE 7-6**

a. No grouping

Description	Category	Cost (\$)	Selling Price (\$)	LCNRV
Brake pad #1	Brake pads	159	140	140
Brake pad #2	Brake pads	175	180	175
Total brake pads		<u>334</u>	<u>320</u>	<u>315</u>
Soft tire	Tires	325	337	325
Hard tire	Tires	312	303	303
Total tires		<u><u>637</u></u>	<u><u>640</u></u>	<u><u>628</u></u>

Total LCNRV =  $(315 + 628) = 943$

Current carrying value =  $(\$334 + 637) = 971$

Adjustment required =  $(943 - 971) = (28)$

Journal entry required:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss due to decline in inventory value .....		28	
	Inventory .....			28

b. With grouping

Description	Category	Cost (\$)	Selling Price (\$)	LCNRV
Brake pad #1	Brake pads	159	140	
Brake pad #2	Brake pads	175	180	
Total brake pads		<u>334</u>	<u>320</u>	320
Soft tire	Tires	325	337	
Hard tire	Tires	312	303	
Total tires		<u>637</u>	<u>640</u>	637

Only the brake pad category needs to be written down. Total adjustment required =  $(320 - 334) = 14$

Journal entry required:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss due to decline in inventory value .....		14	
	Inventory .....			14

**EXERCISE 7-7**

NOTE: Positive amounts represent overstatements and negative amounts represent understatements.

Item	Inventory	A/R	A/P	Net Income
A	(82,000)	-		(82,000)
B	(4,000)	-	(6,000)	2,000
C	(27,000)	-	-	(27,000)
D	(2,000)	3,500	-	1,500
Total	(115,000)	3,500	(6,000)	(105,500)

**EXERCISE 7-8**

a.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Inventory .....		82,000	
	Cost of goods sold .....			82,000

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Inventory .....		4,000	
	Cost of goods sold .....		2,000	
	Accounts payable .....			6,000

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Inventory .....		27,000	
	Cost of goods sold .....			27,000

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Inventory .....		2,000	
	Cost of goods sold .....			2,000
	Sales returns and allowances .....		3,500	
	Accounts receivable .....			3,500

b. The journal entries would be the same, except any income statement accounts (cost of goods sold and sales returns) would be replaced with an adjustment to retained earnings.

**EXERCISE 7-9**

Inventory on January 1		\$275,000
Purchases (net of returns)		634,000
Goods available for sale		<u>909,000</u>
Sales	\$955,000	
Less gross profit (35% × \$955,000)	<u>334,250</u>	
Estimated cost of goods sold		<u>620,750</u>
Estimated inventory on March 4		288,250
Less undamaged goods (90,000 × (1 – 0.35))		<u>(58,500)</u>
Inventory damaged by fire		<u><u>\$229,750</u></u>

**EXERCISE 7-10**

Gross profit margin, by year:

$$2020: 3,058 \div 20,222 = 15.12\%$$

$$2019: 2,831 \div 13,972 = 20.26\%$$

The company's sales increased significantly between 2019 and 2020. This appears to be a positive result. The company's gross profit also increased. However, the gross profit margin decreased by 5.14%, which represents potential loss profits of approximately \$1 billion on the current sales volume. To investigate further, one should look at budgets and other management plans, as well as industry averages and competitor information. It would also be useful to look at longer trends to see if this decline in profitability is unique to this year or the sign of a longer term trend. Management explanations of the declining margin percentage, contained in the annual report, should also be evaluated to determine if the causes relate to slashing sales prices to increase volumes, increasing cost structures, or some combination of the two. Other macroeconomic data may also be useful in explaining the change.

Inventory Turnover Period, by year:

$$2020: [(2,982 + 1,564) \div 2 \div 17,164] \times 365 = 48.34 \text{ days}$$

$$2019: [(1,564 + 1,239) \div 2 \div 11,141] \times 365 = 45.91 \text{ days}$$

Inventory turnover has slowed from the previous year, indicating that goods are being held longer. This is also indicated by the build up of inventory over the three year period. Although the increased inventory may be reasonable as sales increase, the increase in the turnover period could create cash flow problems if the trend continues. Again, other comparative data is needed, such as budgets and industry averages, to evaluate the meaning of this result.

## Chapter 8 Solutions

### EXERCISE 8-1

- a. This investment will be classified as equity investments at cost less any reduction for impairment, because these are equity investments that are not publicly traded. They would be reported as either current or long-term, depending upon the intention of management to hold or sell within one year.
- b. Journal entries

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Other investments .....		50,500	
	Cash .....			50,500
	(50,000 + (500,000 × 1%))			
	Cash .....		1,125	
	Dividend revenue .....			1,125
	(500 shares × \$2.25)			
	Cash .....		56,430	
	Gain of sale of investments (net income) ...			5,930
	Other investments .....			50,500
	For Cash: (57,000 – (1% × 57,000))			

c. To purchase the investment:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Investments in shares – FVNI .....		50,000	
	Brokerage fee expense .....		500	
	Cash .....			50,500
	For Brokerage fee expense: (500,000 × 1%)			

To receive the cash dividends:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash .....		1,125	
	Dividend revenue .....			1,125
	(500 shares × \$2.25)			

Year-end adjusting entry to fair value for FVNI investments:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Investment in shares – FVNI .....		4,000	
	Unrealized gain on investments (NI) .....			4,000
	(\$108 – \$100 × 500 shares)			

For sale of investment:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash .....		56,430	
	Brokerage fee expense .....		570	
	Gain on sale of investments (to net income)			3,000
	Investment in shares – FVNI .....			54,000
	For Cash: (\$57,000 – 570), for Brokerage fee expense: (57,000 × 1%), for Investment in shares: (50,000 + 4,000)			

No year-end adjustments are needed under the cost method.

- d. Under ASPE, if the shares traded on an active market, they would be classified as a short-term trading investment at FVNI. The entries would be identical to the ones in part (c) above, including the adjustment to fair values at year end.

### EXERCISE 8-2

- a. Using a business calculator present value functions, solve for interest I/Y when the present value, payment, number of periods and future values are given:

$$PV = (PMT, I/Y, N, FV)$$

$$\pm 25,523 PV = 1000 PMT, \text{ unknown } I/Y, 10 N, 25000 FV = 3.745\% \text{ (rounded)}$$

- b.

Face value of the bond	\$25,000
Present value of the bond	25,523
Bond premium	<u>\$ 523</u>

- c. Journal entries for a AC investment using amortized cost:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1 2020	Investment in bonds – at amortized cost . . . . .		25,523	
	Cash . . . . .			25,523
Dec 31 2020	Interest receivable . . . . .		1,000	
	Investment in bonds – at amortized cost . . . . .			44
	Interest income . . . . .			956
	For Investment in bonds: $(1,000 - (25,523 \times 3.75\%))$			
Jan 1 2021	Cash . . . . .		1,000	
	Interest receivable . . . . .			1,000
Jan 1 2028	Cash . . . . .		25,250	
	Investment in bonds – at amortized cost (see schedule below or alternative PC calculation) . . . . .			25,121
	Gain on sale of investment . . . . .			129
	For Cash: $(\$25,000 \times 101)$			

Alternative calculation to the effective interest rate schedule below using a business calculator and present value functions:

$$PV = 1000 PMT, 2 N, 3.745 I/Y, 25000 FV = 25,120.68 \text{ where } N \text{ is } 2 \text{ years left to maturity.}$$

## EFFECTIVE INTEREST RATE SCHEDULE

Date	Cash Received (4%)	Interest Income (3.745%)	Bond Premium Amortization	Carrying Value
Jan 1/20				25,523
Jan 1/21	1,000	956*	44	25,479
Jan 1/22	1,000	954	46	25,433
Jan 1/23	1,000	953	47	25,386
Jan 1/24	1,000	951	49	25,337
Jan 1/25	1,000	949	51	25,286
Jan 1/26	1,000	947	53	25,233
Jan 1/27	1,000	945	55	25,178
Jan 1/28	1,000	943	57	25,121 ← Date of sale
Jan 1/29	1,000	941	59	25,062
Jan 1/30	1,000	938	62**	25,000
Total	\$10,000	\$9,477	\$523	25,000

\*  $25,523 \times 3.745\%$ 

\*\* rounding

- d. Total interest income is  $\$9,477 - 941 - 938 = \underline{\underline{\$7,598}}$  after holding the investment for eight out of ten years.

Total net cash flows for Smythe is  $(25,523)$  cash paid +  $(\$1,000 \times 8 \text{ years}) + 25,250$  cash received upon sale =  $\underline{\underline{\$7,727}}$  over the life of the investment.

The difference of  $\$129.48$  ( $7,597.52 - 7,727$ ) is the *gain on the sale of the investment of \$130* at the end of eight years. (The small difference is due to rounding.)

- e. If Smythe followed ASPE, then the investment would be accounted for using amortized cost. However, in this case, there would be a choice regarding the method used to amortize the bond premium of \$523 calculated in part (b). The choices are straight-line amortization over the bond's life or the effective interest rate method shown in part (c). If the straight-line method was used, then the yearly amortization amount would have been  $\$523 \div 10 \text{ years}$  or  $\$52.30$  per year for 8 years until the bonds were sold in 2028. The interest income would be the same over the 8 years.

## EXERCISE 8-3

- a.

Face value of bond	\$100,000
Amount paid	88,580
Discount amount	<u>\$ 11,420</u>

The market value of an existing bond will fluctuate with changes in the market interest rates and with changes in the financial condition of the corporation that issued the bond. For example, a 9% bond will become more valuable if market interest rates decrease to 8% because the interest payment is at a higher rate than what investors would receive if they invested in a market that yielded only 8%.

In this case, the issued bond promises to pay 4% interest for the next 10 years in a marketplace where interest has now risen to 5.5% for bonds with similar characteristics and risks. This bond will now become less valuable because the market interest rate has risen, and investors would receive a higher return in the market than with the 4% bond. When the financial condition of the issuing corporation deteriorates, the market value of the bond is likely to decline as well.

b.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 2	Investment in bonds – at amortized cost . . . . .		88,580	
	Cash . . . . .			88,580
Jul 1	Cash . . . . .		2,000	
	Investment in bonds – at amortized cost . . . . .		436	
	Interest income . . . . .			2,436
	For Cash: $(100,000 \times 4\% \times 6 \div 12)$ , for Interest income: $(88,580 \times 5.5\% \times 6 \div 12)$			
Dec 31	Interest receivable . . . . .		2,000	
	Investment in bonds – at amortized cost . . . . .		448	
	Interest income . . . . .			2,448
	For Interest income: $([88,580 + 436] \times 5.5\% \times 6 \div 12)$			
Jan 1	Cash . . . . .		2,000	
	Interest receivable . . . . .			2,000

c.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 2	Investment in bonds – at amortized cost .....		88,580	
	Cash .....			88,580
Jul 1	Cash .....		2,000	
	Investment in bonds – at amortized cost (11,420 ÷ 20 time periods for interest paid) ....		571	
	Interest income .....			2,571
	For Cash: $(100,000 \times 4\% \times 6 \div 12)$			
Dec 31	Interest receivable .....		2,000	
	Investment in bonds at amortized cost .....		571	
	Interest income .....			2,571
Jan 1	Cash .....		2,000	
	Interest receivable .....			2,000

**EXERCISE 8–4**

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jul 1	Cash .....		2,000	
	Investment in bonds – at amortized cost .....		436	
	Interest income .....			2,436
	For Cash: $(100,000 \times 4\% \times 6 \div 12)$ , for Interest income: $(88,580 \times 5.5\% \times 6 \div 12)$			
Sept 30	Interest receivable .....		1,000	
	Investment in bonds – at amortized cost .....		224	
	Interest income .....			1,224
	For Interest receivable: $(100,000 \times 4\% \times 3 \div 12)$ , for Interest income: $([88,580 + \$436] \times 5.5\% \times 3 \div 12)$			
Jan 1	Cash .....		2,000	
	Investment in bonds – at amortized cost .....		224	
	Interest receivable .....			1,000
	Interest income .....			1,224
	$([88,580 + \$436] \times 5.5\% \times 3 \div 12)$			

**EXERCISE 8–5**

- a. Imperial Mark will classify this investment as an investment in bonds – FVNI and will report the investment as a current asset.

b. Investment purchase:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Mar 1	Investment in bonds – FVNI .....		20,200	
	Interest receivable .....		667	
	Cash .....			20,867
	For Investment in bonds: $(20,000 \times 101)$ , for Interest receivable: $((20,000 \times 5\%) \times 8 \div 12)$ , for Cash: $(20,000 \times 101) + \text{unearned interest}$ from July 1 to Feb 28			

Payment of interest using the effective interest rate (IFRS):

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jul 1	Cash .....		1,000	
	Investment in bonds – FVNI .....			5
	Interest income .....			328
	Interest receivable .....			667
	For Cash: $(20,000 \times 5\%)$ , For Interest income: $(20,200 \times 4.87\% \times 4 \div 12)$			

Interest accrual using the effective interest rate (IFRS):

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Interest receivable .....		500	
	Investment in bonds – FVNI .....			8
	Interest income .....			492
	For Interest receivable: $(20,000 \times 5\% \times 6 \div 12)$ , for Interest income: $((20,200 - 5) \times 4.87\% \times 6 \div 12)$			

Fair value adjustment at year-end:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Investment in bonds – FVNI .....		813	
	Unrealized holding gain in FVNI bonds .....			813
	For Investment in bonds: $(21,000 - (20,200 - 5 - 8))$			

c. If Imperial Mark follows ASPE, it would classify the investment in bonds as Short-Term Trading Investments, FVNI, and report it as a current investment since management intends to sell it. The alternate method to amortize the premium is using straight-line method. The premium to amortize is the face value minus the investment cost over the life of the bond or  $(20,000 - 20,200) = 200 \div 112 \text{ months} = 1.79$  per month. The

interest income at year-end would be the investment amount at the face rate of interest minus the premium amortized using SL for that reporting period.

Investment purchase:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Mar 1	Investment in bonds – FVNI .....		20,200	
	Interest receivable .....		667	
	Cash .....			20,867
	For Investment in bonds: $(20,000 \times 101)$ , for Interest receivable: $((20,000 \times 5\%) \times 8 \div 12)$ , for Cash: $(20,000 \times 101) + \text{unearned interest}$ from July 1 to Feb 28			

Interest payment using straight-line amortization of premium:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jul 1	Cash .....		1,000	
	Investment in bonds – FVNI .....			7
	Interest income .....			326
	Interest receivable .....			667
	For Cash: $(20,000 \times 5\%)$ , for Investment in bonds: $(\$1.79 \times 4 \text{ months})$ , for Interest income: $((20,000 \times 5\%) - 7 - 667)$			

Interest accrual using straight-line method (ASPE):

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Interest receivable .....		500	
	Investment in bonds – FVNI .....			11
	Interest income .....			489
	For Interest receivable: $(20,000 \times 5\% \times 6 \div 12)$ , for Investment in bonds: $(\$1.79 \times 6 \text{ months})$ , for Interest income: $(500 - 11)$			

Fair value adjustment at year-end:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Investment in bonds – FVNI .....		818	
	Unrealized holding gain in FVNI bonds .....			818
	$(21,000 - (20,200 - 7 - 11))$			

- a. Halberton would classify this as an investment in shares – FVOCI equities, without recycling, which is a special irrevocable election. Even though it may be for sale, there is no specific intention as to exactly when it will be sold, so it does not fit the business model for shares that are being actively traded. The investment will be reported as a long-term asset because it is unknown when it will be sold.
- b. Purchase of investment:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Investment in shares – FVOCI .....		52,800	
	Cash .....			52,800

Dividend payment:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash .....		2,500	
	Dividend revenue .....			2,500
	(1,000 × \$2.50)			

Fair-value adjustment through OCI:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Unrealized loss on FVOCI investments – OCI ..		2,800	
	Investment in shares – FVOCI .....			2,800
	((1,000 × \$50) – 52,800)			

The drop in price is not due to investment impairments, it is due to market fluctuations. For this reason, it is a fair value adjustment through OCI. Had the credit risk for this investment increased due to increased expected defaults, management would have revised the ECL and adjusted the investment and loss accounts (to net income due to impairment) accordingly.

- c. Sale entries – step 1 – first, record the fair value change to the investment and OCI:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Investment in shares – FVOCI .....		4,200	
	Unrealized gain on FVOCI investments – OCI .....			4,200
	(54,200 – 50,000)			

Step 2 – record the cash proceeds and remove the investment:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash.....		54,200	
	Investment in shares – FVOCI .....			54,200

NOTE – steps 1 and 2 can be combined as shown in the chapter illustrations. They have been separated here for illustration purposes. Either method is acceptable.

Step 3 – remove the OCI amount that related to the investment sold:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	AOCI.....		1,400	
	Retained earnings .....			1,400
	(54,200 – 52,800)			
	To reclassify investment sold from AOCI to retained earnings.			

- d. If Halberton followed ASPE, this investment would likely be classified as a short-term trading investment with fair value adjustments at each reporting date, since the investment for shares appears to have active market prices and the investment is for sale (though no specific intention to sell exists at the moment). If the shares were not publicly traded, then the investment would likely be classified as an *Other Investment* – at cost, with no fair value adjustments.

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## EXERCISE 8–7

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Feb 1	Investment – FVNI – Xtra bonds .....		532,500	
	Interest receivable .....		20,000	
	Cash .....			552,500
	a. For Interest receivable: $(500,000 \times 12\% \times 4 \div 12)$ , for Cash: $(532,500 + \text{accrued interest } 20,000)$			
Apr 1	Cash .....		30,000	
	Interest receivable .....			20,000
	Investment – Xtra bonds .....			1,125
	Interest income .....			8,875
	b. For Cash: $(500,000 \times 12\% \times 6 \div 12)$ , for Interest income: $(532,500 \times 10\% \times 2 \div 12)$			
Jul 1	Investments – FVNI – Vericon bonds .....		202,000	
	Interest receivable .....		1,500	
	Cash .....			203,500
	c. For Investments in Vericon bonds: $(200,000 \times 101)$ , for Interest receivable: $(\$200,000 \times 9\% \times 1 \div 12)$			
Aug 12	Investments – FVNI – Bretin ACT shares .....		177,000	
	Brokerage fee expense .....		1,770	
	Cash .....			178,770
	d. For Investments in Bretin ACT shares: $(3,000 \times \$59)$			

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Sept 1	Cash.....		109,000	
	Loss on sale of investment.....		1,703	
	Interest income.....			4,428
	Investments – FVNI – Xtra Corp. bonds....			106,275
	e. For Cash: $(\$100,000 \times 104) + (100,000 \times 12\% \times 5 \div 12)$ , for Investments in Xtra Corp. bonds: $(532,500 - 1,125 \times (100,000 \div 500,000))$ , for Loss on sale: $((532,500 - 1,125) \times 20\% = 106,275$ carrying value to Apr 1 – $(5,000 - 4,428)$ , for Interest income: $(532,500 - 1,125 \text{ amort} = 531,375 \text{ CV} \times 5\% \text{ semi-annual market rate} \times 20\% \times 5/6 \text{ months from Apr 1 to Sept 1} = 4,428)$			
Sept 28	Cash.....		1,500	
	Dividend revenue.....			1,500
	f. For Cash: $(3,000 \times \$0.50)$			
Oct 1	Cash.....		24,000	
	Interest income.....			21,255
	Investment – Xtra bonds.....			2,745
	g. For Cash: $(\$400,000 \times 12\% \times 6 \div 12)$ , for Interest income: $((532,500 - 1,125 - 106,275) \times 10\% \times 6.12)$			
Dec 1	Cash.....		9,000	
	Investment – Vericon bonds.....			346
	Interest receivable.....			1,500
	Interest income.....			7,154
	h. For Cash: $(\$200,000 \times 9\% \times 6 \div 12)$ , for Investment in Vericon bonds: $(9,000 - 1,500 - 7,154)$ , for Interest income: $(202,000 \times 8.5\% \times 5 \div 12)$			
Dec 28	Cash.....		1,560	
	Dividend revenue.....			1,560
	i. $(3,000 \times \$0.52)$			
Dec 31	Investments – Bretin ACT shares.....		4,500	
	Unrealized gain on FVNI investments (net income).....			4,500
	j. $(\$181,500 \text{ FV} - \$177,000)$			
Dec 31	Interest receivable*.....		12,000	
	Investments – Xtra bonds.....			1,441
	Interest income**.....			10,559
	j. To accrue interest income to Dec 31 * $(400,000 \times 12\% \times 3 \div 12)$ ** $(532,500 - 1,125 - 106,275 - 2,745 = 422,355 \times 10\% \times 3 \div 12)$			

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Unrealized loss in Xtra bonds..... Investments – Xtra bonds..... j. To adjust to fair value (422,355 – 1,441 = 420,914 CV – (400,000 × 1.0175))		13,914	13,914
Dec 31	Interest receivable*..... Investments – Vericon bonds..... Interest income**..... j. To accrue interest income to Dec 31 * (200,000 × 9% × 1 ÷ 12) ** (202,000 – 346) = 201,654 × 8.5% × 1 ÷ 12		1,500	72 1,428
Dec 31	Unrealized loss in Vericon bonds..... Investments – Vericon bonds..... j. To adjust to fair value (202,000 – 346 – 72) = 201,582 CV – (200,000 × 0.97)		7,582	7,582

NOTE – An alternative treatment is to debit *interest income* at the date of purchase of the bonds instead of interest receivable. This procedure is correct, assuming that when the cash is received for the interest, an appropriate credit to interest income is recorded. Consistency is key.

### EXERCISE 8–8

- a. Verex follows IFRS because only IFRS companies can account for investments using the FVOCI classification. In this case, the FVOCI is without recycling because these are equities.
- b. Purchase of investment:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1	Investment in shares – FVOCI..... Cash..... (135,000 + 1,750)		136,750	136,750

Cash dividend declared:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Oct	Cash..... Dividend revenue..... (140,000 × 10% × \$1.10)		15,400	15,400

Year-end fair value adjusting entry:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Investment in shares – FVOCI .....		450	
	Unrealized gain in FVOCI investment – OCI (137,200 – 136,750)			450

Sale entries – step 1 – first, record the fair value change to the investment and OCI:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Feb 1	Investment in shares – FVOCI .....		14,820	
	Unrealized gain on FVOCI investments – OCI .....			14,820
	(7,000 × \$12 – \$580) – (7,000 × 9.80)			

Step 2 – record the cash proceeds and remove the investment:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Feb 1	Cash .....		83,420	
	Investment in shares – FVOCI .....			83,420
	(7,000 × \$12) – \$580			

Step 3 – reclassify the OCI amount related to the investment sold from AOCI to OCI:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Feb 1	AOCI .....		15,045	
	Retained earnings .....			15,045
	((450 × 50%) + 14,820)			

NOTE – steps 1 and 2 are combined in the chapter illustrations. They have been separated here for illustration purposes.

### EXERCISE 8–9

Other Comprehensive Income (OCI) = unrealized holding gain in FVOCI investments = \$350,000 – 320,000 = \$30,000

Comprehensive Income (CI) = net income + OCI = \$250,000 + 30,000 = \$280,000

Accumulated Other Comprehensive Income (AOCI) = AOCI opening balance + OCI = \$15,000 + 30,000 = \$45,000

**EXERCISE 8–10**

Entry for impairment:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 4 2021	Loss on impairment .....		5,000	
	Investment in bonds – at amortized cost....			5,000
	(\$200,000 – 195,000)			

Note: For ASPE, the impaired value is the higher of the discounted cash flow using the current *market* interest rate and the net realizable value (NRV) either through sale or by exercising the company's rights to collateral. Since the NRV information is not available, the discounted cash flow using the current market interest rate is the measure used to determine impairment.

Entry for impairment recovery:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jun 30 2021	Investment in bonds – at amortized cost .....		5,000	
	Recovery of loss on impairment .....			5,000

**EXERCISE 8–11**

a.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Investment in shares – FVNI .....		5,900	
	Unrealized gain on shares .....			5,900
	(15,000 + 24,300 + 75,000) – (17,500 + 22,500 + 80,200)			

b.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
2021	Cash.....		65,000	
	Gain on the sale of shares .....			2,400
	Investment in shares – Warbler.....			22,500
	Investment in shares – Shickter – 50% .....			40,100
	For Cash: (23,000 + 42,000)			

c.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2021	Investment in shares – FVNI.....		2,600	
	Unrealized gain on shares .....			2,600
	(17,500 + 40,100) – (19,200 + 41,000)			

- d. If Camille followed ASPE, these equity investments would be classified as FVNI since there appears to be an active market for these shares. The entries would be the same as those shown for parts (a), (b), and (c). No impairment measurements are required since the investments are already accounted for using fair values.

**EXERCISE 8–12**

a.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Sept 30 2019	Investments in bonds – FVNI .....		225,000	
	Interest receivable .....		8,250	
	Cash .....			233,250
	For Interest receivable: $(\$225,000 \times 4\% \times 11 \div 12)$			
Oct 31 2019	Cash .....		9,000	
	Interest receivable .....			8,250
	Interest income .....			750
	For Cash: $(225,000 \times 4\%)$			
Dec 31 2019	Interest receivable .....		1,500	
	Interest income .....			1,500
	Investments in bonds – FVNI .....		5,850	
	Unrealized gain on investments (net income)			5,850
Mar 1 2020	For Interest receivable: $(\$225,000 \times 4\% \times 2 \div 12)$ , for Unrealized gain: $((225,000 \times 102.6) - 225,000)$			
	Cash .....		234,300	
	Interest receivable .....			1,500
	Interest income .....			1,500
	Investment in bonds – FVNI .....			230,850
	Gain on sale of bonds .....			450
	For Cash: $(225,000 \times 102.8 + 3,000)$ , for Interest income: $(225,000 \times 4\% \times 2 \div 12)$ , for Investment in bonds: $(\$225,000 + 5,850)$			

b.

Partial balance sheet  
As at December 31, 2019

Current assets	
Interest receivable	\$ 1,500
Investments in bonds – FVNI $(225,000 + 5,850)$	230,850

Partial income statement  
For the Year Ended December 31, 2019

Other income	
Interest income $(750 + 1,500)$	\$2,250
Unrealized gain on FVNI investments	5,850

c. ASPE requires separate reporting of interest income from net gains or losses recognized on financial instruments (*CPA Canada Handbook, Part II, Accounting Standards for Private Enterprises*, Section 3856.52) whereas IFRS can choose to disclose whether the net gains or losses on financial assets measured at fair value and reported on the income

statement include interest and gains or losses, but it is not mandatory. (For purposes of this text, the preferred treatment for either standard is to separate unrealized gains/loss, interest income and dividend income separately since some of the information is required when completing the corporate tax returns for either ASPE or IFRS companies.)

- d. The overall returns generated from the bond investment was \$10,050, calculated as follows:

Interest Oct 31, 2019	\$ 750
Interest accrued Dec 31, 2019	1,500
Unrealized gain to Dec 31, 2019	5,850
Interest accrued Mar 1, 2020	1,500
Gain on sale of bonds Mar 1, 2020	450
Total investment returns (income and gains)	<u>10,050</u>

This return represents a 10.72% annual return on the investment  $[(\$10,050 \div 5 \text{ months} \times 12) \div \$225,000]$ . This return is more than anything the company might be able to earn in a typical savings account.

### EXERCISE 8-13

- a. December 31, 2020 entry:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss on impairment .....		22,000	
	Bond investment at amortized cost .....			22,000
	(\$422,000 – \$400,000)			

Under ASPE, the carrying amount is reduced to the higher of the discounted cash flow using a current market rate or the bond's net realizable value NRV. Impairment reversals are permitted under ASPE for both debt and equity instruments.

- b. December 31, 2020 entry:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss on impairment .....		22,000	
	Allowance for bond investment impairment .			22,000
	(\$422,000 – \$400,000)			

The investment account remains at its current carrying amount and it is offset by the credit balance in the asset valuation allowance account.

**EXERCISE 8-14**

a.

Purchase of bonds:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1 2020	Investment in bonds – FVNI .....		236,163	
	Cash .....			236,163
	Present value calculation: PV = (20000 PMT, 8 N, 9 I/Y, 250000 FV) = \$236,163			

Interest payment:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2020	Cash .....		20,000	
	Investment in bonds – FVNI .....		1,255	
	Interest income .....			21,255
	(236,163 × 9%)			

Fair value adjustment:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2020	Investment in bonds – FVNI .....		2,582	
	Unrealized gain on investment (net income)			2,582
	(236,163 + 1,255) = 237,418 carrying value –			
	240,000 fair value = 2,582			

Interest payment:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2021	Cash .....		20,000	
	Investment in bonds – FVNI .....		1,368	
	Interest income .....			21,368
	(236,163 + 1,255 = 237,418 × 9%)			

Fair value adjustment:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2021	Unrealized loss on investment (net income) ....		23,118	
	Investment in bonds – FVNI .....			23,118
	(236,163 + 1,255 + 2,582 + 1,368 =			
	241,368 carrying value – (250,000 ×			
	87.3) market value = 23,118			

Interest payment:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2022	Cash .....		20,000	
	Investment in bonds – FVNI .....		1,491	
	Interest income .....			21,491
	(236,163 + 1,255 + 1,368 = 238,786 × 9%)			

Fair value adjustment:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2022	Investment in bonds – FVNI .....		11,009	
	Unrealized gain on investment .....			11,009
	(236,163 + 1,255 + 2,582 + 1,368 – 23,118 + 1,491) = 219,741 carrying value – (250,000 × 92.3) market value = 11,009			

Interest payment:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2023	Cash .....		20,000	
	Investment in bonds – FVNI .....		1,625	
	Interest income .....			21,625
	(236,163 + 1,255 + 1,368 + 1,491 = 240,277 × 9%)			

Fair value adjustment:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2023	Investment in bonds – FVNI .....		15,875	
	Unrealized gain on investment .....			15,875
	(236,163 + 1,255 + 2,582 + 1,368 – 23,118 + 1,491 + 11,009 + 1,625) = 232,375 carrying value – (250,000 × 99.3) market value = 15,875			

- b. Part (a) uses a fair values to measures for FVNI investments and are re-measured to their FV at each year-end. No, separate impairment measurement if required because they are already at their fair values. If Helsinki had accounted for this investment at amortized cost, the impairment model would change to an incurred loss model. When there is objective evidence that the expected future cash flows have been significantly reduced, an impairment loss is measured and recognized as follows:

The loss is measured as the difference between the carrying amount and higher of the present value of the revised expected cash flows, discounted at the current market discount rate and the estimated net realizable value of the investment.

The impairment losses can be reversed if the investment values increase.

### EXERCISE 8–15

- a. Dec 31, 2019: No entry as there was no trigger or loss event in 2019.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2020	Loss on impairment .....		37,500	
	Other investments .....			37,500
	(\$87,500 – 50,000)			

- b.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2019	Unrealized Gain or Loss (net income) .....		5,000	
	Investments – FVNI .....			5,000
	(\$34 – \$32) × 2,500 shares			
Dec 31 2020	Unrealized Gain or Loss (net income) .....		17,500	
	Investments – FVNI .....			17,500
	(\$32 – \$25) × 2,500 shares			

- c. For an investment in equities classified as FVOCI, there are no impairment evaluations required because the investment is remeasured to its fair value each reporting date and the gains/losses upon sale are reclassified from AOCI to retained earnings. Had the investment been a debt investment and classified as FVOCI, such as bonds, an impairment evaluation would be required initially upon acquisition and based on either a 12-month or lifetime ECL valuation. This is because the gains/losses are recycled through net income upon sale. Any impairment loss would be immediately recorded to net income in this case and not to OCI.

### EXERCISE 8–16

- a. Since Yarder's shares were quoted in an active market, Sandar is required to apply the FVNI classification to account for its investment. If the shares were not quoted in an active market, the cost method would have been required.

FVNI – where the shares are traded in an active market:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1 2020	Investments – FVNI .....		400,000	
	Cash .....			400,000
	(50,000 × 32%) = 16,000 shares × \$25			
Jun 30 2020	Cash .....		19,200	
	Dividend revenue .....			19,200
	(\$60,000 × 32%)			
Dec 31 2020	Unrealized gain or loss .....		32,000	
	Investments – FVNI .....			32,000
	(\$25 – 23) × 16,000 shares			

- b. Cost method – where there is no active market for the shares:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1 2020	Other investments – at cost .....		400,000	
	Cash .....			400,000
	(50,000 × 32%) = 16,000 shares × \$25			
Jun 30 2020	Cash .....		19,200	
	Dividend revenue .....			19,200
	(\$60,000 × 32%)			

Dec 31, 2020: No entry required.

- c. Equity method:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1 2020	Significant influence investments .....		400,000	
	Cash .....			400,000
	(50,000 × 32%) = 16,000 shares × \$25			
Jun 30 2020	Cash .....		19,200	
	Significant influence investments .....			19,200
	(\$60,000 × 32%)			
Dec 31 2020	Significant influence investments .....		38,400	
	Investment income or loss .....			38,400
	(\$120,000 × 32%)			

NOTE: Even though Sandar has significant influence over the operations of Outlander, companies that follow ASPE have a choice between the equity method and the held-for-trading (active market), or the equity method and the cost method (no active markets).

**EXERCISE 8–17**

- a. Investee's total net income =  $\$60,000 \div 30\% = \$200,000$
- b. Investee's total dividend payout =  $\$200,000 \times 15\% = \$30,000$
- c. Investor's share of net income =  $\$200,000 \times 30\% = \$60,000$
- d. Investor's annual depreciation of the excess payment for net capital assets is the only other credit amount recorded in the T-account for \$1,500
- e. Goodwill =  $\$900,000 \times 30\% = 270,000 - 290,000 = 20,000 - (1,500 \times 10 \text{ years}) = 5,000$  to goodwill
- f. Investor's share of dividends =  $\$30,000 \times 30\% = \$9,000$

**EXERCISE 8–18**

a. 2019:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Investments – FVNI .....		380,000	
	Cash .....			380,000
	Cash .....		7,500	
	Dividend Revenue (net income) .....			7,500
	(\$25,000 × 0.30)			
	Investments – FVNI .....		20,000	
	Unrealized Gain or Loss (net income) .....			20,000
	(\$400,000 – \$380,000)			

2020:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Unrealized Gain or Loss (net income) .....		40,000	
	Investments – FVNI .....			40,000
	(\$400,000 – 360,000)			

b. Recall that comprehensive income is:

Net income + Other Comprehensive Income (i.e., unrealized fair value gains/losses from FVOCI investments) = Comprehensive Income

With this in mind, comprehensive income will be the same amount as net income because there is no Other Comprehensive Income (OCI) amount to report as the investment is classified as FVNI with unrealized gains and losses due to fair value adjustments being recorded to net income. Had the investment been classified as FVOCI, then the \$20,000 fair value change would have been reported as OCI and not in net income, thus increasing comprehensive income by \$20,000 more than net income in 2019, and by \$40,000 in 2020.

c. 2019:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Investment in associate .....		380,000	
	Cash .....			380,000
	Cash .....		7,500	
	Investment in associate .....			7,500
	(\$25,000 × 0.30)			
	Investment in associate .....		15,000	
	Investment income or loss .....			15,000
	(\$50,000 × 0.30)			
	Investment income or loss .....		2,000	
	Investment in associate .....			2,000
	(\$380,000 – 360,000 = 20,000 ÷ 10 years)			

NOTE: there is no entry to adjust the investment to its fair value under the equity method.

2020:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Investment income or loss .....		4,500	
	Investment in associate .....			4,500
	(\$15,000 × 0.30)			
	Investment income or loss .....		2,000	
	Investment in associate .....			2,000

NOTE: there is no entry to adjust the investment to its fair value under the equity method.

d. Carrying amount of the investment:

Cost	\$380,000
Dividend received in 2019	(7,500)
Income earned in 2019 (15,000 – 2,000)	13,000
Loss incurred in 2020 (4,500 + 2,000)	(6,500)
Carrying amount at December 31, 2020	<u>\$379,000</u>

Fair value of investment at December 31, 2020     \$360,000

- e. For part (c), if the investee had reported a loss from discontinued operations, all entries would stay the same except for the entry recording the 2019 share of income. This entry would change to reflect the investor's share of the loss from discontinued operations separately from its share of the loss from continuing operations because separate reporting of discontinued operations is a reporting requirement for IFRS and ASPE.

2019:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Investment in associate .....		15,000	
	Investment loss – loss on discontinued operations .....		4,500	
	Investment income or loss .....			19,500
	For Investment in associate: (50,000 × 30%), for Investment loss: (15,000 × 30%)			

Income Statement details:

Income from continuing operations	\$ 65,000
Loss from discontinued operations	(15,000)
Net income	<u>\$ 50,000</u>

### EXERCISE 8–19

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Significant influence investment .....		600,000	
	Cash .....			600,000

Cost of 35% investment	\$600,000
Carrying values:	
Assets (\$900,000 + 780,000)	\$1,680,000
Liabilities	225,000
	<u>1,455,000</u>
	× 35%
	<u>509,250</u>
Excess paid over share of carrying value	<u>\$ 90,750</u>

Excess of \$90,750 allocated to:

Assets subject to amortization		
[(\$1,050,000 – \$900,000) × 35%]		52,500
Residual to goodwill		38,250
		\$90,750

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash .....		35,000	
	Significant influence investment .....			35,000
	(\$100,000 × 0.35)			
	Significant influence investment .....		78,750	
	Investment income or loss .....			78,750
	(\$225,000 × 0.35)			
	Investment income or loss .....		5,250	
	Significant influence investment .....			5,250
	(\$52,500 ÷ 10)			

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**EXERCISE 8–20**

	a) ASPE	b) IFRS
i.	FVNI since an active market exists. No separate impairment evaluation needed since investment is adjusted to fair value.	FVOCI without recycling, with unrealized gain/loss through OCI since there is no specific intention to sell for trading purposes. No separate impairment evaluation needed since investment is adjusted to fair value and not recycled through net income.
ii.	Other investment in equities at cost, since no active market exists. No fair value adjustments are done. Impairment adjustment is possible if a trigger event occurs. Impairment reversal is possible. When 30% is obtained, management will need to re-measure.	FVOCI without recycling, with unrealized gain/loss through OCI since there is a long-term strategy regarding this investment. No separate impairment evaluation needed since investment is adjusted to fair value and not recycled through net income. When 30% is obtained, management will need to reclassify to investment in associates, if significant influence exists.
iii.	Other investment at amortized cost since the intention was to originally hold to maturity. No fair value adjustments are done. Impairment adjustment is possible if a trigger event occurs. Impairment reversal is possible.	Amortized cost since this investment has been accounted for since the initial purchase at amortized cost. Impairment evaluation is done based on an assessment of probability-based estimated default scenarios and +/- adjustments going forward until bond has matured.
iv.	Other investment in equities at cost. The FV of the shares is not a factor as they are being held to improve business relations. No fair value adjustments are done. Impairment adjustment is possible if a trigger event occurs. Impairment reversal is possible.	Likely FVOCI without recycling with unrealized gain/loss through OCI since there is no intention to actively trade them. No separate impairment evaluation needed since investment is adjusted to fair value and not recycled through net income.
v.	FVNI since the bonds trade on the market. Management intent is to sell as soon as the market price increases. No separate impairment evaluation needed since investment is adjusted to fair value.	FVNI. No separate impairment evaluation needed since investment is adjusted to fair value.
vi.	Other investments at amortized since the intention is to hold to maturity. No fair value adjustments are done. Impairment adjustment is possible if a trigger event occurs. Impairment reversal is possible.	At amortized cost since this investment will be held until maturity. Impairment evaluation is done based on an assessment of probability-based estimated default scenarios and +/- adjustments going forward until bond has matured.

	a) ASPE	b) IFRS
vii.	FVNI since management intends to sell them within one year. No separate impairment evaluation needed since investment is adjusted to fair value.	FVNI since management intent is to sell within one year. No separate impairment evaluation needed since investment is adjusted to fair value.

**EXERCISE 8–21**

The intent is to hold the investment and to collect interest and principal until maturity, so the classification should be amortized cost.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss on impairment (NI) .....		1,725	
	Investment in bonds, amortized cost .....			1,725

$(1,150,000 \times 0.01 \times 0.15) = 1,725$  ECL over the next 12 months

Carrying value of the investment in bonds is  $(1,150,000 - 1,725) = \$1,148,275$

**EXERCISE 8–22**

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss on impairment (NI) .....		32,775	
	Investment in bonds, amortized cost .....			32,775

$(1,150,000 \times 0.06 \times 0.50) = 34,500$  ECL over the investment's lifetime

$1,150,000 - 34,500 = 1,115,500$  probability-based fair value –  $1,148,275$  carrying value =  $32,775$  impairment

Carrying value of the investment in bonds is therefore  $1,115,500$ .

The ECL increase is deemed to be significant by management and as a result, the ECL has changed from a 12-month ECL to the investment's lifetime (Lifetime ECL).

**EXERCISE 8–23**

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss on impairment (NI) .....		1,725	
	Unrealized gain/loss (OCI) .....		4,025	
	Investment in bonds, amortized cost .....			5,750
	For Unrealized gain/loss: $(1,150,000 \times (1 - 0.995) = 5,750 - 1,725)$			

## Chapter 9 Solutions

### EXERCISE 9-1

The following costs should be capitalized with respect to this equipment:

Cash price paid, net of \$1,600 discount, excluding \$3,900 of recoverable tax	\$78,400
Freight cost to ship equipment to factory	3,300
Direct employee wages to install equipment	5,600
External specialist technician needed to complete final installation	4,100
Materials consumed in the testing process	2,200
Direct employee wages to test equipment	1,300
Legal fees to draft the equipment purchase contract	2,400
Government grant received on purchase of the equipment	(8,000)
Total cost capitalized	<u>89,300</u>

The recoverable tax should be disclosed as an amount receivable on the balance sheet.

The repair costs, costs of training employees, overhead costs, and insurance cost would all be expensed as regular operating expenses on the income statement.

An alternative treatment for the government grant would be to defer it as an unearned revenue liability and then amortize it on the same basis as the equipment depreciation.

### EXERCISE 9-2

The following costs would be capitalized with respect to the mine:

Direct material	\$2,200,000
Direct labour	1,600,000
Interest $(3,000,000 \times 8\% \times 9 \div 12)$	180,000
Less interest on excess funds	(30,000)
Present value of restoration costs $(FV=100,000, I=10, N=10)$	38,554
Total cost capitalized	<u>3,988,554</u>

**EXERCISE 9–3**

With a lump sum purchase, the cost of each asset should be determined based on the relative fair value of that component. The total fair value of the asset bundle is \$250,000. Therefore, the allocation of the purchase price would be as follows:

Specialized lathe	$(30,000 \div 250,000) \times 220,000$	=	26,400
Robotic assembly machine	$(90,000 \div 250,000) \times 220,000$	=	79,200
Laser guided cutting machine	$(110,000 \div 250,000) \times 220,000$	=	96,800
Delivery truck	$(20,000 \div 250,000) \times 220,000$	=	17,600
Total			<u>220,000</u>

**EXERCISE 9–4**

a.

Prabhu

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	New equipment .....		19,000	
	Accumulated depreciation – old equip. ....		10,000	
	Old equipment .....			25,000
	Cash .....			2,000
	Gain on disposal of equipment .....			2,000

Zhang

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	New equipment .....		17,000	
	Accumulated depreciation – old equip. ....		8,000	
	Old equipment .....			21,000
	Cash .....		2,000	
	Gain on disposal of equipment .....			6,000

b.

Prabhu

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	New equipment .....		17,000	
	Accumulated depreciation – old equip.....		10,000	
	Old equipment .....			25,000
	Cash .....			2,000

Zhang

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	New equipment .....		11,000	
	Accumulated depreciation – old equip.....		8,000	
	Old equipment .....			21,000
	Cash .....		2,000	

c.

Prabhu

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	New equipment .....		19,000	
	Accumulated depreciation – old equip.....		5,000	
	Old equipment .....			25,000
	Cash .....			2,000
	Loss on disposal of equipment .....		3,000	

NOTE: Loss must be recorded, as the asset acquired cannot be recorded at an amount greater than its fair value.

Zhang

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	New equipment .....		11,000	
	Accumulated depreciation – old equip.....		8,000	
	Old equipment .....			21,000
	Cash .....		2,000	

**EXERCISE 9–5**

Transaction 1:

IFRS requires assets acquired in exchange for the company's shares to be reported at the fair value of the asset acquired. The list price is not relevant, as the salesman has already indicated that this can be negotiated downward. If the \$80,000 negotiated price is considered a reliable representation of the fair value of the asset, this amount should be used:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Computer .....		80,000	
	Common shares .....			80,000

If the \$80,000 price is not considered a reliable fair value, then the fair value of the shares given up (\$78,750) should be used, as the shares are actively traded.

#### Transaction 2:

The asset acquired by issuing a non-interest bearing note needs to be reported at its fair value. As the interest rate of zero is not reasonable, based on market conditions, the payments for the asset need to be adjusted to their present value to properly reflect the current fair value of the asset.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Office furniture .....		46,284	
	Note payable .....			41,284
	Cash .....			5,000

The note payable amount represents the present value of a \$45,000 payment due in one year, discounted at 9%.

### EXERCISE 9-6

#### a. Deferral Method

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Office condo .....		625,000	
	Deferred grant .....			90,000
	Cash .....			535,000

#### b. Offset Method

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Office condo .....		535,000	
	Cash .....			535,000

- c. The deferral method will result in annual depreciation expense of  $\$625,000 \div 30$  years =  $\$20,833$ , with an offsetting annual grant income amount recognized =  $\$90,000 \div 30$  years =  $\$3,000$  per year.

The offset method will result in an annual depreciation expense of  $\$535,000 \div 30$  years =  $\$17,833$  with no grant income being recognized.

The net difference in net income between the two methods is zero.

### EXERCISE 9-7

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2019	Depreciation expense .....		44,444	
	Accumulated depreciation .....			44,444
Dec 31 2019	Accumulated depreciation .....		44,444	
	Building .....			44,444
Dec 31 2019	Building .....		94,444	
	Revaluation surplus (OCI) .....			94,444
	(1,250,000 – (1,200,000 – 44,444))			

NOTE: Depreciation expense =  $\$1,200,000 \div 27$  years remaining =  $\$44,444$

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2020	Depreciation expense .....		48,077	
	Accumulated depreciation .....			48,077
Dec 31 2020	Accumulated depreciation .....		48,077	
	Building .....			48,077
Dec 31 2020	Revaluation surplus (OCI) .....		201,923	
	Building .....			201,923
	(1,000,000 – (1,250,000 – 48,077))			

NOTE: Depreciation expense =  $\$1,250,000 \div 26$  years =  $\$48,077$

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2021	Depreciation expense .....		40,000	
	Accumulated depreciation .....			40,000
Dec 31 2021	Accumulated depreciation .....		40,000	
	Building .....			40,000
Dec 31 2021	Building .....		190,000	
	Revaluation surplus (OCI) .....			190,000
	(1,150,000 – (1,000,000 – 40,000))			

NOTE: Depreciation expense = \$1,000,000 ÷ 25 years = \$40,000

### EXERCISE 9–8

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31 2020	Loss in value of investment property .....		50,000	
	Investment property .....			50,000
Dec 31 2021	Investment property .....		175,000	
	Gain in value of investment property .....			175,000

### EXERCISE 9–9

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Repairs and maintenance .....		32,000	
	Cash .....			32,000
	Accumulated depreciation – building .....		16,302	
	Building .....			108,696
	Loss on disposal .....		92,394	

The replacement of the boiler should be treated as the disposal of a separate component. The original cost of the old boiler can be estimated as follows:

$$\$125,000 \div (1 + 0.15) = 108,696$$

The old boiler would have been depreciated as part of the building as follows:

$$108,696 \div 40 \text{ years} = 2,717 \text{ per year}$$

$$2,717 \times 6 \text{ years (2014–2019)} = 16,302$$

(NOTE: per company policy, no depreciation is taken in the year of disposal)

The purchase of the new boiler should be treated as a separate component:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Boiler .....		125,000	
	Cash .....			125,000
	Repairs and maintenance .....		15,000	
	Cash .....			15,000
	Building .....		87,000	
	Cash .....			87,000

This cannot be identified as a separate component, but it does extend the useful life of the asset, so capitalization is warranted.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Repairs and maintenance .....		5,000	
	Cash .....			5,000
	Depreciation expense .....		15,332	
	Accumulated depreciation – building .....			15,332

Original depreciation:  $\$800,000 \div 40 \text{ years} = \$20,000 \text{ per year}$   
 Up to the end of 2019 =  $\$120,000$  (6 years)

Based on the journal entries above, revised depreciation is calculated as follows:

$$\frac{800,000 - 120,000 - 108,696 + 16,302 + 87,000}{40 - 6 + 10 = 44 \text{ years}} = 15,332$$

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Depreciation expense .....		2,841	
	Accumulated depreciation – boiler .....			2,841
	(125,000 $\div$ 44)			

NOTE: the boiler has been depreciated over the same useful life as the building (44 years). As this is a separate component, a different useful life could be determined by management and used instead. Per company policy a full year of depreciation is taken in the year of acquisition.

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## Chapter 10 Solutions

### EXERCISE 10-1

a. Straight line:

$$\frac{125,000 - 10,000}{5 \text{ years}} = \underline{\underline{\$23,000}} \text{ per year (same for all years)}$$

b. Activity based on input:

$$\frac{125,000 - 10,000}{10,000 \text{ hours}} = \$11.50 \text{ per hour of use}$$

$$2021 \text{ depreciation} = \$11.50 \times 2,150 \text{ hours} = \underline{\underline{\$24,725}}$$

c. Activity based on output:

$$\frac{125,000 - 10,000}{1,000,000 \text{ units}} = \$0.115 \text{ per unit produced}$$

$$2021 \text{ depreciation} = \$0.115 \times 207,000 \text{ units} = \underline{\underline{\$23,805}}$$

d. Double declining balance:

$$\text{Rate} = \frac{100}{5 \text{ years}} \times 2 = 40\%$$

$$2020 \text{ Depreciation: } \$125,000 \times 40\% = \$50,000$$

$$2021 \text{ Depreciation: } (\$125,000 - \$50,000) \times 40\% = \underline{\underline{\$30,000}}$$


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### EXERCISE 10-2

Depreciation rate (assume straight-line unless otherwise indicated):

$$\frac{10,000 - 1,000}{3 \text{ years}} = \$3,000 \text{ per year}$$

Depreciation per year calculated as follows:

2020:	$\$3,000 \times 6 \div 12$	\$1,500
2021:	Full year	\$3,000
2022:	Full year	\$3,000
2023:	$\$3,000 \times 6 \div 12$	\$1,500
Total depreciation:		<u>\$9,000</u>

(Note: in 2023, only 6 months depreciation can be recorded, as the asset has reached the end of its useful life.)

### EXERCISE 10-3

- a. No journal entry is required as this is considered a change in estimate. Depreciation will be adjusted prospectively only, with no adjustment made to prior years.
- b. Original depreciation:

$$\frac{\$39,000 - \$4,000}{5 \text{ years}} = \$7,000 \text{ per year}$$

Depreciation taken 2018–2020 =  $\$7,000 \times 3 \text{ years} = \$21,000$

Revised depreciation for 2021 and future years:

$$\frac{\$39,000 - \$21,000 - \$5,000}{7 \text{ years} - 3 \text{ years} = 4} = \underline{\underline{\$3,250}} \text{ per year}$$

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Depreciation expense .....		3,250	
	Accumulated depreciation .....			3,250

### EXERCISE 10-4

- a. Depreciation from 2006–2011:

$$\frac{\$450,000 - \$90,000}{30 \text{ years}} = \underline{\underline{\$12,000}} \text{ per year}$$

Total depreciation taken = \$12,000 × 6 years = \$72,000

b. Depreciation from 2012–2019:

$$\frac{\$450,000 - \$72,000 + \$30,000 - \$50,000}{30 - 6 + 10 \text{ years} = 34} = \underline{\underline{\$10,529}} \text{ per year}$$

Total depreciation taken = \$10,529 × 8 years = \$84,232

c. Depreciation for 2020 and future years:

$$\frac{\$450,000 + \$30,000 - \$72,000 - \$84,232}{34 - 8 = 26 \text{ years}} = \underline{\underline{\$12,453}} \text{ per year}$$

### EXERCISE 10–5

a. Determine the recoverable amount:

$$\begin{array}{rcl} \text{Value in use} & = & \$110,000 \\ \text{Fair value less costs of disposal} & = & \$116,000 \end{array}$$

The recoverable amount is the greater amount: \$116,000

Carrying value = \$325,000 – \$175,000 = \$150,000

As the carrying value exceeds the recoverable amount, the asset is impaired by \$150,000 – \$116,000 = \$34,000

b.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss on impairment .....		34,000	
	Accumulated impairment loss .....			34,000

c. New carrying value = \$150,000 – \$34,000 = \$116,000

$$\text{Depreciation} = \frac{\$116,000 - 0}{3 \text{ years}} = \$38,667$$

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Depreciation expense .....		38,667	
	Accumulated depreciation .....			38,667

d. Determine the recoverable amount:

Value in use	\$ 90,000
Fair value less costs to sell	\$111,000

The recoverable amount is the greater amount: \$111,000

The carrying value is now \$116,000 – \$38,667 = \$77,333

The asset is no longer impaired. However, the reversal of the impairment loss is limited. If the impairment had never occurred, the carrying value of the asset would have been:

Unimpaired carrying value on Jan 1, 2021	\$ 150,000
Depreciation for 2021 (150,000 ÷ 3)	(50,000)
Unimpaired carrying value at Dec 31, 2021	100,000

Therefore, the reversal of the impairment loss is limited to: \$100,000 – \$77,333 = \$22,667

The journal entry will be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Accumulated impairment loss .....		22,667	
	Recovery of previous impairment loss .....			22,667

### EXERCISE 10–6

- a.
- b. ASPE 3063 uses a two-step process for determining impairment losses. The first step is to determine if the asset is impaired by comparing the undiscounted future cash flows to the carrying value:

Undiscounted future cash flows:	\$140,000
Carrying value	\$150,000

Therefore, the asset is impaired.

The second step is to determine the amount of the impairment. This amount is the difference between the carrying value and the fair value of the asset:

Carrying value	\$150,000
Fair value	\$125,000
Impairment loss	\$ 25,000

Thus, the journal entry will be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss on impairment .....		25,000	
	Accumulated impairment loss .....			25,000

c. Depreciation will now be based on the new carrying value:

$$\begin{aligned} \$150,000 - \$25,000 &= \$125,000 \\ \$125,000 \div 3 \text{ years} &= \$41,667 \text{ per year} \end{aligned}$$

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Depreciation expense .....		41,667	
	Accumulated depreciation .....			41,667

d. The carrying value is now  $\$125,000 - \$41,667 = \$83,333$ . As this is less than the undiscounted future cash flows, the asset is no longer impaired. However, under ASPE 3063, reversals of impairment losses are not allowed, so no adjustment can be made in this case.

### EXERCISE 10-7

a. The total carrying value of the division is \$95,000. The fair values of the individual assets cannot be determined, so the value in use is the appropriate measure. In this case, the value in use is \$80,000, which means the division is impaired by \$15,000. This impairment will be allocated on a pro-rata basis to the individual assets:

	Carrying Amount	Proportion	Impairment Loss
Computers	\$55,000	55/95	\$8,684
Furniture	27,000	27/95	4,263
Equipment	13,000	13/95	2,053
	<u>95,000</u>		<u>15,000</u>

b. The journal entry would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss on impairment .....		15,000	
	Accumulated impairment loss – computers .			8,684
	Accumulated impairment loss – furniture ...			4,263
	Accumulated impairment loss – equipment .			2,053

c. The value in use (\$80,000) is greater than the fair value less costs to sell (\$60,000) so the calculation of impairment loss is the same as in part (a) (i.e., \$15,000). However, none of the impairment loss should be allocated to the computers, as their carrying value (\$55,000) is less than their recoverable amount (\$60,000). The impairment loss would therefore be allocated as follows:

	Carrying Amount	Proportion	Impairment Loss
Furniture	\$27,000	27/40	\$10,125
Equipment	13,000	13/40	4,875
	<u>40,000</u>		<u>15,000</u>

d. The impairment loss is still calculated as \$15,000. However, this time the computers are also impaired, as their carrying value (\$55,000) is greater than their recoverable amount (\$50,000). In this case, the computers are reduced to their recoverable amount and the remaining impairment loss (\$15,000 – \$5,000 = \$10,000) is allocated to the furniture and equipment on a pro-rata basis:

	Carrying Amount	Proportion	Impairment Loss
Computers	\$55,000		\$5,000
Furniture	27,000	27/40	6,750
Equipment	13,000	13/40	3,250
	<u>95,000</u>		<u>15,000</u>

### EXERCISE 10–8

a.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash .....		450,000	
	Accumulated depreciation .....		430,000	
	Property .....			950,000
	Loss on sale of asset .....		70,000	

b.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash .....		750,000	
	Accumulated depreciation .....		430,000	
	Property .....			950,000
	Gain on disposal of asset .....			230,000

c.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Accumulated depreciation .....		430,000	
	Property .....			950,000
	Loss on abandonment of asset .....		520,000	

d.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Donation expense .....		600,000	
	Accumulated depreciation .....		430,000	
	Property .....			950,000
	Gain on donation of asset .....			80,000

**EXERCISE 10-9**

a.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Asset held for sale .....		34,000	
	Accumulated depreciation .....		25,000	
	Machine .....			65,000
	Loss on impairment .....		6,000	

b.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash .....		37,000	
	Asset held for sale .....			34,000
	Gain on sale of asset .....			3,000

c.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Asset held for sale .....		40,000	
	Accumulated depreciation .....		25,000	
	Machine .....			65,000

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash .....		37,000	
	Asset held for sale .....			40,000
	Loss on sale of asset .....		3,000	

## Chapter 11 Solutions

### EXERCISE 11-1

The items below are identified as capitalized as an intangible asset or expensed, with the account each item would be recorded to.

- a. Expense as research and development expense
- b. Capitalize if the development phase criteria for capitalization are all met; else expense
- c. If reporting under IFRS, then capitalize the borrowing costs if the development phase criteria for capitalization are all met; else expense; if reporting under ASPE, then a policy choice exists for both borrowing costs and research and development costs
- d. Expense as salaries and wages expense
- e. Expense as marketing expenses
- f. Capitalize as part of the patent asset amount
- g. Expense as research expenses
- h. Expense to salaries, travel etc. as incurred
- i. Capitalize as part of the patent asset amount
- j. Capitalize as part of the software asset amount

- k. Expense as training expenses
    - l. Capitalize as part of the software asset amount
  - m. Organization expense
  - n. Operating expense
  - o. Capitalized to the franchise asset
  - p. Under IFRS, will be capitalized only if the development costs meet all six development-phase criteria for capitalization; under ASPE, may be capitalized or expensed, depending on company's policy when it meets the six criteria in the development stage
  - q. Capitalized to the patent asset
  - r. Capitalized to the patent asset
  - s. Capitalized to the copyright
  - t. Capitalized as development costs only if they meet all six development phase criteria for capitalization.
  - u. Expensed to research and development expenses
  - v. Expensed on the income statement
  - w. Under IFRS, borrowing costs that are directly attributable to project that meet the six development phase criteria are capitalized; under ASPE, interest costs directly attributable to the project that meet the six development phase capitalization criteria can be either capitalized or expensed as set by the company's policies
  - x. Under IFRS, will be capitalized to the intangible asset only if the development costs meet all six development-phase criteria for capitalization
  - y. Expensed to research and development expenses
  - z. Expensed to interest expenses
  - aa. Expensed to research and development expenses
- 

**EXERCISE 11-2**

- a. Intangible assets likely include:
  - purchased trademark Aromatica Organica and its related internet domain name

- purchased patented soap recipes
  - expenditures related to infrastructure and graphical design development of Harman's unique website through which the retailers review the product offerings and place their orders.
- b. The majority of Harman's assets are intangible. They include the Aromatica Organica trademark, the patented soap and oil recipes, and the company's own product and ordering website. The intangible assets help to protect the revenues from competitor companies, so Harman can sell a unique product with a specific brand name that customers recognize for its fine quality and through a unique website developed by Harman.
- c. The intangible assets meet the definition of an asset because they involve past and present economic resources for which there are probable future economic benefits that are obtained and controlled by Harman. Recording intangible assets on the company's SFP/BS provides users with relevant and faithfully representative information about the company's expected future economic benefits, as well as financial statements that are complete and free from error or bias.

**EXERCISE 11-3**

			<b>Amortization</b>
Jan 1 Carrying value	288,000	÷ 14 years	= 20,571
Sept 1 Legal fees	42,000	÷ (4 months ÷ 160 months)*	= 1,050
Total amortization for 2020	330,000		21,621

\* September 1 was the date that the patent was legally upheld thus meeting the definition of an asset subject to amortization. There are 4 months remaining in 2020 starting September 1. If on January 1, 2020 there were 14 years remaining, then as at September 1, 2020, there would be 13 years + 4 months remaining. Converting this to months is  $13 \times 12 = 156$  months + 4 months = 160 months. For 2020, there are 4 months to year-end to amortize the legal fees, so  $4 \div 160$  months would be the prorated amount of the legal fees capitalized for 2020.

Carrying amount as at Dec 31, 2020:  $330,000 - 21,621 = \$308,379$

The accounting for the research expense of \$140,000 is to be expensed when incurred because it can only be recognized from the development phase of an internal project when the six criteria for capitalization are met.

**EXERCISE 11-4**

(Partial SFP/BS):

Intangible assets		
Copyright – definite life, 5 years (net of amortization for \$5,000)		\$20,000
Copyright – indefinite life		35,000
Internet domain name* – indefinite life		37,368
Liabilities		
Current liabilities		
Current portion of long-term note payable**		\$12,431
Long-term liabilities		
Note payable, due January 1, 2022		\$13,426

\* PV (14500 PMT, 8 I/Y, 3 N)

\*\* Amortization schedule:

	Cash Payment	Interest 8%	Amortization	Balance
				37,368.00
Dec 31, 2020	14,500	2989.44	11,510.56	25,857.44
Dec 31, 2021	14,500	2068.60	12,431.40	13,426.04
Dec 31, 2022	14,500	1,073.96 (rounding)	13,426.04	0

(Partial income statement):

Amortization expense ( $\$25,000 \div 5$  years)     \$5,000

Note – item (b), purchased copyright and item (c), purchased Internet domain name have indefinite useful lives so they would not be amortized.

**EXERCISE 11–5**

- a. Under ASPE, Trembeld has the option either to expense all costs as incurred or to recognize the costs as an internally generated intangible asset when the six development phase criteria for capitalization are met. If Trembeld expenses all costs as incurred, they will be expensed as research and development expenses.

Research and development expense\*     634,000

\*\$180,000 + 64,000 + 270,000 + 86,000 + 25,400 + 8,600

If Trembeld chooses, it can capitalize all costs incurred after April 1. The costs incurred prior to April 1 must be expensed as research and development expenses.

Intangible assets – development costs*	390,000
Research and development expense (\$180,000 + \$64,000)	244,000

\*  $\$270,000 + 86,000 + 25,400 + 8,600 = \$390,000$

Note: Under ASPE, once interest costs directly attributable to the acquisition, construction, or development of an intangible asset meet the six criteria to be capitalized, they may be capitalized *or expensed* depending on the company's accounting policy for borrowing costs.

- b. If Trembeld followed IFRS, all costs associated with the development of internally generated intangible assets would be capitalized when the six development phase criteria for capitalization are met. The costs incurred prior to the date the required criteria were met would be expensed as research and development expense.

Intangible assets – development costs*	390,000
Research and development expense (\$180,000 + \$64,000)	244,000

\*  $\$270,000 + 86,000 + 25,400 + 8,600 = \$390,000$

### EXERCISE 11–6

- a. Under ASPE

Recoverability test:

The undiscounted future cash flows of \$152,000 < the carrying amount \$100,500, therefore the asset is impaired.

The impairment loss is calculated as the difference between the asset's carrying amount \$100,500 and fair value \$55,000.

In this case, the undiscounted future cash flows (\$152,000) > Carrying amount (\$100,500), therefore the asset is not impaired.

- b. Under IFRS

If carrying amount \$100,500 > recoverable amount \$115,000 (where recoverable amount is the higher of value in use \$115,000 and fair value less costs to sell \$50,000), the asset is impaired.

The impairment loss is calculated as the difference between carrying amount \$100,500 and recoverable amount \$115,000.

In this case, the carrying amount \$100,500 is < the recoverable amount of \$115,000 so there is no impairment loss.

c. Under ASPE, for indefinite-life intangible assets:

If the carrying amount \$100,500 > the asset's fair value \$55,000, then the asset is impaired.

The impairment loss is calculated as \$45,500 (\$100,500 – \$55,000).

Under IFRS, there is no impairment loss as the carrying amount of \$100,500 < the recoverable amount of \$115,000 (where recoverable amount is the higher of value in use and fair value less costs to sell).

### EXERCISE 11–7

	Fair Value	% of Total	× Cost =	Recorded Amount (rounded)
Trade name	\$380,000	30.89%	\$1.2 million	\$370,680
Patented process	400,000	32.52%	\$1.2 million	390,240
Customer list	450,000	36.59%	\$1.2 million	439,080
	<u>\$1,230,000</u>			<u>\$1.2 million</u>

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Intangible assets – trade names .....		370,680	
	Intangible assets – patented process .....		390,240	
	Intangible assets – customer list .....		439,080	
	Cash .....			1,200,000

Note: The asset purchase is to be capitalized using the relative fair value method and assets separately reported so that the amortization expense can be separately determined for each based on their respective useful life.

### EXERCISE 11–8

a. At December 31, 2020, Bartek reports the patent:

Intangible assets	
Patent	\$800,000
Accumulated amortization*	<u>425,000</u>
	<u>\$375,000</u>

\* Amortization 2017 to 2019:  $\$800,000 \div 8 \times 3 \text{ years} = \underline{\underline{\$300,000}}$

Amortization for 2020:

$$\frac{(\text{Remaining carrying value} - \text{revised residual value})}{\text{Remaining useful life}}$$

$$\frac{(\$800,000 - \$300,000) - 0 \text{ residual value}}{(7 - 3)} = \underline{\underline{125,000}}$$

Accumulated amortization 2017 to 2020:  $(\$300,000 + \$125,000) = \underline{\underline{\$425,000}}$

- b. The amount of amortization of the franchise for the year ended December 31, 2019, is \$25,000:  $(\$500,000 \div 20 \text{ years})$ . Reason: Bartek should amortize the franchise over 20 years which is the period of the identifiable cash flows. Even though the franchise is considered as “perpetual,” the company believes it will generate future economic benefits for only the next 20 years.
- c. Unamortized development costs would be reported as \$50,000  $(\$250,000 \text{ net of } \$200,000 \text{ accumulated amortization})$  at December 31, 2020 on the SFP/BS.

Amortization for 2017 to 2020:  $\$250,000 \div 5 \text{ years} \times 4 \text{ years} = \$200,000$

### EXERCISE 11-9

a.

Cash purchase price		\$863,000
Fair value of assets	\$1,160,000	
Less liabilities (carrying value = fair value)	<u>(460,000)</u>	
Fair value of net assets		<u>700,000</u>
Value assigned to goodwill		<u><u>\$163,000</u></u>

- b. Under IFRS, the recoverable amount of the CGU of \$1,850,000 (which is the greater of the fair value, less costs to sell \$1,600,000, and the value in use \$1,850,000) is compared with its carrying amount \$1,925,000 to determine if there is any impairment.

The goodwill is impaired because carrying amount of the CGU \$1,925,000 > recoverable amount of the CGU \$1,850,000. The goodwill impairment loss is \$75,000  $(\$1,925,000 - \$1,850,000)$ . A reversal of an impairment loss on goodwill is not permitted.

- c. Under ASPE, goodwill is assigned to a reporting unit at the acquisition date. Goodwill is tested for impairment when events or changes in circumstances indicate impairment may exist. An impairment exists if the carrying amount of the reporting unit \$1,925,000 exceeds the fair value of the reporting unit \$1,860,000. In this case there is an impairment loss of \$65,000 ( $\$1,925,000 - \$1,860,000$ ). A reversal of an impairment loss on goodwill is not permitted.

**EXERCISE 11–10**

a.	Goodwill as a separate line item on the SFP/BS
b., c., d.	Research costs, organization cost, and the annual franchise fee would be classified as operating expenses
e., f., g., h.	Cash, accounts receivable, notes receivable due within one year from balance sheet date and prepaid expenses would be classified as current assets
i.	Intangible assets, if development criteria met at the acquisition date
j.	Non-current assets in the tangible property, plant, and equipment section. (Some accountants classify them as intangible assets on the basis that the improvements revert to the lessor at the end of the lease and therefore are more of a right than a tangible asset.)
k.	Intangible assets
l.	Intangible assets
m.	Investments section on the SFP/BS
n.	Intangible assets
o.	Discount on notes payable is shown as a deduction from the related notes payable on the SFP/BS as a liability
p., q.	Long-term assets in the tangible property, under plant, and equipment section
r.	Intangible asset
s.	Intangible asset
t.	Goodwill as a separate line item on the SFP/BS
u.	Expensed as part of research and development expense. (Development expenses are expensed unless all six criteria for capitalization are met.)

**EXERCISE 11–11**

- a. The determination of useful life by management can have a material effect on the balance sheet as well as on the income statement. The following are the variables to consider when determining the appropriate useful life for a limited-life intangible.

- The legal life for a patent in Canada is twenty years but management can deem a shorter useful life based on
  - the expected use of the patent
  - economic factors such as demand and competition
  - the period over which its benefits are expected to be provided.
- The estimated useful life of the patent should be based on neutral and unbiased consideration of the factors above, which requires a degree of professional judgment.

b. December 31, 2019:

Amortization:  $\$25,000 \div 20 = \$1,250$

Carrying amount:  $\$25,000 - \$1,250 = \$23,750$

December 31, 2020:

Amortization:  $\$1,250 + (\$35,000 \div 18.5 \times (6 \div 12)) = \$2,196$  (rounded)

Carrying amount:  $\$23,750 + \$35,000 - \$2,196 = \$56,554$

c. Dec 31, 2019 carrying amount from (b):  $\$23,750$

2020 amortization:  $(\$23,750 \div (15 - 1)) + (\$35,000 \div (15 - 1.5)) \times (6 \div 12) = \$2,993$  (rounded)

Carrying amount:  $\$23,750 + \$35,000 - \$2,993 = \$55,757$

- d. If it has an indefinite life, then do not amortize. If classified as indefinite life, management must review useful life annually to ensure that conditions and circumstances continue to support the indefinite life assessment. Any change in useful life is to be accounted as a change in estimate, which is accounted for prospectively. Also, management would have to test annually for impairment or whenever indicators of such a possibility exist.

## EXERCISE 11–12

a. Situation (i) Journal Entries:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1 2020	Intangible assets – patents .....		900,000	
	Cash, accounts payable, etc. ....			900,000
Dec 31 2020	Amortization expense .....		60,000	
	Accumulated amortization, patents .....			60,000
	(900,000 ÷ 15)			
Dec 31 2021	Amortization expense .....		84,000	
	Accumulated amortization, patents .....			84,000
	((900,000 – 60,000) ÷ 10)			

## Situation (ii) Journal Entries:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
2020	Research and development expenses .....		180,000	
	Cash, accounts payable, etc.....			180,000
2020	Intangible assets – electronic product.....		170,000	
	Cash, accounts payable, etc.....			170,000
Dec 31 2020	Amortization expense .....		17,000	
	Accumulated amortization, electronic product .....			17,000
	(170,000 ÷ 10)			

## Situation (iii) Journal Entries:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1 2020	Intangible assets – franchise .....		1,800,000	
	Cash, accounts payable, etc.....			1,800,000
Dec 31 2020	Amortization expense .....		45,000	
	Accumulated amortization – franchise .....			45,000
	(1,800,000 ÷ 40)			
Dec 31 2020	Franchise fee expense .....		112,000	
	Cash, accounts payable, etc.....			112,000
	(\$5.6 million × 2%)			

## Situation (iv) Journal Entries:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
2020	Research and development expenses .....		290,000	
	Cash, accounts payable, etc.....			290,000
	(\$25,000 + 250,000 + 15,000)			

## b. Partial income statement:

Hilde Co.		
Statement of Income (partial)		
For the Year Ending December 31, 2020		
Revenue from franchise		\$5,600,000
Expenses		
Research and development expenses*	\$470,000	
Franchise fee expense	112,000	
Amortization expense**	122,000	704,000
Income from operations before taxes		4,896,000
Income tax expense		1,321,920
Net income		<u>\$3,574,080</u>

\* (\$180,000 + 290,000)

\*\* (\$60,000 + 17,000 + 45,000)

Partial balance sheet:

Hilde Co.  
Balance Sheet (partial)  
As at December 31, 2020

Intangible assets:		
Intangible assets – patents	\$ 900,000	
Accumulated amortization	60,000	\$ 840,000
	170,000	
Intangible assets – electronic product	17,000	153,000
Accumulated amortization	1,800,000	
	45,000	1,755,000
Intangible assets – franchise	1,800,000	
Accumulated amortization	45,000	1,755,000
	45,000	1,755,000
Total intangible assets		\$2,748,000

Note: The balance sheet reporting requirement is to disclose the net amount for each intangible asset separately, its related accumulated amortization, any accumulated impairment losses, and a total for net intangible assets. With these requirements in mind, an alternative reporting format for the balance sheet would be to report the net amounts for each intangible asset as shown in the right-hand column with disclosure of the accumulated amortization, any accumulated impairment losses and the net amount for each intangible asset in an additional schedule in the notes to the financial statements.

- c. Under IFRS, if the costs meet the six development phase criteria for capitalization, then they are to be capitalized. Under ASPE, costs that meet the six development phase criteria for capitalization may either be capitalized or expensed, depending on the entity's accounting policy. In this case, Hilde's policy is to capitalize costs that meet the criteria; therefore, the accounting entries would be the same as the solution above.

Under IFRS there is an option to use the revaluation model for subsequent measurement of intangible assets after acquisition if there is an active market for the intangible assets. Refer to the chapter on property, plant, and equipment for details about this model. In addition, under IFRS, an assessment of estimated useful life is required at each reporting date.

- d. Impairment testing for limited-life assets under ASPE:

Limited-life intangible assets would be tested for possible impairment whenever events and circumstances indicate the carrying amount may not be recoverable. The carrying amount of the asset is compared to undiscounted future net cash flows of the asset, to determine if the asset is impaired. If impaired, the difference between the asset's carrying amount and its fair value will be the impairment amount. Under ASPE, an impairment loss for intangible assets may not be reversed.

Impairment testing for limited-life intangibles under IFRS:

At the end of each reporting period, the asset is to be assessed for possible impairment. If impairment is suspected, and the carrying amount is higher than the recoverable

amount (which is the higher of the value in use, and the fair value less costs to sell), the asset is impaired. The impairment loss is the difference between the asset's carrying amount and its recoverable amount. Under IFRS, an impairment loss may be reversed in the future, although the reversal is limited to what the asset's carrying amount would have been had there been no impairment.

**EXERCISE 11-13**

Entry:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Intangible asset – patent .....		107,666	
	Cash .....			50,000
	Note payable.....			57,666*
	For Intangible asset: (\$50,000 + \$57,666)			

\* Present value calculation:

$$PV = (4,800^{**} \text{ PMT}, 9 \text{ I/Y}^{***}, 5 \text{ N}, 60,000 \text{ FV})$$

$$PV = \$57,666 \text{ (rounded)}$$

$$** \$60,000 \times 8\%$$

\*\*\* PV calculations use the market rate while the interest payment of \$4,800 uses the stated rate.

**EXERCISE 11-14**

a.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
2020	Research and development expense .....		150,000	
	Cash, accounts payable, etc.....			150,000
	Intangible assets – patents .....		20,000	
	Cash, accounts payable, etc.....			20,000
2020	Amortization expense .....		2,000	
	Accumulated amortization .....			2,000
	(20,000 ÷ 10 years (2020–2030))			
2021	Intangible assets – patents .....		22,000	
	Cash, accounts payable, etc.....			22,000
	Amortization expense .....		2,857	
	Accumulated amortization .....			2,857
	((20,000 + 22,000 – 2,000) ÷ 14)			
2022	Research and development expense .....		250,000	
	Cash, accounts payable, etc.....			250,000
	Intangible assets – development costs .....		50,000	
	Cash, accounts payable, etc.....			50,000

- b. Under IFRS, costs associated with the development of internally generated intangible assets are capitalized when the six specific criteria for capitalization are met in the development stage. The \$250,000 must be expensed as it was incurred *before* the future benefits were reasonably certain. Costs incurred *after* the six specific criteria for capitalization are met, are capitalized. The \$50,000 costs incurred indicates the company's intention and ability to generate future economic benefits. As a result, the \$50,000 would be capitalized as development costs. The \$50,000 capitalized costs would be amortized over periods benefiting after manufacturing begins.

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### EXERCISE 11–15

- a. Impairment for limited-life under IFRS:

Carrying value: 1,000,000

Recoverable amount: higher of value in use and fair value less costs to sell

= higher of [\$1,100,000 and (\$1,000,000 – 45,000 = 955,000)] = 1,100,000

Carrying value is less than 1,100,000, therefore the franchise is not impaired.

- b. Carrying value: 1,000,000

Recoverable amount: 950,000

Carrying value is more than the recoverable amount therefore the franchise is impaired by \$50,000.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss on impairment .....		50,000	
	Accumulated impairment losses – franchise			50,000

c. Carrying value: 1,000,000

Recoverable amount: higher of value in use and fair value less costs to sell

= higher of [\$1,100,000 and (\$1,350,000 – 45,000) = 1,305,000] = 1,305,000

Carrying value is less than 1,305,000, therefore the franchise is not impaired.

d. Under IFRS, indefinite-life intangible assets are tested for impairment annually (even if there is no indication of impairment), which is the same as was done for limited-life intangible assets. So the answers in parts (a) to (c) will not change because the franchise has an unlimited life.

e. Under ASPE for limited-life intangibles, if there is reason to suspect impairment, then management can complete an assessment of the franchise. If the carrying value is greater than the undiscounted cash flows then it is impaired. The impairment amount is the difference between the carrying value and the fair value.

Part (a) Carrying value: 1,000,000

Undiscounted future cash flow = 1,200,000

Carrying value is less than 1,200,000, therefore the franchise is not impaired.

Part (b) Carrying value: 1,000,000

Recoverable amount (discounted future cash flows) = 950,000

Carrying value is more than the recoverable amount therefore the franchise is impaired by \$50,000.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss on impairment .....		50,000	
	Accumulated impairment losses – franchise			50,000

Part (c) Fair value changed to \$1.35 million. Fair value is not relevant for ASPE to assess recoverability, so the answer does not change from part (b).

f. Part (a) Under ASPE, indefinite-life intangible assets are tested for impairment when circumstances indicate that the asset may be impaired same as with limited-life intangibles. However, the test differs from the test for limited-life assets. Here, a fair value test is used, and an impairment loss is recorded when the carrying amount exceeds the fair value of the intangible asset.

Carrying value: 1,000,000

Fair value: 1,000,000

Carrying value is equal to the fair value for 1,000,000; therefore, the franchise is not impaired.

Part (b) Under ASPE, the recoverable amount refers to undiscounted future cash flows, which does not affect the impairment test for indefinite-life intangible assets, which compares the carrying value to the fair value of the asset. The fair value remains at 1,000,000, therefore the asset is not impaired.

Part (c) Carrying value: 1,000,000

Fair value: 1,350,000

Carrying value is less than the fair value for 1,350,000, therefore the franchise is not impaired under ASPE for an indefinite-life asset.

### EXERCISE 11-16

a.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash .....		55,000	
	Accounts receivable .....		125,000	
	Inventory .....		200,000	
	Land .....		35,000	
	Buildings .....		95,000	
	Equipment .....		5,000	
	Goodwill .....		65,000	
	Accounts payable .....			300,000
	Note payable .....			50,000
	Cash .....			230,000

- b. Payment of total consideration of \$280,000 for Candelabra resulted in payment for goodwill of \$65,000. Goodwill is defined as an asset representing the future economic benefits arising from other assets acquired in a business combination that are not individually identified or separately recognized. In paying for goodwill of \$65,000, Boxlight may have considered the value of Candelabra's established customers for repeat business, the company's reputation, the competence and ability of its management team to strategize effectively, its credit rating with its suppliers, and whether the company has highly qualified and motivated employees. Together, these could make the value of the business greater than the sum of the fair value of its net identifiable assets.

c.

Carrying value	\$200,000
Fair value	180,000
Impairment amount	<u>20,000</u>

Entry:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss on impairment .....		20,000	
	Accumulated impairment losses – goodwill .			20,000

d.

Carrying value: 180,000

Recoverable amount: higher of value in use and fair value less costs to sell

= higher of [\$170,000 and (\$160,000 – 10,000 = 150,000)] = 170,000

Carrying value is greater than 170,000; therefore, the franchise is impaired by \$10,000 (180,000 – 170,000).

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Loss on impairment .....		10,000	
	Accumulated impairment losses – goodwill .			10,000

Note: Had the impairment amount exceeded the \$65,000 goodwill carrying value, the amount of the difference would be allocated to the remaining net identifiable assets on a prorated basis.

- e. For part (c), reversal of goodwill if impairment losses exist is not permitted under ASPE. For part (d), reversal of goodwill impairment losses is not permitted under IFRS.
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