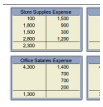
Bank Reconciling Items

Cash receipts are recorded as an increase of cash in the company's accounting records when they are received. These cash receipts are deposited by the company into its bank. The bank records an increase in cash only when these amounts are actually deposited with the bank. Since not all cash receipts recorded by the company will have been recorded by the bank when the bank statement is prepared, there will be outstanding deposits, also known as **deposits in transit**. Outstanding deposits cause the bank statement cash balance to be understated. Therefore, outstanding deposits are a reconciling item that must be added to the unreconciled bank balance of cash on the bank reconciliation.

On the date that a cheque is prepared by a company, it is recorded as a reduction of cash in a company's books. A bank statement will not record a cash reduction until a cheque is presented and accepted for payment (or *clears* the bank). Cheques that are recorded in the company's books but are not paid out of its bank account when the bank statement is prepared are referred to as **outstanding cheques**. Outstanding cheques mean that the bank statement cash balance is overstated. Therefore, outstanding cheques are a reconciling item that must be subtracted from the unreconciled bank balance of cash on the bank reconciliation.

Bank errors sometimes occur and are not revealed until the transactions on the bank statement are compared to the company's accounting records. When an error is identified, the company notifies the bank to have it corrected. Depending on the nature of the error, it is either added to or subtracted from the unreconciled bank balance of cash on the bank reconciliation. For example, if the bank cleared a cheque as $520 that was correctly written for $250, the $270 difference would be added to the unreconciled bank balance of cash on the bank reconciliation. Why? Because the cash balance reported on the bank statement is understated by $270 as a result of this error. As another example, if the bank recorded a deposit as $520 when the correct amount was actually $250, the $270 difference would be subtracted from the unreconciled bank balance of cash on the bank reconciliation. Why? Because the cash balance reported on the bank statement is overstated by $270 as a result of this specific error. Each error must be carefully analyzed to determine how it will be treated on the bank reconciliation.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Bank Reconciliation.

Illustrative Problem—Bank Reconciliation

Assume that a bank reconciliation is prepared by Big Dog Carworks Corp. (BDCC) at April 30. At this date, the Cash account in the general ledger shows a balance of $21,929 and includes the cash receipts and payments shown in Figure 7.1.

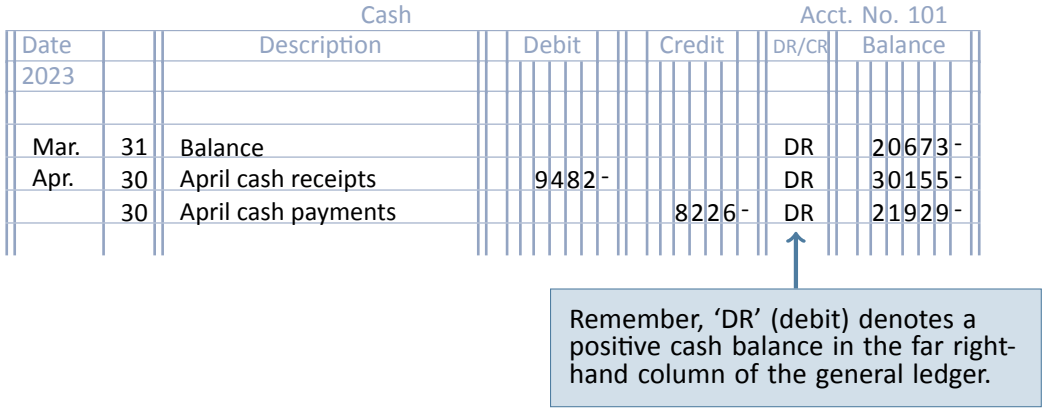


Figure 7.1: Big Dog's General Ledger 'Cash' Account at April 30

Extracts from BDCC's accounting records are reproduced with the bank statement for April in Figure 7.2.

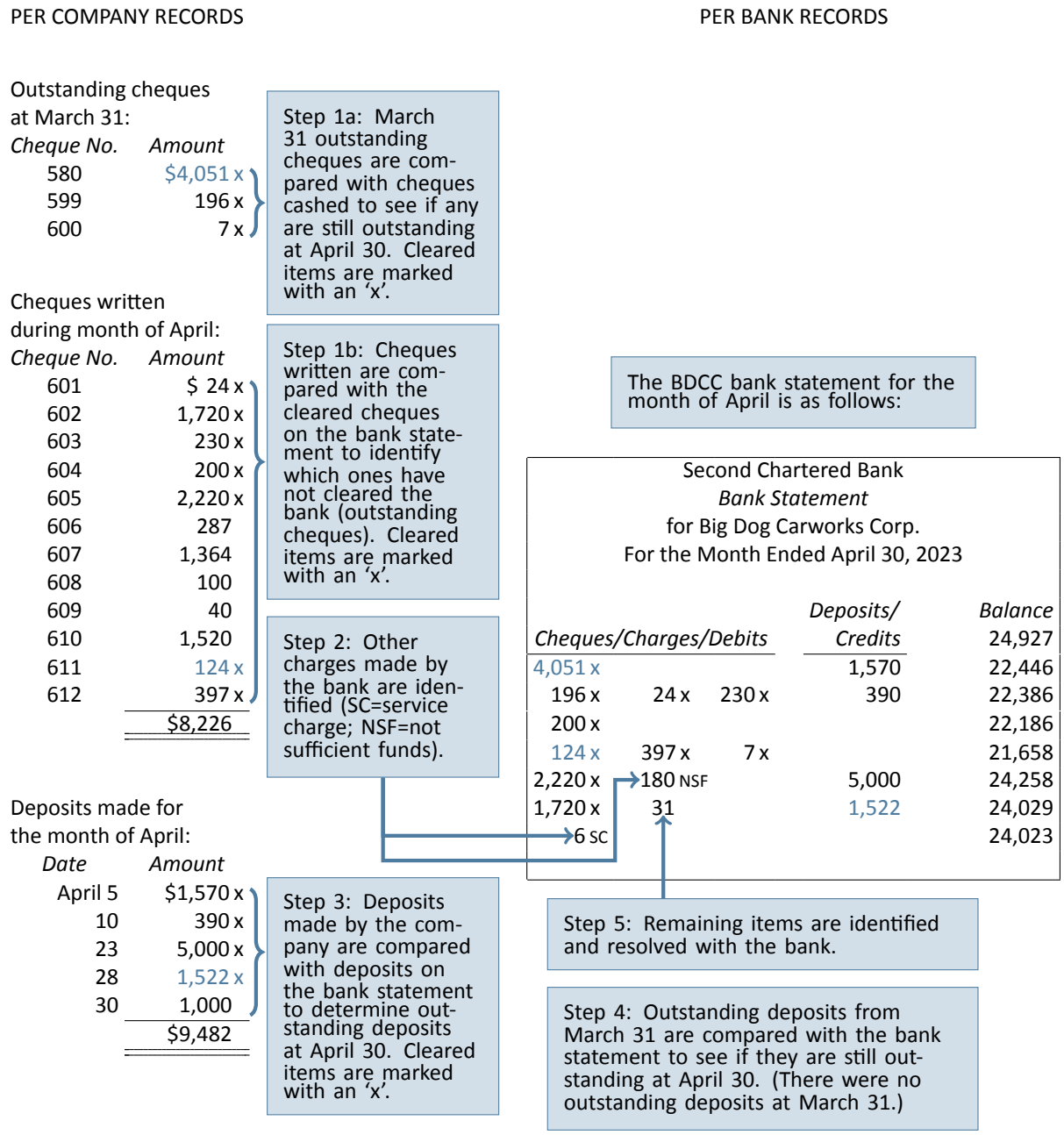


Figure 7.2: The Bank Reconciliation Process

For each entry in BDCC's general ledger Cash account, there should be a matching entry on its bank statement. Items in the general ledger Cash account but not on the bank statement must be reported as a reconciling item on the bank reconciliation. For each entry on the bank statement, there should be a matching entry in BDCC's general ledger Cash account. Items on the bank statement but not in the general ledger Cash account must be reported as a reconciling item on the bank reconciliation.

There are nine steps to follow in preparing a bank reconciliation for BDCC at April 30, 2023:

Step 1

Identify the ending general ledger cash balance ($21,929 from Figure 7.1) and list it on the bank reconciliation as the book balance on April 30 as shown in Figure 7.3. This represents the unreconciled book balance.

Step 2

Identify the ending cash balance on the bank statement ($24,023 from Figure 7.2) and list it on the bank reconciliation as the bank statement balance on April 30 as shown in Figure 7.3. This represents the unreconciled bank balance.

Step 3

Cheques written that have cleared the bank are returned with the bank statement. These cheques are said to be *cancelled* because, once cleared, the bank marks them to prevent them from being used again. Cancelled cheques are compared to the company's list of cash payments. Outstanding cheques are identified using two steps:

a. Any outstanding cheques listed on the BDCC's March 31 bank reconciliation are compared to the cheques listed on the April 30 bank statement.

   For BDCC, all of the March outstanding cheques (nos. 580, 599, and 600) were paid by the bank in April. Therefore, there are no reconciling items to include in the April 30 bank reconciliation. If one of the March outstanding cheques had not been paid by the bank in April, it would be subtracted as an outstanding cheque from the unreconciled bank balance on the bank reconciliation.

b. The cash payments listed in BDCC's accounting records are compared to the cheques on the bank statement. This comparison indicates that the following cheques are outstanding.

Cheque No.	*Amount*
606	$ 287
607	1,364
608	100
609	40
610	1,520

   Outstanding cheques must be deducted from the bank statement's unreconciled ending cash balance of $24,023 as shown in Figure 7.3.

Step 4

Other payments made by the bank are identified on the bank statement and subtracted from the unreconciled book balance on the bank reconciliation.

a. An examination of the April bank statement shows that the bank had deducted the NSF cheque of John Donne for $180. This is deducted from the unreconciled book balance on the bank reconciliation as shown in Figure 7.3.

b. An examination of the April 30 bank statement shows that the bank had also deducted a service charge of $6 during April. This amount is deducted from the unreconciled book balance on the bank reconciliation as shown in Figure 7.3.

Step 5

Last month's bank reconciliation is reviewed for outstanding deposits at March 31. There were no outstanding deposits at March 31. If there had been, the amount would have been added to the unreconciled bank balance on the bank reconciliation.

Step 6

The deposits shown on the bank statement are compared with the amounts recorded in the company records. This comparison indicates that the April 30 cash receipt amounting to $1,000 was deposited but it is not included in the bank statement. The outstanding deposit is added to the unreconciled bank balance on the bank reconciliation as shown in Figure 7.3.

Step 7

Any errors in the company's records or in the bank statement must be identified and reported on the bank reconciliation.

An examination of the April bank statement shows that the bank deducted a cheque issued by another company for $31 from the BDCC bank account in error. Assume that when notified, the bank indicated it would make a correction in May's bank statement.

The cheque deducted in error must be added to the bank statement balance on the bank reconciliation as shown in Figure 7.3.

Step 8

Total both sides of the bank reconciliation. The result must be that the book balance and the bank statement balance are equal or reconciled. These balances represent the adjusted balance.

The bank reconciliation in Figure 7.3 is the result of completing the preceding eight steps.

Big Dog Carworks Corp.
Bank Reconciliation
At April 30, 2023

Book balance at Apr. 30		$21,929	Bank statement balance at Apr. 30		$24,023
			Add: Outstanding deposit		1,000
			Cheque deducted in error		31
					25,054
Less: Bank charges	$ 6		Less: Outstanding cheques		
NSF Cheque – J. Donne	180	186	*Cheque No.*	*Amount*	
			606	$ 287	
			607	1,364	
			608	100	
			609	40	
			610	1,520	3,311
Adjusted book balance at Apr. 30		$21,743	Adjusted bank balance at Apr. 30		$21,743

These balances must agree.

Reconciling items in this section require journal entries to be made in the general journal to correct the unreconciled Cash balance of $21,929 in the general ledger to the reconciled balance of $21,743.

Reconciling items in this section do not require journal entries because the outstanding deposits and cheques should clear the bank next month, in May. Additionally, the other reconciling items (e.g., the $31 cheque deducted in error) must be reported to the bank so it can make the necessary corrections to Big Dog's account in the next month.

Figure 7.3: BDCC's April Bank Reconciliation

Step 9

For the adjusted balance calculated in the bank reconciliation to appear in the accounting records, an adjusting entry(s) must be prepared.

The adjusting entry(s) is based on the reconciling item(s) used to calculate the adjusted book balance. The book balance side of BDCC's April 30 bank reconciliation is copied to the left below to clarify the source of the following April 30 adjustments.

Book balance at Apr. 30		$21,929
Less: Bank charges	$ 6	
NSF Cheque – J. Donne	180	186
Adjusted book balance at Apr. 30		$21,743

Bank Service Charges Expense 6
Cash 6
To record service charges from April 30 bank reconciliation.

Accounts Receivable – J. Donne 180
Cash 180
To record NSF cheque from April 30 bank reconciliation.

It is common practice to use one compound entry to record the adjustments resulting from a bank reconciliation as shown below for BDCC.

Once the adjustment is posted, the Cash general ledger account is up to date, as illustrated in Figure 7.4.

Bank Service Charges Expense 6
Accounts Receivable – J. Donne 180
Cash 186

To record reconciling items from April 30 bank reconciliation.

Cash Acct. No. 101

Date		Description	Debit	Credit	DR/CR	Balance
2023						
Mar.	31	Balance			DR	20673-
Apr.	30	April cash receipts	9482-		DR	30155-
	30	April cash payments		8226-	DR	21929-
	30	Bank charge expense		6-	DR	21923-
	30	NSF cheque		180-	DR	21743-

This adjusted cash balance now agrees with the bank reconciliation.

Figure 7.4: Updated Cash Account in the General Ledger

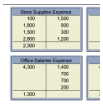
Note that the balance of $21,743 in the general ledger Cash account is the same as the adjusted book balance of $21,743 on the bank reconciliation. Big Dog does not make any adjusting entries for the reconciling items on the bank side of the bank reconciliation since these will eventually clear the bank and appear on a later bank statement. Bank errors will be corrected by the bank.

Debit and Credit Card Transactions

Debit and credit cards are commonly accepted by companies when customers make purchases. Because the cash is efficiently and safely transferred directly into a company's bank account by the debit or credit card company, such transactions enhance internal control over cash. However, the seller is typically charged a fee for accepting debit and credit cards. For example, assume BDCC makes a $1,000 sale to a customer who uses a credit card that charges BDCC a fee of 2%; the cost of the sale is $750. BDCC would record:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash		980	
	Credit Card Expense		20	
	Sales			1,000
	To record sale and related credit card fee.			
	Cost of Goods Sold		750	
	Merchandise Inventory			750
	To record cost of sales.			

The credit card fee is calculated as the $1,000 sale $\times$ 2% $=$ $20. This means that BDCC collects net cash proceeds of $980 ($1,000 $-$ $20). The use of debit cards also involves fees and these would be journalized in the same manner.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Bank Credit Cards.

7.4 Accounts Receivable  Watch video

LO4 – Explain, calculate, and record estimated uncollectible accounts receivable and subsequent write-offs and recoveries.

Recall from Chapter 5 that the revenue portion of the operating cycle, as copied in Figure 7.5, begins with a sale on credit and is completed with the collection of cash. Unfortunately, not all receivables are collected. This section discusses issues related to accounts receivable and their collection.

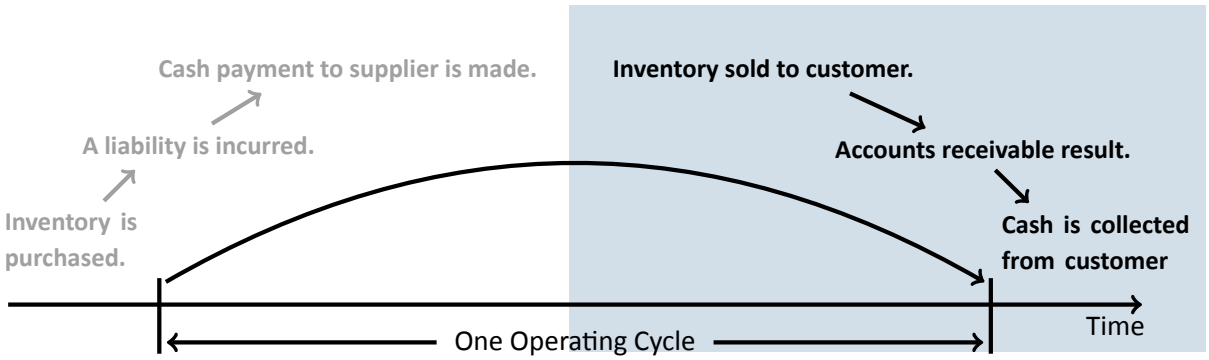
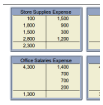


Figure 7.5: Revenue Portion of Operating Cycle



An exploration is available on the Lyryx site. Log into your Lyryx course to run Accounts Receivable Transactions.

Uncollectible Accounts Receivable

Extending credit to customers results in increased sales and therefore profits. However, there is a risk that some accounts receivable will not be collected. A good internal control system is designed to minimize bad debt losses. One such control is to permit sales on account only to credit-worthy customers; this can be difficult to determine in advance. Companies with credit sales realize that some of these amounts may never be collected. **Uncollectible accounts**, commonly known as **bad debts**, are an expense associated with selling on credit.

Bad debt expenses must be matched to the credit sales of the same period. For example, assume BDCC recorded a $1,000 credit sale to XYA Company in April, 2023. Assume further that in 2024 it was determined that the $1,000 receivable from XYA Company would never be collected. The bad debt arising from the credit sale to XYA Company should be matched to the period in which the sale occurred, namely, April, 2023. But how can that be done if it is not known which receivables will become uncollectible? A means of estimating and recording the amount of sales that will not be collected in cash is needed. This is done by establishing a contra current asset account called **Allowance for Doubtful Accounts (AFDA)** in the general ledger to record estimated uncollectible receivables. This account is a contra account to accounts receivable and is disclosed on the balance sheet as shown below using assumed values.

Accounts receivable	$25,000	
Less: Allowance for doubtful accounts	1,400	23,600
OR		
Accounts receivable (net of $1,400 AFDA)		$ 23,600

The Allowance for Doubtful Accounts contra account reduces accounts receivable to the amount

that is expected to be collected — in this case, $23,600.

Estimating Uncollectible Accounts Receivable

The AFDA account is used to reflect how much of the total Accounts Receivable is estimated to be uncollectible. To record estimated uncollectible accounts, the following adjusting entry is made.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Bad Debts Expense		XXX	
	Allowance for Doubtful Accounts			XXX
	To record the adjustment estimating uncollectible accounts receivable.			

The bad debt expense is shown on the income statement. AFDA appears on the balance sheet and is subtracted from accounts receivable resulting in the estimated net realizable accounts receivable.

Two different methods can be used to estimate uncollectible accounts. One method focuses on estimating Bad Debt Expense on the income statement, while the other focuses on estimating the desired balance in AFDA on the balance sheet.

The Income Statement Method

The objective of the **income statement method** is to estimate bad debt expense based on credit sales. Bad debt expense is calculated by applying an estimated loss percentage to credit sales for the period. The percentage is typically based on actual losses experienced in prior years. For instance, a company may have the following history of uncollected sales on account:

Year	*Credit Sales*	*Amounts Not Collected*
2020	$150,000	$1,000
2021	200,000	1,200
2022	250,000	800
	$600,000	$3,000

The average loss over these years is $\frac{\$3{,}000}{\$600{,}000}$, or $\frac{1}{2}$ of 1%. If management anticipates that similar losses can be expected in 2023 and credit sales for 2023 amount to $300,000, bad debts expense would be estimated as $1,500 ($300,000 x 0.005). Under the income statement method, the $1,500 represents estimated bad debt expense and is recorded as:

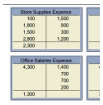
This estimated bad debt expense is calculated without considering any existing balance in the AFDA account.

Bad Debts Expense 1,500
Allowance for Doubtful Accounts 1,500
To record the adjustment estimating bad debt expense.

AFDA ACCOUNT *BEFORE* POSTING ADJUSTMENT
Assume the balance remaining in AFDA from the previous period is $250.

AFDA ACCOUNT *AFTER* POSTING ADJUSTMENT
The adjustment estimating bad debt expense of $1,500 is posted to AFDA to get an adjusted balance of $1,750.

Allowance for Doubtful Accounts			Allowance for Doubtful Accounts	
	Bal.	250	Bal.	250
			Adjustment	1,500
			Adjusted Bal.	1,750



An exploration is available on the Lyryx site. Log into your Lyryx course to run Income Statement Method.

The Balance Sheet Method

Estimated uncollectible accounts can also be calculated by using the **balance sheet method** where a process called **aging of accounts receivable** is used. At the end of the period, the total of estimated uncollectible accounts is calculated by analyzing accounts receivable according to how long each account has been outstanding. An aging analysis approach assumes that the longer a receivable is outstanding, the less chance there is of collecting it. This process is illustrated in the following schedule.

Aging of Accounts Receivable
December 31, 2023

			Number of Days Past Due				
Customer	*Total*	*Not Yet Due*	*1–30*	*31–60*	*61–90*	*91–120*	*Over 120*
Bendix Inc.	$ 1,000						$ 1,000
Devco Marketing Inc.	6,000		$ 1,000	$3,000	$2,000		
Horngren Corp	4,000		2,000	1,000		$ 1,000	
Perry Co. Ltd.	5,000		3,000	1,000		1,000	
Others	9,000		4,000			5,000	
Totals	$25,000	$ 0	$10,000	$5,000	$2,000	$ 7,000	$ 1,000

In this example, accounts receivable total $25,000 at the end of the period. These are classified into six time periods: those receivables that are not yet due; 1–30 days past due; 31–60 days past due; 61–90 days past due; 91–120 days past due; and over 120 days past due.

Based on past experience, assume management estimates a bad debt percentage, or rate of uncollectibility, for each time period as follows:

Number of Days Outstanding	*Not Yet Due*	*1–30*	*31–60*	*61–90*	*91–120*	*Over 120*
Rate of Uncollectibility	0.5%	1%	3%	5%	10%	40%

The calculation of expected uncollectible accounts receivable at December 31, 2023 would be as follows:

Calculation of Uncollectible Amounts
December 31, 2023

Age (days)	*Accounts Receivable*	*Estimated Bad Debt Percentage*	*Estimated Uncollectible Amount*
1–30	$10,000	1%	$ 100
31–60	5,000	3%	150
61–90	2,000	5%	100
91–120	7,000	10%	700
Over 120	1,000	40%	400
Totals	$25,000		$1,450

The balance remaining in the account is $250 from the previous period.

The total estimated uncollectible receivables is $1,450.

Allowance for Doubtful Accounts	
	Bal. 250

Allowance for Doubtful Accounts	
	Bal. 250
	Bal. 1,450

A total of $1,450 of accounts receivable is estimated to be uncollectible at December 31, 2023.

Under the balance sheet method, the estimated bad debt expense consists of the *difference* between the opening AFDA balance ($250, as in the prior example) and the estimated uncollectible receivables ($1,450) required at year-end.

$1,200 must be recorded to bring the account to $1,450.

Allowance for Doubtful Accounts	
	Bal. 250
	1,200
	Bal. 1,450

$1,200 is the difference between the $250 unadjusted balance and the required $1,450 closing balance.

The adjustment is recorded by the following journal entry:

Bad Debts Expense 1,200
  Allowance for Doubtful Accounts 1,200
To record the adjustment estimating bad debt expense.

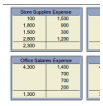
As an alternative to using an aging analysis to estimate uncollectible accounts, a simplified balance

sheet method can be used. The **simplified balance sheet method** calculates the total estimated uncollectible accounts as a percentage of the outstanding accounts receivables balance. For example, assume an unadjusted balance in AFDA of $250 as in the preceding example. Also assume the accounts receivable balance at the end of the period was $25,000 as in the previous illustration. If it was estimated that 6% of these would be uncollectible based on historical data, the adjustment would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Bad Debts Expense		1,250	
	Allowance for Doubtful Accounts			1,250
	To record the adjustment estimating bad debt expense.			

The total estimated uncollectible accounts was $1,500 ($25,000 $\times$ 0.06). Given an unadjusted balance in AFDA of $250, the adjustment to AFDA must be a credit of $1,250 ($1,500 – $250).

Regardless of whether the income statement method or balance sheet method is used, the amount estimated as an allowance for doubtful accounts seldom agrees with the amounts that actually prove uncollectible. A credit balance remains in the allowance account if fewer bad debts occur during the year than are estimated. There is a debit balance in the allowance account if more bad debts occur during the year than are estimated. By monitoring the balance in the Allowance for Doubtful Accounts general ledger account at each year-end, though, management can determine whether the estimates of uncollectible amounts are accurate. If not, they can adjust these estimates going forward.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Balance Sheet Method.

Writing Off Accounts Receivable

When recording the adjusting entry to estimate uncollectible accounts receivable at the end of the period, it is not known which specific receivables will become uncollectible. When an account is determined to be uncollectible, it must be removed from the accounts receivable account. This process is known as a **write-off**. To demonstrate the write-off of an account receivable, assume that on January 15, 2024 the $1,000 credit account for customer Bendix Inc. is identified as uncollectible because of the company's bankruptcy. The receivable is removed by:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	AFDA		1,000	
	Accounts Receivable – Bendix Inc.			1,000
	To record write-off of Bendix Inc.'s account receivable.			

The $1,000 write-off reduces both the accounts receivable and AFDA accounts. The write-off does not affect net realizable accounts receivable as demonstrated below.

	Before Write-Off	*Write-Off*	*After Write-Off*
Accounts receivable	$25,000	Cr 1,000	$24,000
Less: Allowance for doubtful accounts	1,450	Dr 1,000	450
Net accounts receivable	$23,550		$23,550

Additionally, a write-off does not affect bad debt expense. This can be a challenge to understand. To help clarify, recall that the adjusting entry to estimate uncollectibles was:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Bad Debts Expense		XXX	
	AFDA			XXX
	To record the adjustment estimating bad debt expense.			

This adjustment was recorded because GAAP requires that the bad debt expense be matched to the period in which the sales occurred even though it is not known which receivables will become uncollectible. Later, when an uncollectible receivable is identified, it is written off as:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	AFDA		XXX	
	Accounts Receivable			XXX
	To record write-off of account receivable.			

Notice that the AFDA entries cancel each other out so that the net effect is a debit to bad debt expense and a credit to accounts receivable. The use of the AFDA contra account allows us to estimate uncollectible accounts in one period and record the write-off of bad receivables as they become known in a later period.

Recovery of a Write-Off

When Bendix Inc. went bankrupt, its debt to Big Dog Carworks Corp. was written off in anticipation that there would be no recovery of the amount owed. Assume that later, an announcement was made that 25% of amounts owed by Bendix would be paid. This new information indicates that BDCC will be able to recover a portion of the receivable previously written off. A recovery requires two journal entries. The first entry reinstates the amount *expected* to be collected by BDCC—$250

($1,000 × 25%) in this case and is recorded as:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Accounts Receivable – Bendix Inc.		250	
	AFDA			250
	To reverse write-off and reinstate collectible portion of account.			

This entry reverses the collectible part of the receivable previously written off. The effect of the reversal is shown below.

Accounts Receivable				Allowance for Doubtful Accounts			
Bal.	$25,000	Write-off	1,000	Write-off	1,000	Bal.	1,450
Recovery	250					Recovery	250

The second entry records the collection of the reinstated amount as:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash		250	
	Accounts Receivable – Bendix Inc.			250
	To record recovery of collectible portion of account previously written off.			

The various journal entries related to accounts receivable are summarized below.

Sale on account.	Accounts Receivable	XXX	
	Sales		XXX
	COGS	XXX	
	Merchandise Inventory		XXX
Adjusting entry estimating uncollectible accounts.	Bad Debts Expense	XXX	
	AFDA		XXX
Write-off of uncollectible account.	AFDA	XXX	
	Accounts Receivable		XXX
Recovery of account previously written off.	Accounts Receivable	XXX	
	AFDA		XXX
	Cash	XXX	
	Accounts Receivable		XXX

7.5 Short-Term Notes Receivable  Watch video

LO5 – Explain and record a short-term notes receivable as well as calculate related interest.

Short-term notes receivable are current assets, since they are due within the greater of 12 months or the business's operating cycle. A note receivable is a *promissory note*. A **promissory note** is a signed document where the **debtor**, the person who owes the money, promises to pay the *creditor* the *principal* and *interest* on the *due date*. The **principal** is the amount owed. The **creditor**, or **payee**, is the entity owed the principal and interest. **Interest** is the fee for using the principal and is calculated as: Principal $\times$ Annual Interest Rate $\times$ Time. The **time** or **term** of the note is the period from the *date of the note* to the due date. The **due date**, also known as the **maturity date**, is the date on which the principal and interest must be paid. The **date of the note** is the date the note begins accruing interest.

Short-term notes receivable can arise at the time of sale or when a customer's account receivable becomes overdue. To demonstrate the conversion of a customer's account to a short-term receivable, assume that BDCC's customer Bendix Inc. is unable to pay its $5,000 account within the normal 30-day period. The receivable is converted to a 5%, 60-day note dated December 5, 2023 with the following entry:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 5	Notes Receivable - Bendix		5,000	
	Accounts Receivable - Bendix			5,000
	To record the conversion of a customer's account to a 5%, 60-day note dated December 5, 2023.			

The note is due on February 3, 2023 calculated as:

Days in December	31
Less: December 5 date of the note	5
Subtotal number of days	26
Add: Days in January	31
Subtotal number of days	57
Add: Days in February to total 60 days	**3**
Total term of the note in days	60

Assuming a December 31, year-end for BDCC, the adjusting entry to accrue interest on December 31 would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Interest Receivable		17.81	
	Interest Revenue			17.81
	To record the accrual of interest from December 5 to December 31.			

The interest of $17.81 was calculated as: $5,000 × 5% × 26/365[2] = $17.80822 rounded to $17.81. ***All interest calculations in this textbook are rounded to two decimal places.***

At maturity, February 3, 2024, BDCC collects the note plus interest and records:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Feb 3	Cash		5,041.10	
	Note Receivable - Bendix			5,000.00
	Interest Receivable			17.81
	Interest Revenue			23.29
	To record the collection of the principal and interest.			

The total interest realized on the note was $41.10 ($5,000 × 5% × 60/365 = $41.0959 rounded to $41.10). Part of the $41.10 total interest revenue was realized in 2023 ($17.81) and the rest in

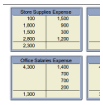
[2]When calculating interest based on days, use 365 days per year.

2024 ($41.10 - $17.81 = $23.29). Therefore, care must be taken to correctly allocate the interest between periods. The total cash received by BDCC on February 3 was the sum of the principal and interest: $5,000.00 + $41.10 = $5,041.10.

When the term of a note is expressed in months, the calculations are less complex. For example, assume that BDCC sold customer Woodlow a $4,000 service on August 1, 2023. On that date, the customer signed a 4%, 3-month note. The term of the note is based on months and not days therefore the maturity date is October 31, 2023. BDCC would record the collection on October 31 as:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Oct 31	Cash		4,040	
	Note Receivable - Woodlow			4,000
	Interest Revenue			40
	To record the collection of the principal and interest.			

The total interest realized on the note was $40 ($4,000 × 4% × 3/12[3] = $40.00)



An exploration is available on the Lyryx site. Log into your Lyryx course to run Notes Receivable.

7.6 Appendix A: Ratio Analysis—Acid Test  Watch video

LO6 – Explain and calculate the acid-test ratio.

The **acid-test ratio**, also known as the **quick ratio**, is a liquidity ratio that is a strict measure of a business's availability of cash to pay current liabilities as they come due. It is considered a strict measure because it includes only *quick current assets*. **Quick current assets** are those current assets that are one step away from becoming cash. For example, accounts receivable are a quick current asset because collection of receivables results in cash. However, inventory is not a quick current asset because it is two steps from cash — it has to be sold which creates an account receivable and the receivable then has to be collected. Prepaids are not a quick current asset because the intent in holding prepaids is not to convert them into cash but, instead, to use them (e.g., prepaid insurance becomes insurance expense as it is used). Quick current assets include only cash, short-term investments, and receivables.

[3] When calculating interest based on months, use 12 months per year.

The acid-test ratio is calculated as:

Quick current assets ÷ Current liabilities

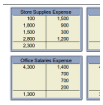
The acid-test ratios for three companies operating in a similar industry are shown below:

	Acid-Test Ratios		
Year	**Company A**	**Company B**	**Company C**
2022	0.56	1.3	8.6
2023	0.72	1.2	8.7

In 2022, Company A's acid-test ratio shows that it has only $0.56 to cover each $1.00 of current liabilities as they come due. Company A therefore has a liquidity issue. Although Company A's acid-test ratio is still unfavourable in 2023, the change is favourable because the liquidity improved. So a company can have an unfavourable acid-test ratio but show a favourable change.

Company B's 2022 acid-test shows that it has favourable liquidity: $1.30 to cover each $1.00 of current liabilities as they come due. However, the change from 2022 to 2023 shows a decrease in the acid-test ratio which is unfavourable although Company B's acid-test still shows favourable liquidity. So a company can have a favourable acid-test ratio but an unfavourable change.

Company C's 2022 acid-test ratio indicates that it has favourable liquidity: $8.60 to cover each $1.00 of current liabilities as they come due. However, this is actually unfavourable because a company can have an acid-test ratio that is too high. If the acid-test ratio is too high, it is a reflection that the company has idle assets. Idle assets do not typically generate the most optimum levels of revenue. Remember that the purpose of holding assets is to generate revenue. In 2023, Company C's acid-test ratio increased a bit and it is still excessive which is unfavourable. So the change was favourable but because the ratio is too high, it reflects an unfavourable liquidity position, though for different reasons than Company A.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Using the Information - Acid-Test Ratio.

7.7 Appendix B: Ratio Analysis—Accounts Receivable Turnover Watch video

LO7 – Explain and calculate the accounts receivable turnover.

The accounts receivable turnover not only measures the liquidity of receivables but also the efficiency of collection, referred to as turnover (i.e., accounts receivable *turnover* into cash). A low

turnover indicates high levels of accounts receivable which has an unfavourable impact on liquidity since cash is tied up in receivables. A low turnover means management might need to review credit granting policies and/or strengthen collection efforts.

The accounts receivable turnover is calculated as:

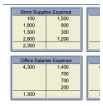
Net credit sales (or revenues) ÷ **Average net accounts receivable**[4]

Average accounts receivable is calculated by taking the beginning of the period balance plus the end of the period balance and dividing the sum by two.

The accounts receivable turnover ratios for two companies operating in a similar industry are shown below:

	Accounts Receivable Turnover	
Year	**Company A**	**Company B**
2023	5.8	6.9

Company B is more efficient at collecting receivables than is Company A. The higher the ratio, the more favourable.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Accounts Receivable Turnover Ratio.

Summary of Chapter 7 Learning Objectives

LO1 – Define internal control and explain how it is applied to cash.

The purpose of internal controls is to safeguard the assets of a business. Since cash is a particularly vulnerable asset, policies and procedures specific to cash need to be implemented, such as the use of cheques and electronic funds transfer for payments, daily cash deposits into a financial institution, and the preparation of bank reconciliations.

[4]Short-term notes receivable from customers would be included in this amount.

LO2 – Explain and journalize petty cash transactions.

A petty cash fund is used to pay small, irregular amounts for which issuing a cheque would be inefficient. A petty cash custodian administers the fund by obtaining a cheque from the cash payments clerk. The cheque is cashed and the coin and currency placed in a locked box. The petty cash custodian collects receipts and reimburses individuals for the related amounts. When the petty cash fund is replenished, the receipts are compiled and submitted for entry in the accounting records so that a replacement cheque can be issued and cashed.

LO3 – Explain the purpose of and prepare a bank reconciliation, and record related adjustments.

A bank reconciliation is a form of internal control that reconciles the bank statement balance to the general ledger cash account, also known as the book balance. Reconciling items that affect the bank statement balance are outstanding deposits, outstanding cheques, and bank errors. Reconciling items that affect the book balance are collections made by the bank on behalf of the company, NSF cheques, bank service charges, and errors. Once the book and bank statement balances are reconciled, an adjusting entry is prepared based on the reconciling items affecting the book balance.

LO4 – Explain, calculate, and record estimated uncollectible accounts receivable and subsequent write-offs and recoveries.

Not all accounts receivable are collected, resulting in uncollectible accounts. Because it is not known which receivables will become uncollectible, the allowance approach is used to match the cost of estimated uncollectible accounts to the period in which the related revenue was generated. The adjusting entry to record estimated uncollectibles is a debit to Bad Debt Expense and a credit to Allowance for Doubtful Accounts (AFDA). The income statement method and the balance sheet method are two ways to estimate and apply the allowance approach. The income statement method calculates bad debt expense based on a percentage of credit sales while the balance sheet method calculates total estimated uncollectible accounts (aka the balance in AFDA) using an aging analysis. When receivables are identified as being uncollectible, they are written off. If write-offs subsequently become collectible, a recovery is recorded using two entries: by reversing the write-off (or the portion that is recoverable) and then journalizing the collection.

LO5 – Explain and record a short-term notes receivable as well as calculate related interest.

A short-term notes receivable is a promissory note that bears an interest rate calculated over the term of the note. Short-term notes receivable are current assets that mature within 12 months

from the date of issue or within a business's operating cycle, whichever is longer. Notes can be issued to a customer at the time of sale, or a note receivable can replace an overdue receivable.

LO6 – Explain and calculate the acid-test ratio.

The acid-test ratio is a strict measure of liquidity. It is calculated as quick current assets divided by current liabilities. Quick assets include cash, short-term investments, and accounts receivable.

LO7 – Explain and calculate the accounts receivable turnover.

The accounts receivable turnover is a measure of liquidity and demonstrates how efficiently receivables are being collected. It is calculated as net sales divided by average accounts receivable. Average accounts receivable are the sum of the beginning accounts receivable, including short-term notes receivable from customers, plus ending receivables, divided by two.

Chapter 8

Long-lived Assets

Long-lived assets or *property, plant, and equipment (PPE)* assets are used in the normal operating activities of the business and are expected to provide benefits for a period in excess of one year. Long-lived assets covered in this chapter consist of three types: property, plant, and equipment (PPE), intangible assets, and goodwill. Also discussed are *depreciation* and *amortization*, techniques to allocate the cost of most long-lived assets over their estimated useful lives.

Chapter 8 Learning Objectives  Watch video

LO1 – Describe how the cost of property, plant, and equipment (PPE) is determined, and calculate PPE.

LO2 – Explain, calculate, and record depreciation using the units-of-production, straight-line, and double-declining balance methods.

LO3 – Explain, calculate, and record depreciation for partial years.

LO4 – Explain, calculate, and record revised depreciation for subsequent capital expenditures.

LO5 – Explain, calculate, and record the impairment of long-lived assets.

LO6 – Account for the derecognition of PPE assets.

LO7 – Explain and record the acquisition and amortization of intangible assets.

LO8 – Explain goodwill and identify where on the balance sheet it is reported.

LO9 – Describe the disclosure requirements for long-lived assets in the notes to the financial statements.

Concept Self-Check

Use the following as a self-check while working through Chapter 8.

1. What is the distinction between capital expenditures and revenue expenditures?

2. How do generally accepted accounting principles prescribe what amount should be capitalized?
3. How is partial period depreciation recorded?
4. What is the formula for calculating revised depreciation?
5. What is the difference between a tangible and intangible long-lived asset?
6. What different methods can be used to calculate depreciation for property, plant, and equipment?
7. How are disposals of property, plant, and equipment recorded in the accounting records?
8. How is the impairment of a long-lived asset accounted for?
9. How are intangible assets amortized?
10. What is goodwill and what is its accounting treatment?

NOTE: The purpose of these questions is to prepare you for the concepts introduced in the chapter. Your goal should be to answer each of these questions as you read through the chapter. If, when you complete the chapter, you are unable to answer one or more the Concept Self-Check questions, go back through the content to find the answer(s). Solutions are not provided to these questions.

8.1 Establishing the Cost of Property, Plant, and Equipment (PPE)

 Watch video

LO1 – Describe how the cost of property, plant, and equipment (PPE) is determined, and calculate PPE.

Property, plant, and equipment (PPE) are *tangible* long-lived assets that are acquired for the purpose of generating revenue either directly or indirectly. They are held for use in the production or supply of goods and services, have been acquired for use on a continuing basis, and are not intended for sale in the ordinary course of business. Because PPE assets are long-lived or have a life greater than one year, they are non-current in nature, also known as long-term assets. Examples of PPE assets include land, office and manufacturing buildings, production machinery, trucks, ships or aircraft used to deliver goods or transport passengers, salespersons' automobiles owned by a company, or a farmer's production machinery like tractors and field equipment. PPE assets are **tangible assets** because they can be physically touched. There are other types of non-current assets that are *intangible* – existing only as legal concepts – like copyrights and patents. These will be discussed later in this chapter.

Capital Expenditures

Any cash disbursement is referred to as an **expenditure**. A **capital expenditure** results in the acquisition of a non-current asset, including any additional costs involved in preparing the asset for its intended use. Examples of various costs that may be incurred to prepare PPE for use are listed below.

	Capital Expenditures		
	Land	*Building*	*Equipment*
Costs to Acquire PPE	Purchase price Commission to real estate agent Legal fees	Purchase price Commission to real estate agent Legal fees	Invoice cost Transportation Insurance (during transportation)
Costs to Prepare PPE for Use	Costs of draining, clearing, and landscaping; demolition Assessments for streets and sewage system	Repair and remodelling costs before use Payments to tenants for premature termination of lease	Assembly Installation (including wages paid to company employees) Special floor foundations or supports Wiring Inspection Test run costs

To demonstrate, assume that equipment is purchased for $20,000. Additional costs include transportation costs $500, installation costs $1,000, construction costs for a cement foundation $2,500, and test run(s) costs to debug the equipment $2,000. The total capitalized cost of the asset to put it into use is $26,000.

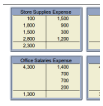
Determining whether an outlay is a capital expenditure or a *revenue expenditure* is a matter of judgment. A **revenue expenditure** does not have a future benefit beyond one year. The concept of materiality enters into the distinction between capital and revenue expenditures. As a matter of expediency, an expenditure of $20 that has all the characteristics of a capital expenditure would probably be expensed rather than capitalized, because the time and effort required by accounting staff to capitalize and then depreciate the item over its estimated useful life is so much greater than the benefits derived from doing so. Capitalization policies are established by many companies to resolve the problem of distinguishing between capital and revenue expenditures. For example, one company's capitalization policy may state that all capital expenditures equal to or greater than $1,000 will capitalized, while all capital expenditures under $1,000 will be expensed when incurred. Another company may have a capitalization policy limit of $500. Additionally, a company may have a different capitalization policy for different types of plant and equipment assets – hand tools may have a capitalization policy limit of $200 while the limit might be $1,000 for furniture.

Not all asset-related expenditures incurred after the purchase of an asset are capitalized. An expenditure made to maintain PPE in satisfactory working order is a revenue expenditure and recorded as a debit to an expense account. Examples of these expenditures include: (a) the cost of replacing small parts of an asset that normally wear out (in the case of a truck, for example: new tires, new muffler, new battery); (b) continuing expenditures for maintaining the asset in good working order (for example, oil changes, antifreeze, transmission fluid changes); and (c) costs of renewing structural parts of an asset (for example, repairs of collision damage, repair or replacement of rusted parts).

Although some expenditures for repair and maintenance may benefit more than one accounting period, they may not be material in amount or they may have uncertain future benefits. They are therefore treated as expenses. These three criteria must all be met for an expenditure to be considered capital in nature.

1. Will it benefit more than one accounting period?
2. Will it enhance the service potential of the asset, or make it more valuable or more adaptable?
3. Is the dollar amount material?

Regardless of when an expenditure is incurred, if it meets the three criteria above it will always be a capital expenditure and debited to the appropriate asset account. If the expenditure does not meet all three criteria, then it is a revenue expenditure and is expensed.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Revenue and Capital Expenditures.

Land

The purchase of land is a capital expenditure when land is used in the operation of a business. In addition to the costs listed in the schedule above, the cost of land should be increased by the cost of removing any unwanted structures on it. This cost is reduced by the proceeds, if any, obtained from the sale of the scrap. For example, assume that the purchase price of land is $100,000 before an additional $15,000 cost to raze an old building: $1,000 is expected to be received for salvaged materials. The cost of the land is $114,000 ($100,000 + $15,000 - $1,000).

Frequently, land and useful buildings are purchased for a *lump sum*. That is, one price is negotiated for their entire purchase. A lump sum purchase price must be apportioned between the PPE assets acquired on the basis of their respective market values, perhaps established by a municipal assessment or a professional land appraiser. Assume that a lump sum of $150,000 cash is paid

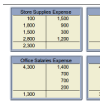
for land and a building, and that the land is appraised at 25% of the total purchase price. The Land account would be debited for $37,500 ($150,000 x 25%) and the Building account would be debited for the remaining 75% or $112,500 ($150,000 x 75% = $112,500 or $150,000 - $37,500 = $112,500) as shown in the following journal entry.

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Land		37,500	
	Building		112,500	
	Cash			150,000
	To record the purchase of land and building for a lump sum of $150,000; $150,000 x 25% = $37,500; $150,000 x 75% = $112,500.			

An exploration is available on the Lyryx site. Log into your Lyryx course to run Lump Sum Purchases.

Building and Equipment

When a capital asset is purchased, its cost includes the purchase price plus all costs to prepare the asset for its intended use. However, a company may construct its own building or equipment. In the case of a building, for example, costs include those incurred for excavation, building permits, insurance and property taxes during construction, engineering fees, the cost of labour incurred by having company employees supervise and work on the construction of the building, and the cost of any interest incurred to finance the construction during the construction period.



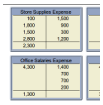
An exploration is available on the Lyryx site. Log into your Lyryx course to run Cost of Property, Plant and Equipment (PPE).

Property, Plant, and Equipment (PPE) Subsidiary Ledger

The accounts receivable and accounts payable subsidiary ledgers (more commonly referred to as subledgers) were introduced in Chapter 5 and the merchandise inventory subledger was introduced in Chapter 6. To review, a subledger lists individual accounts that fall under a common account, also known as the controlling account. For example, the accounts receivable controlling account for ABC Inc. shows a balance of $4,000 on the December 31, 2023 balance sheet. The accounts receivable subledger shows that the $4,000 is made up of three receivables: $800 for Ducker Inc.; $2,200 for Zest Inc.; and $1,000 for Frank Corporation. Since the controlling account

is a summary of the subledger, their balances must be identical. Subledgers allow details to be maintained in a separate record.

In a PPE subledger, an account would exist for each piece of land, each piece of machinery, each vehicle, and so on. The subledger account would include information regarding the date of purchase, cost, residual value, estimated useful life, depreciation, and other relevant information.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Preparing the PPE Section of a Balance Sheet.

8.2 Depreciation Watch video

LO2 – Explain, calculate, and record depreciation using the units-of-production, straight-line, and double-declining balance methods.

The role of **depreciation** is to allocate the cost of a PPE asset (except land) over the accounting periods expected to receive benefits from its use. Depreciation begins when the asset is in the location and condition necessary for it to be put to use. Depreciation continues even if the asset becomes idle or is retired from use, unless it is fully depreciated. Land is not depreciated, as it is assumed to have an unlimited life.

Depreciation is an application of the matching principle.

> According to generally accepted accounting principles, a company should select a method of depreciation that represents the way in which the asset's future economic benefits are estimated to be used up.

There are many different ways to calculate depreciation. The most frequently used methods are usage-based and time-based. Regardless of depreciation method, there are three factors necessary to calculate depreciation:

- cost of the asset
- residual value
- estimated useful life or productive output.

Residual value is the estimated worth of the asset at the end of its estimated useful life.

Useful life is the length of time that a long-lived asset is estimated to be of benefit *to the current owner*. This is not necessarily the same as the asset's economic life. If a company has a policy of replacing its delivery truck every two years, its useful life is two years even though it may be used by the next owner for several more years.

Productive output is the amount of goods or services expected to be provided. For example, it may be measured in units of output, hours used, or kilometres driven.

Usage-Based Depreciation Method – Units-of-Production

Usage-based depreciation methods, such as the Units-of-Production Method, are used when the output of an asset varies from period to period.

> Usage methods assume that the asset will contribute to the earning of revenues in relation to the amount of output during the accounting period. Therefore, the depreciation expense will vary from year to year.

To demonstrate, assume that Big Dog Carworks Corp. purchased a $20,000 piece of equipment on January 1, 2022 with a $2,000 residual value and estimated productive life of 10,000 units. If 1,500 units were produced during 2022, the depreciation expense for the year ended December 31, 2022 would be calculated using the following formula:

$$\frac{\text{Cost} - \text{Residual value}}{\text{Estimated units of output}} = \text{Depreciation per unit}; \quad \text{Depreciation per unit} \times \text{Number of units produced} = \text{Depreciation expense}$$

$$\frac{\$20{,}000 - \$2{,}000}{10{,}000 \text{ units}} = \$1.80 \text{ depreciation per unit}; \quad \$1.80 \text{ depreciation per unit} \times 1{,}500 \text{ units produced} = \$2{,}700 \text{ depreciation expense for 2022}$$

The following adjusting entry would be made on December 31, 2022:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Depreciation Expense		2,700	
	Accumulated Depreciation			2,700
	To record depreciation expense using the Units-of-Production method; ($20,000 - $2,000)/10,000 units = $1.80/unit; $1.80/unit x 1,500 units = $2,700.			

The **carrying amount** or **net book value** of the asset (cost less accumulated depreciation) on the December 31, 2022 balance sheet would be $17,300 ($20,000 - 2,700).

Note that the residual value is only used to calculate depreciation expense. It is not recorded in the accounts of the company or included as part of the carrying amount (net book value) on the balance sheet.

If 2,000 units were produced during 2023, depreciation expense for that year would be $3,600 ($1.80 per unit × 2,000 units). At December 31, 2023, the following adjusting entry would be recorded:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Depreciation Expense		3,600	
	Accumulated Depreciation			3,600
	To record depreciation expense using the Units-of-Production method; ($20,000 - $2,000)/10,000 units = $1.80/unit; $1.80/unit x 2,000 units = $3,600.			

The carrying amount (or net book value) at December 31, 2023 would be $13,700 ($20,000 – 2,700 – 3,600). If the equipment produces 1,000 units in 2024, 2,500 units in 2025, and 3,000 units in 2026, depreciation expense and carrying amounts would be as follows each year:

(a)	*(b)*	*(c)*	*(d)*	*(e)*	*(f)*
Year	*Carrying amount at start of year*	*Usage (units)*	*Rate*	*Dep'n expense*	*Carrying amount at end of year (b) – (e)*
2022	$20,000	1,500	$1.80	$2,700	$17,300
2023	17,300	2,000	1.80	3,600	13,700
2024	13,700	1,000	1.80	1,800	11,900
2025	11,900	2,500	1.80	4,500	7,400
2026	7,400	3,000	1.80	5,400	2,000
		10,000		$18,000	

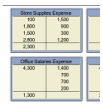
If the equipment produces exactly 10,000 units over its useful life and is then retired, depreciation expense over all years will total $18,000 (10,000 × $1.80) and the carrying amount will equal residual value of $2,000.

It is unlikely that the equipment will produce exactly 10,000 units over its useful life. Assume instead that 4,800 units were produced in 2026. Depreciation expense and carrying amounts would be as follows each year:

(a)	*(b)*	*(c)*	*(d)*	*(e)*	*(f)*
Year	*Carrying amount at start of year*	*Usage (units)*	*Rate*	*Dep'n expense*	*Carrying amount at end of year (b) – (e)*
2022	$20,000	1,500	$1.80	$2,700	$17,300
2023	17,300	2,000	1.80	3,600	13,700
2024	13,700	1,000	1.80	1,800	11,900
2025	11,900	2,500	1.80	4,500	7,400
2026	7,400	4,800	1.80	5,400	2,000
		11,800		$18,000	

Carrying amount (or net book value) cannot be less than residual value

Notice that the depreciation expense for 2026 is **not** $8,640 (calculated as the 4,800 units x $1.80/unit = $8,640). The depreciation expense for 2026 cannot exceed $5,400 because the remaining carrying amount must be equal to or greater than the residual value. In other words, the **maximum allowable accumulated depreciation** cannot exceed cost less residual. A PPE asset cannot be depreciation below its residual value.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Units-of-Production Method.

Time-Based Depreciation Method - Straight-Line

The **straight-line method of depreciation** – introduced in Chapter 3 – assumes that the asset will contribute to the earning of revenues equally each time period. Therefore, equal amounts of depreciation are recorded during each year of the asset's useful life. Straight-line depreciation is based on time – the asset's estimated useful life.

Straight-line depreciation is calculated as:

$$\frac{\text{Cost} - \text{Estimated residual value}}{\text{Estimated useful life in years}} = \text{Depreciation expense/year}$$

To demonstrate, assume the same $20,000 piece of equipment used earlier, with an estimated useful life of five years and an estimated residual value of $2,000. Straight-line depreciation would be $3,600 per year calculated as:

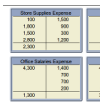
$$\frac{\$20{,}000 - \$2{,}000}{5 \text{ years}} = \$3{,}600 \text{ depreciation expense/year}$$

Over the five-year useful life of the equipment, depreciation expense and carrying amounts will be as follows:

(a)	*(b)*	*(c)*	*(d)*
Year	*Carrying amount at start of year*	*Dep'n expense*	*Carrying amount at end of year (b) – (c)*
2022	$20,000	$3,600	$16,400
2023	16,400	3,600	12,800
2024	12,800	3,600	9,200
2025	9,200	3,600	5,600
2026	5,600	3,600	2,000
		$18,000	

The carrying amount at December 31, 2026 will be the residual value of $2,000 ($20,000 – 18,000).

Under the straight-line method, depreciation expense for each accounting period remains the same dollar amount over the useful life of the asset.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Straight-Line Method.

Accelerated Time-Based Depreciation Method – Double-Declining Balance (DDB)

An **accelerated depreciation** method assumes that a plant and equipment asset will contribute more to the earning of revenues in the earlier stages of its useful life than in the later stages. This means that more depreciation is recorded in earlier years with the depreciation expense decreasing each year. This approach is most appropriate where assets experience a high degree of obsolescence (such as computers) or where the value of the asset is highest in the first year when it is new and efficient and declines significantly each year as it is used and becomes worn (such as equipment).

Under an accelerated depreciation method, depreciation expense decreases each year over the useful life of the asset.

One type of accelerated depreciation is the **double-declining balance (DDB)** method. It is calculated as:

$$\text{Carrying Amount (or Net Book Value)} \times (2/n)$$

where n = estimated useful life. $2/n$ is the rate of depreciation and it remains constant over the asset's estimated useful life (unless there is a change in the useful life which is discussed in a later section of this chapter). The DDB rate of depreciation can also be described as twice the straight-line rate. For example, if the straight-line rate of depreciation is 15%, the DDB rate will be 30% (calculated as 2 × 15%).

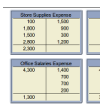
To demonstrate DDB depreciation calculations, assume the same $20,000 equipment with an estimated useful life of five years. The DDB rate of depreciation is calculated as $2/n$ = 2/5 = 0.40 or 40%. Alternatively, given that we know the straight-line rate is 20%, doubling it is 40%.

The declining balance rate is applied to the carrying amount of the asset *without regard to residual value*. Regardless of which depreciation method is used, remember that the asset cannot be depreciated below its carrying amount (or net book value) which in this case is $2,000. The DDB depreciation for the five years of the asset's useful life follows.

(a)	*(b)*	*(c)*	*(d)*	*(e)*
Year	*Carrying amount at start of year*	*DDB rate*	*Dep'n expense (b) x (c)*	*Carrying amount at end of year (b) – (d)*
2022	$20,000	40%	$8,000	$12,000
2023	12,000	40%	4,800	7,200
2024	7,200	40%	2,880	4,320
2025	4,320	40%	1,728	2,592
2026	2,592	40%	592	2,000
			$18,000	

Although for 2026 the depreciation expense would be calculated as $1,037 ($2,592 x 40%), only $592 is recorded to bring the carrying amount of the asset down to its residual value of $2,000.

At the end of five years, the carrying amount is once again equal to the residual value of $2,000.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Double-Declining Balance.

A comparison of the three depreciation methods is shown in Figure 8.1.

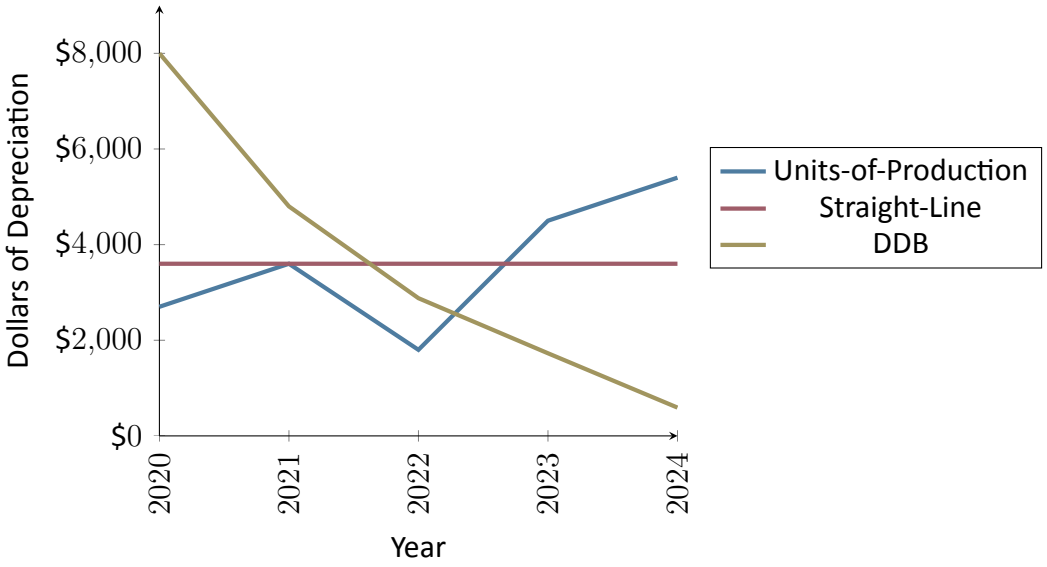


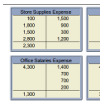
Figure 8.1: Comparing Three Depreciation Methods

8.3 Partial Year Depreciation Watch video

LO3 – Explain, calculate, and record depreciation for partial years.

Assets may be purchased or sold at any time during a fiscal year. Should depreciation be calculated for a whole year in such a case? The answer depends on corporate accounting policy. There are many alternatives. One is to calculate depreciation to the nearest whole month. Another, often called the **half-year rule**, records half a year's depreciation regardless of when an asset purchase or disposal occurs during the year.

To demonstrate the half-year approach to calculating depreciation for partial periods, assume again that Big Dog Carworks Corp. purchases equipment for $20,000 with an estimated useful life of five years and a residual value of $2,000. Recall that depreciation expense for 2022 was $3,600 using the straight-line method. Because of the half-year rule, depreciation expense for 2022 would be $1,800 ($3,600 x .5) even though the asset was purchased on the first day of the fiscal year. Using the double-declining balance method, depreciation expense for 2022 under the half-year rule would be $4,000 ($8,000 $\times$ .5). Applying the half-year rule to the units-of-production depreciation for 2022, would result in no change because the method is usage-based and not time-based (presumably usage would be less if the asset is purchased partway through the year, so this depreciation method already takes this into account).



An exploration is available on the Lyryx site. Log into your Lyryx course to run Partial Periods.

8.4 Revising Depreciation Watch video

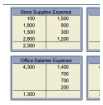
LO4 – Explain, calculate, and record revised depreciation for subsequent capital expenditures.

Both the useful life and residual value of a depreciable asset are estimated at the time it is purchased. As time goes by, these estimates may change for a variety of reasons. In these cases, the depreciation expense is recalculated from the date of the change in the accounting estimate and applied going forward. *No change is made to depreciation expense already recorded.*

Consider the example of the equipment purchased for $20,000 on January 1, 2022, with an estimated useful life of five years and residual value of $2,000. If the straight-line depreciation method is used, the yearly depreciation expense is $3,600. After two years, the carrying amount at the end of 2023 is $12,800 ($20,000 - 3,600 - 3,600). Assume that on January 1, 2024, management estimates the remaining useful life of the equipment to be six years, and the residual value to be $5,000.

Depreciation expense for the remaining six years would be calculated as:

$$\frac{(\text{Remaining carrying amount} - \text{Revised residual value})}{\text{Estimated remaining useful life}}$$
$$= \frac{(\$12{,}800 - 5{,}000)}{6 \text{ years}}$$
$$= \$1{,}300 \text{ per year}$$



An exploration is available on the Lyryx site. Log into your Lyryx course to run Revised Dep. - Change in Life/Residual.

Subsequent Capital Expenditures

As noted earlier, normal, recurring expenditures that relate to day-to-day servicing of depreciable assets are not capitalized, but rather are expensed when incurred. Oil changes and new tires for vehicles are examples of recurring expenditures that are expensed. Expenditures that are material, can be reliably measured, and enhance the future economic benefit provided by the asset, are added to the cost of the asset rather than being expensed when incurred. A subsequent capital expenditure can take one of two forms:

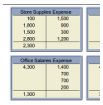
1. Addition (e.g., adding a garage to the back of an existing building or adding a skywalk in a factory)
2. Replacement (e.g., replacing the refrigeration unit in a long-haul truck or replacing the windows in a building).

To demonstrate the accounting for an addition, recall our original example where equipment was purchased on January 1, 2022 for $20,000; the estimated useful life and residual value were five years and $2,000, respectively. Assume that on January 4, 2023, a heat exchanger was added to the equipment that allowed it to produce a new product in addition to the existing product line. This $12,000 addition, paid in cash, had an estimated life of ten years with no residual value. The useful life and residual value of the original equipment did not change as a result of the addition. The entry to record the addition on January 4 is:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 4	Equipment – Heat Exchanger		12,000	
	Cash			12,000
	To record the addition of a heat exchanger to the equipment.			

The entry to record revised depreciation on December 31, 2023 is:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Depreciation Expense - Equipment		4,800	
	Accumulated Depreciation - Equipment			4,800
	To record revised straight-line depreciation; ($20,000 - $2,000)/5 years = $3,600/year; ($12,000 - $0)/10 years = $1,200/year; $3,600 + $1,200 = $4,800.			



An exploration is available on the Lyryx site. Log into your Lyryx course to run Revised Dep. - Addition.

The accounting for a replacement is more involved. The cost of the replaced item and its related accumulated depreciation must be removed from the accounting records when the replacement is capitalized recording any resulting gain or loss *as well as* calculating revised depreciation. Let's demonstrate, again using the $20,000 equipment purchased on January 1, 2022 with a five-year life and $2,000 residual value. Assume that on January 5, 2025 the engine in the equipment burned out and needed to be replaced. The PPE subledger showed that the engine had an original cost of $8,000, useful life of five years, and residual value of $1,000 resulting in a carrying amount as at January 5, 2025 of $3,800 ($8,000 cost – $4,200 accumulated depreciation). The entry to dispose of the old engine and remove it from the accounting records is (the old engine was scrapped and not sold because it was burned out):

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 5	Accum. Dep. – Equip. – Engine		4,200	
	Loss on Disposal		3,800	
	Equipment – Engine			8,000
	To record the scrapping of the burned out equipment engine; ($8,000 - $1,000)/5 years = $1,400/year depreciation X 3 years = $4,200 accumulated depreciation.			

Notice in the entry above that the cost of the old engine and the accumulated depreciation must be individually removed from the accounting records. Since the asset is not completely depreciated and was scrapped, the $3,800 carrying amount represents a loss. If the engine had been sold, the gain or loss would have been calculated as the difference between its carrying value and the cash proceeds. Losses (as well as gains) are reported on the income statement under *Other Revenues and Expenses*. **A common error made by students is to debit loss on disposal and credit equipment–engine for the carrying amount; this is incorrect.** After posting the entry to dispose of the old engine, the account balances in the Equipment account and its related Accumulated Depreciation account would be as follows.

Equipment			
Jan. 1, 2022	20,000	8,000	Jan. 5, 2025
Balance	12,000		

Accumulated Depreciation – Equipment			
		3,600	Dec. 31, 2022
		3,600	Dec. 31, 2023
		3,600	Dec. 31, 2024
Jan. 5, 2025	4,200		
		6,600	Balance

The entry to record the new engine purchased for $12,000 cash (estimated life 8 years; estimated zero residual value) is:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 5	Equipment - Engine		12,000	
	Cash			12,000
	To record the new engine with estimated useful life of 8 years and estimated residual value of zero.			

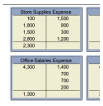
Alternatively, the entries to dispose of the old engine and record the addition of the new engine can be combined into one compound entry as follows:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 5	Accum. Dep. – Equip. – Engine (old)		4,200	
	Loss on Disposal		3,800	
	Equipment – Engine (new)		12,000	
	Equipment – Engine (old)			8,000
	Cash			12,000
	To record the scrapping of the burned out equipment engine and its replacement with a new engine.			

Assuming the useful life and residual value of the equipment did not change and the new engine had an estimated useful life of eight years and an estimated residual value of zero, the entry to record revised depreciation on December 31, 2025 is:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Depreciation Expense - Equipment		3,200	
	Accum. Dep. - Equipment			3,200
	To record revised straight-line depreciation; Remaining carrying amount of equipment = $12,000 remaining cost - $6,600 remaining balance in accumulated depreciation = $5,400; Revised depreciation on equipment = ($5,400 remaining carrying amount - $2,000 residual)/2 years remaining useful life = $1,700 depreciation/year; Depreciation on new engine = ($12,000 - $0)/8 years = $1,500/year; Total depreciation = $1,700 + $1,500 = $3,200.			

The previous example emphasizes the importance of maintaining a PPE subledger in order to apply the concept of *componentization*. **Componentization** requires each *major component* that has a different estimated useful life than the rest of an asset to be recorded and depreciated separately. For instance, assume a commercial airliner is purchased for $100 million ($100M) on January 1, 2022 with the following components: airframe, engines, landing gear, interior, and other parts. Original cost, estimated residual value, estimated useful lives, depreciation method to be used, serial numbers where applicable, and other relevant information are recorded in the PPE subledger.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Revised Dep. - Replacement.

8.5 Impairment of Long-lived Assets  Watch video

LO5 – Explain, calculate, and record the impairment of long-lived assets.

Under generally accepted accounting principles, management must compare the **recoverable amount** of a long-lived asset with its carrying amount (cost less accumulated depreciation) at the end of each reporting period. The recoverable amount is the fair value of the asset at the time less any estimated costs to sell it. If the recoverable amount is lower than the carrying amount, an **impairment loss** must be recorded.

An impairment loss may occur because of a variety of reasons such as technological obsolescence, an economic downturn, or a physical disaster. When an impairment is recorded, subsequent years' depreciation expense must also be revised.

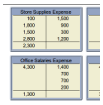
Recall again our $20,000 equipment purchased January 1, 2022 with an estimated useful life of five years and a residual value of $2,000. Assume straight-line depreciation has been recorded for 2022 and 2023 at $3,600 per year. At December 31, 2023, the carrying amount of the equipment is $12,800 ($20,000 – 3,600 – 3,600). At that point management determines that new equipment with equivalent capabilities can be purchased for much less than the old equipment due to technological changes. As a result, the recoverable value of the original equipment at December 31, 2023 is estimated to be $7,000. Because the recoverable amount is less than its carrying amount of $12,800, an impairment loss of $5,800 ($12,800 – 7,000) is recorded in the accounting records of BDCC as follows:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Impairment Loss		5,800	
	Equipment			5,800
	To record impairment loss on equipment.			

This reduces the carrying amount of the equipment to $7,000 so that revised depreciation expense of $1,667 per year would be recorded at the end of 2024, 2025, and 2026, calculated as follows (assume no change to original useful life and residual value):

$$\begin{aligned}&\frac{(\text{Revised carrying amount} - \text{Revised residual value})}{\text{Remaining useful life}}\\ &= \frac{(\$7{,}000 - \$2{,}000)}{\text{3 years remaining useful life}}\\ &= \$1{,}667 \text{ per year}\end{aligned}$$

Impairment losses can be reversed in subsequent years if the recoverable amount of the asset exceeds the carrying amount. Also, if the fair value of a PPE asset can be reliably measured, it can be revalued to more than its original cost. However, the revaluation process needs to be conducted thereafter on a regular basis. These topics are not dealt with here, as they are beyond the scope of introductory financial accounting.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Impairment Loss.

8.6 Derecognition of Property, Plant, and Equipment  Watch video

LO6 – Account for the derecognition of PPE assets.

Property, Plant, and Equipment is *derecognized* (that is, the cost and any related accumulated depreciation are removed from the

accounting records) when it is sold or when no future economic benefit is expected. To account for the disposal of a PPE asset, the following must occur:

1. If the disposal occurs part way through the accounting period, depreciation must be updated to the date of disposal by

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Depreciation Expense		XXX	
	Accumulated Depreciation			XXX
	To update depreciation for partial period.			

2. Record the disposal including any resulting gain or loss by

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash (if any, or other assets received)		XXX	
	Accumulated Depreciation		XXX	
	Loss on Disposal		XXX	
	OR Gain on Disposal			XXX
	PPE Asset (such as Equipment)			XXX
	To record disposal of PPE asset.			

A loss results when the carrying amount of the asset is greater than the proceeds received, if any. A gain results when the carrying amount is less than any proceeds received.

Sale or Retirement of PPE

When a PPE asset has reached the end of its useful life it can be either sold or retired. In either case, the asset's cost and accumulated depreciation must be removed from the records, after depreciation expense has been recorded up to the date of disposal or retirement.

Recall the calculation of straight-line depreciation for the equipment purchased for $20,000 with an estimated useful life of five years and a residual value of $2,000. Assume that the general ledger T-accounts of equipment and accumulated depreciation contain the following entries for the last five years:

Equipment		
2022	20,000	

Accumulated Depreciation Equipment		
	2022	3,600
	2023	3,600
	2024	3,600
	2025	3,600
	2026	3,600
		18,000

Assume that the equipment is sold at the end of 2026, when accumulated depreciation totals $18,000. The carrying amount at this date is $2,000 ($20,000 cost – $18,000 accumulated depreciation). Three different situations are possible.

1. Sale at carrying amount

   Assume the equipment is sold for its residual value of $2,000. No gain or loss on disposal would occur.

Cost	$	20,000
Accumulated depreciation		(18,000)
Carrying amount		2,000
Proceeds of disposition		(2,000)
Gain on disposal	$	-0-

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Cash		2,000	
	Accumulated Dep. – Equipment		18,000	
	Equipment			20,000
	To record the disposal of equipment sold for $2,000 cash.			

2. Sale above carrying amount

   Assume the equipment is sold for $3,000. A gain of $1,000 would occur.

Cost	$	20,000
Accumulated depreciation		(18,000)
Carrying amount		2,000
Proceeds of disposition		(3,000)
Gain on disposal	$	(1,000)

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Cash		3,000	
	Accumulated Dep. – Equipment		18,000	
	Gain on Disposal			1,000
	Equipment			20,000
	To record the disposal of equipment sold for $3,000 cash.			

3. Sale below carrying amount

   Assume the equipment is sold for $500. A loss on disposal of $1,500 would occur.

Cost	$	20,000
Accumulated depreciation		(18,000)
Carrying amount		2,000
Proceeds of disposition		(500)
Loss on disposal	$	1,500

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Cash		500	
	Accumulated Dep. – Equipment		18,000	
	Loss on Disposal		1,500	
	Equipment			20,000
	To record the disposal of equipment sold for $500 cash.			

In each of these cases, the cash proceeds must be recorded (by a debit) and the cost and accumulated depreciation must be removed from the accounts. A credit difference represents a gain on disposal while a debit difference represents a loss.

Disposal Involving Trade-In

It is a common practice to exchange a used PPE asset for a new one. This is known as a **trade-in**. The value of the trade-in agreed by the purchaser and seller is called the **trade-in allowance**. This amount is applied to the purchase price of the new asset, and the purchaser pays the difference. For instance, if the cost of a new asset is $10,000 and a trade-in allowance of $6,000 is given for the old asset, the purchaser will pay $4,000 ($10,000 – 6,000).

Sometimes as an inducement to the purchaser, the trade-in allowance is higher than the fair value of the used asset on the open market. Regardless, the cost of the new asset must be recorded at its fair value, calculated as follows:

$$\text{Cost of new asset} = \text{Cash paid} + \text{Fair value of asset traded}$$

If there is a difference between the fair value of the old asset and its carrying value, a gain or loss results. For example, assume again that equipment was purchased by BDCC for $20,000 and has accumulated depreciation of $18,000 at the end of 2026. It is traded on January 1, 2027 for new equipment with a list price of $25,000. A trade-in allowance of $2,500 is given on the old equipment, which has a fair value of only $1,800. In this case, the cost of the new asset is calculated as follows:

Cash paid	+	Fair value of asset traded	=	Cost of new asset
$22,500	+	1,800	=	$24,300

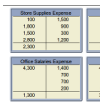
Cash paid will equal the difference between the selling price of the new equipment less the trade-in allowance, or $22,500 ($25,000 - 2,500). The fair value of the asset traded-in is $1,800. The cost of the new asset is therefore $24,300 ($22,500 + 1,800). There will be a loss on disposal of $200 on the old equipment, calculated as follows:

Cost	$	20,000
Accumulated depreciation		(18,000)
Carrying amount		2,000
Fair value		(1,800)
Loss on disposal	$	200

The journal entry on January 1, 2027 to record the purchase of the new equipment and trade-in of the old equipment is:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1	Equipment (new)		24,300	
	Accumulated Dep. – Equipment (old)		18,000	
	Loss on Disposal		200	
	Equipment (old)			20,000
	Cash			22,500
	To record trade-in.			

By this entry, the cost of the new equipment ($24,300) is entered into the accounts, the accumulated depreciation and cost of the old equipment is removed from the accounts, and the amount of cash paid is recorded. The debit difference of $200 represents the loss on disposal of the old equipment.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Exchange of PPE Assets.

8.7 Intangible Assets  Watch video

LO7 – Explain and record the acquisition and amortization of intangible assets.

Another major category of long-lived assets that arises from legal rights and does not have physical substance is that of **intangible assets**. The characteristics of various types of intangible assets are discussed below.

Patents

A **patent** is an intangible asset that is granted when a company has an exclusive legal privilege to produce and sell a product or use a process for a specified period. This period varies depending on the nature of the product or process patented, and on the legislation in effect. Modifications to the original product or process can result in a new patent being granted, in effect extending the life of the original patent.

Patents are recorded at cost. If purchased from an inventor, the patent's cost is easily identified; if developed internally, the patent's cost includes all expenditures incurred in the development of the product or process, including salaries and benefits of staff involved.

Copyrights

A **copyright** is another intangible asset that confers on the holder an exclusive legal privilege to publish a literary or artistic work. In this case, the state grants control over a published or artistic work for the life of the copyright holder (often the original artist) and for a specified period afterward. This control extends to the reproduction, sale, or other use of the copyrighted material.

Trademarks

A **trademark** is a symbol or a word used by a company to identify itself or one of its products in the marketplace. Symbols are often logos printed on company stationery or displayed at company offices, on vehicles, or in advertising. A well-known example is Coke®. The right to use a trademark can be protected by registering it with the appropriate agency. The symbol '®' denotes that a trademark is registered.

Franchises

A **franchise** is a legal right granted by one company (the franchisor) to another company (the franchisee) to sell particular products or to provide certain services in a given region using a specific trademark or trade name. In return, the franchisee pays a fee to the franchisor. McDonald's® is an example of a franchised fast-food chain.

Another example of a franchise is one granted by government for the provision of certain services within a given geographical location: for example, television stations and telephone services authorized by the telecommunications branch of the state, or garbage collection authorized within a given community.

In addition to the payment of an initial franchise fee, which is capitalized, a franchise agreement usually requires annual payments. These payments are considered operating expenses.

Computer Software

Computer software programs may be developed by a company, patented, and then sold to customers for use on their computers. Productivity software like Microsoft Office® is an example. The cost of acquiring and developing computer software programs is recorded as an intangible asset, even if it is stored on a physical device like a computer. However, computer software that is integral to machinery – for instance, software that is necessary to control a piece of production equipment – is included as the cost of the equipment and classified as PPE.

Capitalization of Intangible Assets

Normally, intangible assets are measured at cost at the time of acquisition and are reported in the asset section of a company's balance sheet under the heading "Intangible Assets." The cost of an acquired intangible asset includes its purchase price and any expenditures needed to directly prepare it for its intended use.

There are special rules regarding intangible assets with a finite life and an indefinite life. Detailed discussion of these topics is beyond the scope of this textbook. It will be assumed that all intangibles being discussed in this textbook have a finite life.

Amortization of Intangible Assets

Plant and equipment assets are depreciated. Intangible assets are also depreciated but the term used is *amortization* instead of depreciation. **Amortization** (of intangible assets) is the systematic process of allocating the cost of intangible assets over their estimated useful lives using the straight-line, double-declining-balance, units-of-production or other method deemed appropriate.

Like PPE considerations, useful life and residual value of intangible assets are estimated by management and must be reviewed annually for reasonableness. Any effects on amortization expense because of changes in estimates are accounted for prospectively. That is, prior accounting periods' expenses are not changed.

To demonstrate the accounting for intangibles, assume a patent is purchased for $20,000 on July 1, 2023. The entry to record the purchase is:

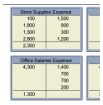
General Journal				
Date	Account/Explanation	PR	Debit	Credit
July 1	Patent		20,000	
	Cash			20,000
	To record the purchase of a patent, an intangible asset.			

Assuming the patent will last 40 years with no residual value, and amortization is calculated to the nearest whole month, amortization expense will be recorded at the December 31, 2023 year end as:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Amortization Expense - Patent		250	
	Accumulated Amortization - Patent . . .			250
	To record amortization on the patent; ($20,000 – 0)/40 years = $500/year; $500 x 6/12 = $250.			

Notice that an accumulated amortization account[1] is credited and not accumulated depreciation.

Impairment losses, and gains and losses on disposal of intangible assets, are calculated and recorded in the same manner as for property, plant, and equipment.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Intangible Assets.

8.8 Goodwill Watch video

LO8 – Explain goodwill and identify where on the balance sheet it is reported.

Assume that Big Dog Carworks Corp. purchases another company for $10 million ($10M). BDCC takes over all operations, including management and staff. There are no liabilities. The fair values of the purchased assets consist of the following:

Patents	$2M
Machinery	$7M
Total	$9M

Why would BDCC pay $10M for assets with a fair value of only $9M? The extra $1M represents *goodwill*. **Goodwill** is the excess paid over the fair value of the net assets when one company

[1] IFRS 2014, IAS 38, para. 98; effective January 1, 2016 but can be applied sooner.

buys another, and represents the value of the purchasee's ability to generate superior earnings compared to other companies in the same industry.

Goodwill is the combination of a company's assets which cannot be separately identified – such as a well-trained workforce, better retail locations, superior products, or excellent senior managers – the value of which is recognized only when a significant portion of the business is purchased by another company.

Recall that among other characteristics, intangible assets must be separately identifiable. Because components of goodwill are not separately identifiable, goodwill is not considered an intangible asset. However, it does have future value and therefore is recorded as a long-lived asset under its own heading of "Goodwill" on the balance sheet.

The detailed discussion of goodwill is an advanced accounting topic and beyond the scope of this textbook.

8.9 Disclosure Watch video

LO9 – Describe the disclosure requirements for long-lived assets in the notes to the financial statements.

When long-lived assets are presented on the balance sheet, the notes to the financial statements need to disclose the following:

- details of each class of assets (e.g., land; equipment including separate parts; patents; goodwill)
- measurement basis (usually historical cost)
- type of depreciation and amortization methods used, including estimated useful lives
- cost and accumulated depreciation at the beginning and end of the period, including additions, disposals, and impairment losses
- whether the assets are constructed by the company for its own use (if PPE) or internally developed (if intangible assets).

Examples of appropriate disclosure of long-lived assets were shown in notes 3(d) and 4 of BDCC's financial statements in Chapter 4.

Summary of Chapter 8 Learning Objectives

LO1 – Describe how the cost of property, plant, and equipment (PPE) is determined, and calculate PPE.

Property, plant and equipment (PPE) are tangible, long-lived assets that are acquired for the purpose of generating revenue either directly or indirectly. A capital expenditure is debited to a PPE asset account because it results in the acquisition of a non-current asset and includes any additional costs involved in preparing the asset for its intended use at or after initial acquisition. A revenue expenditure does not have a future benefit beyond one year so is expensed. The details regarding a PPE asset are maintained in a PPE subsidiary ledger.

LO2 – Explain, calculate, and record depreciation using the units-of-production, straight-line, and double-declining balance methods.

Depreciation, an application of matching, allocates the cost of a PPE asset (except land) over the accounting periods expected to receive benefits from its use. A PPE asset's cost, residual value,

and useful life or productive output are used to calculate depreciation. There are different depreciation methods. Units-of-production is a usage-based method. Straight-line and double-declining balance are time-based methods. The formulas for calculating depreciation using these methods are:

Units-of-Production	Straight-Line	Double-Declining Balance
$\frac{\text{Cost} - \text{Estimated Residual Value}}{\text{Estimated Total Units of Production}}$	$\frac{\text{Cost} - \text{Estimated Residual Value}}{\text{Estimated Total Useful Life}}$	Carrying Amount $\times$ 2/n where n = estimated useful life
= Depreciation Expense/Unit	= Depreciation Expense/Period	= Depreciation Expense/Period

Maximum accumulated depreciation is equal to cost less residual. The carrying amount of a PPE asset, also known as the net book value, equals the cost less accumulated depreciation.

LO3 – Explain, calculate, and record depreciation for partial years.

When assets are acquired or derecognized partway through the accounting period, partial period depreciation is recorded. There are several ways to account for partial period depreciation. Two common approaches are to calculate depreciation to the nearest whole month or to apply the half-year rule. The half-year rule assumes six months of depreciation in the year of acquisition and year of derecognition regardless of the actual date these occurred.

LO4 – Explain, calculate, and record revised depreciation for subsequent capital expenditures.

When there is a change that impacts depreciation (such as a change in the estimated useful life or estimated residual value, or a subsequent capital expenditure) revised depreciation is calculated prospectively. It is calculated as:

$$\frac{\text{Remaining Carrying Amount} - \text{Estimated Residual Value}*}{\text{Estimated Remaining Useful Life}*}$$

$*$ where the residual value and/or useful life may have changed

LO5 – Explain, calculate, and record the impairment of long-lived assets.

The **recoverable amount** of a long-lived asset must be compared with its carrying amount (cost less accumulated depreciation) at the end of each reporting period. The recoverable amount is

the fair value of the asset at the time less any estimated costs to sell it. If the recoverable amount is lower than the carrying amount, an **impairment loss** must be recorded as:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Impairment Loss		XXX	
	Equipment			XXX
	To record impairment loss.			

Impairment losses can be reversed in subsequent years if the recoverable amount of the asset exceeds the carrying amount. Also, if the fair value of a PPE asset can be reliably measured, it can be revalued to more than its original cost.

LO6 – Account for the derecognition of PPE assets.

Property, plant, and equipment is *derecognized* (that is, the cost and any related accumulated depreciation are removed from the accounting records) when it is sold or when no future economic benefit is expected. To account for the disposal of a PPE asset, the following must occur:

1. If the disposal occurs part way through the accounting period, depreciation must be updated to the date of disposal by

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Depreciation Expense		XXX	
	Accumulated Depreciation			XXX
	To update depreciation for partial period.			

2. Record the disposal including any resulting gain or loss by

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash (if any, or other assets received)		XXX	
	Accumulated Depreciation		XXX	
	Loss on Disposal		XXX	
	OR Gain on Disposal			XXX
	PPE Asset (such as Equipment)			XXX
	To record disposal of PPE asset.			

A loss results when the carrying amount of the asset is greater than the proceeds received, if any. A gain results when the carrying amount is less than any proceeds received.

It is a common practice to exchange a used PPE asset for a new one, known as a **trade-in**. The value of the trade-in is called the **trade-in allowance** and is applied to the purchase price of the new asset so that the purchaser pays the difference. Sometimes the trade-in allowance is higher than the fair value of the used asset. The cost of the new asset must be recorded at its fair value, calculated as:

$$\text{Cost of new asset} = \text{Cash paid} + \text{Fair value of asset traded}$$

If there is a difference between the fair value of the old asset and its carrying value, a gain or loss results.

LO7 – Explain and record the acquisition and amortization of intangible assets.

Intangible assets are long-lived assets that arise from legal rights and do not have physical substance. Examples include patents, copyrights, trademarks, and franchises. Intangibles are amortized using various methods. The entry to record amortization is a debit to amortization expense and a credit to either the intangible asset or to an accumulated amortization account.

LO8 – Explain goodwill and identify where on the balance sheet it is reported.

Goodwill is a long-lived asset that does not have physical substance but it is NOT an intangible. When one company buys another company, goodwill is the excess paid over the fair value of the net assets purchased and represents the value of the purchasee's ability to generate superior earnings compared to other companies in the same industry. Goodwill appears in the asset section of the balance sheet under its own heading of "Goodwill".

LO9 – Describe the disclosure requirements for long-lived assets in the notes to the financial statements.

When long-lived assets are presented on the balance sheet, the notes to the financial statements need to disclose the following:

- details of each class of assets (e.g., land; equipment including separate parts; patents; goodwill)
- measurement basis (usually historical cost)
- type of depreciation and amortization methods used, including estimated useful lives

- cost and accumulated depreciation at the beginning and end of the period, including additions, disposals, and impairment losses

whether the assets are constructed by the company for its own use (if PPE) or internally developed (if intangible assets).

Chapter 9

Debt Financing: Current and Long-term Liabilities

A corporation often has liabilities. These liabilities must be classified on the balance sheet as current or long-term. Current liabilities can include known liabilities such as payroll liabilities, interest payable, and other accrued liabilities. Short-term notes payable and estimated liabilities, including warranties and income taxes, are also classified as current. Long-term debt is used to finance operations and may include a bond issue or long-term bank loan.

Chapter 9 Learning Objectives  Watch video

LO1 – Identify and explain current versus long-term liabilities.

LO2 – Record and disclose known current liabilities.

LO3 – Record and disclose estimated current liabilities.

LO4 – Identify, describe, and record bonds.

LO5 – Explain, calculate, and record long-term loans.

Concept Self-Check

Use the following as a self-check while working through Chapter 9.

1. What is the difference between a current and long-term liability?
2. What are some examples of known current liabilities?
3. How are known current liabilities different from estimated current liabilities?
4. What are some examples of estimated current liabilities?
5. How is an estimated current liability different from a contingent liability?
6. What are bonds, and what rights are attached to bond certificates?
7. What are some characteristics of bonds?

8. When a bond is issued at a premium, is the market interest rate higher or lower than the contract interest rate on the bond?
9. When a bond is issued at a discount, is the market interest rate higher or lower than the contract interest rate on the bond?
10. How are bonds and related premiums or discounts recorded in the accounting records and disclosed on the balance sheet?
11. How is a loan payable similar to a bond issue? How is it different?
12. How are payments on a loan recorded, and how is a loan payable presented on the balance sheet?

NOTE: The purpose of these questions is to prepare you for the concepts introduced in the chapter. Your goal should be to answer each of these questions as you read through the chapter. If, when you complete the chapter, you are unable to answer one or more the Concept Self-Check questions, go back through the content to find the answer(s). Solutions are not provided to these questions.

9.1 Current versus Long-term Liabilities  Watch video

LO1 – Identify and explain current versus long-term liabilities.

Current or **short-term liabilities** are a form of debt that is expected to be paid within the longer of one year of the balance sheet date or one operating cycle. Examples include accounts payable, wages or salaries payable, unearned revenues, short-term notes payable, and the current portion of long-term debt.

Long-term liabilities are forms of debt expected to be paid beyond one year of the balance sheet date or the next operating cycle, whichever is longer. Mortgages, long-term bank loans, and bonds payable are examples of long-term liabilities.

Current and long-term liabilities must be shown separately on the balance sheet. For example, assume the following adjusted trial balance at December 31, 2023 for Waterton Inc.:

Waterton Inc.
Adjusted Trial Balance
December 31, 2023

Account	*Debits*	*Credits*
Cash	$ 80,000	
Accounts receivable	140,000	
Equipment	570,000	
Accumulated depreciation – equipment		$ 40,000
Accounts payable		39,000
Unearned revenue		15,000
Wages payable		7,000
Notes payable, due November 30, 2024		20,000
Notes payable, due March 31, 2026		75,000
Mortgage payable (Note 1)		115,797
Share capital		300,000
Retained earnings		178,203
	$790,000	$790,000

Note 1: A 4-year, 6%, $150,000 mortgage was dated January 1, 2023. Waterton makes monthly payments of $3,523. The principal balances at the end of each year are:

December 31, 2023	– $	115,797
December 31, 2024	– $	79,484
December 31, 2025	– $	40,931
December 31, 2026	– $	-0-

Based on this information, the liabilities section of the December 31, 2023 balance sheet would appear as follows:

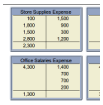
Waterton Inc.
Liabilities Section of the Balance Sheet
December 31, 2023

Liabilities		
Current liabilities		
Accounts payable	$39,000	
Unearned revenues	15,000	
Wages payable	7,000	
Notes payable, due November 30, 2024	20,000	
Current portion of mortgage payable	36,313	
Total current liabilities		$117,313
Long-term liabilities		
Notes payable, due March 31, 2026	$75,000	
Mortgage payable (less current portion)	79,484	
Total long-term liabilities		154,484
Total liabilities		$271,797

Notice the sum of the current and long-term portion of the mortgage equals the unadjusted balance of $115,797 on the Adjusted Trial Balance. This must always be the case.

The $20,000 notes payable, due November 30, 2024 is a current liability because its maturity date is within one year of the balance sheet date, a characteristic of a current liability. The $75,000 notes payable, due March 31, 2026 is a long-term liability since it is to be repaid beyond one year of the balance sheet date.

It is important to classify liabilities correctly otherwise decision makers may make incorrect conclusions regarding, for example, the organization's liquidity position.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Current and Long-Term Liabilities.

9.2 Known Current Liabilities Watch video

LO2 – Record and disclose known current liabilities.

Known current liabilities are those where the payee, amount, and timing of payment are known. Examples include accounts payable, unearned revenues, and payroll liabilities. These are different from **estimated current liabilities** where the amount is not known and must be estimated. Estimated current liabilities are discussed later in this chapter.

Payroll Liabilities

Accounts payable and unearned revenues were introduced and discussed in previous chapters. Payroll liabilities are amounts owing to employees. Employee income taxes, Canada Pension Plan (CPP, or Quebec Pension Plan in Quebec), Employment Insurance (EI), union dues, health insurance, and other amounts are deducted by the employer from an employee's salary or wages. These withheld amounts are remitted by the employer to the appropriate agencies. An employee's gross earnings, less the deductions withheld by the employer, equals the net pay. To demonstrate the journal entries to record a business's payroll liabilities for its two employees, assume the following payroll record:

Deductions						Payment	Distribution	
EI	Income Taxes	Health Ins.	CPP	Union Dues	Total Deductions	Net Pay	Sales Salaries Expense	Office Salaries Expense
25.84	285.00	55.00	62.16	105.00	533.00	1,027.00	1,560.00	
16.50	114.00	55.00	51.50	75.00	312.00	663.00		975.00
42.34	399.00	110.00	113.66	180.00	845.00	1,690.00	1,560.00	975.00

The employer's journal entries would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Sales Salaries Expense		1,560.00	
	Office Salaries Expense		975.00	
	EI Payable			42.34
	Employee Income Taxes Payable			399.00
	Employee Health Insurance Payable			110.00
	CPP Payable			113.66
	Employee Union Dues Payable			180.00
	Salaries Payable			1,690.00
	To record payroll.			

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	EI Expense		59.28	
	CPP Expense		113.66	
	EI Payable			59.28
	CPP Payable			113.66
	To record the employer's portions of EI and CPP calculated as 1.4 times (42.34 x 1.4) and 1 times (113.66 x 1) the employees' portion.			

For EI and CPP, both the employee and employer are responsible for making payments to the government. At the time of writing, the employer's portion of EI was calculated as 1.4 times the employee's EI amount. For CPP, the employer is required to pay the same amount as the employee. EI, CPP, and federal/provincial income tax amounts payable are based on rates applied to an employee's gross earnings. The rates are subject to change each tax year. The actual rates for EI, CPP, and federal/provincial income tax can be viewed online at Canada Revenue Agency's website: https://www.canada.ca/en/revenue-agency.html.

Sales Taxes

Sales taxes are also classified as known current liabilities. There are two types of sales taxes in Canada: federal *Goods and Services Tax (GST)* and *Provincial Sales Tax (PST)*. The **Goods and Services Tax (GST)** is calculated as 5% of the selling price of *taxable supplies*. For example, if a business is purchasing supplies with a selling price of $1,000, the GST is $50 (calculated as $1,000 x 5%). **Taxable supplies** are the goods or services on which GST applies. GST is not applied to **zero-rated supplies** (prescription drugs, groceries, and medical supplies) or **exempt supplies** (services such as education, health care, and financial). Sellers of taxable supplies are **registrants**, businesses registered with Canada Revenue Agency that sell taxable supplies and collect GST on behalf of the *Receiver General for Canada*. The **Receiver General for Canada** is the federal government body to which all taxes, including federal income tax, are remitted. Registrants also pay GST on the purchase of taxable supplies recording an **input tax credit** for the GST paid. Total input tax credits, or GST receivable, less GST payable is the amount to be remitted/refunded.

Provincial Sales Tax (PST) is the provincial sales tax paid by the *final* consumers of products. The PST rate is determined provincially. PST is calculated as a percentage of the selling price. Quebec's equivalent to PST is called the **Quebec Sales Tax (QST)**.

The **Harmonized Sales Tax (HST)** is a combination of GST and PST that is used in some Canadian jurisdictions. Figure 9.1 summarizes sales taxes across Canada.

	GST	PST	QST	HST
Alberta	5%	-	-	-
British Columbia	5%	7%	-	-
Manitoba	5%	7%	-	-
Northwest Territories	5%	-	-	-
Nunavut	5%	-	-	-
Saskatchewan	5%	6%	-	-
Yukon	5%	-	-	-
Quebec	5%	-	9.975%	-
Newfoundland and Labrador	-	-	-	15%
New Brunswick	-	-	-	15%
Nova Scotia	-	-	-	15%
Ontario	-	-	-	13%
Prince Edward Island	-	-	-	15%

Figure 9.1: Sales Taxes in Canada[1]

To demonstrate how sales taxes are recorded, let us review an example. Assume Perry Sales, out of Saskatchewan, purchased $2,400 of merchandise inventory on account from a supplier, Carmen Inc., also in Saskatchewan. Perry Sales then sold this merchandise inventory to a customer for cash of $3,600. Perry Sales' entries for the purchase, subsequent sale of merchandise, and remittance of sales taxes are:

[1]These were the sales tax rates in effect at the time of writing, July 2022.

GST receivable is debited. Because Perry Sales is a merchandiser and therefore not the final consumer, there is no PST.

Merchandise Inventory	2,400.00	
GST Receivable	120.00	
Accounts Payable – Carmen Inc.		2,520.00
To record purchase of merchandise inventory on account.		

The previous $120 debit to GST receivable plus the $180 credit to GST payable in this entry result in a balance owing to the government of $60.

Cash	3,996.00	
Sales		3,600.00
PST Payable		216.00
GST Payable		180.00
To record cash sale.		
Cost of Goods Sold	2,400.00	
Merchandise Inventory		2,400.00
To record the cost of the sale.		

PST and GST are remitted to the appropriate government authority.

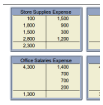
PST Payable	216.00	
GST Payable	180.00	
GST Receivable		120.00
Cash		276.00
To record remittance of sales taxes.		

Short-term Notes Payable

Short-term notes receivable were discussed in Chapter 7. A short-term note payable is identical to a note receivable except that it is a current liability instead of an asset. In Chapter 7, BDCC's customer Bendix Inc. was unable to pay its $5,000 account within the normal 30-day period. The receivable was converted to a 5%, 60-day note receivable dated December 5, 2023. The following example contrasts the entries recorded by BDCC for the note receivable to the entries recorded by Bendix Inc. for its note payable.

Entries in BDCC's records for the note receivable:			Entries in Bendix Inc.'s records for the note payable:		
Notes Receivable – Bendix	5,000		Accounts Payable – BDCC	5,000	
Accounts Receivable – Bendix		5,000	Notes Payable – BDCC		5,000
To record the conversion of a customer's account to a 5%, 60-day note dated December 5, 2023.			*To record the conversion of a supplier's account to a 5%, 60-day note dated December 5, 2023.*		
Interest Receivable	17.81		Interest Expense	17.81	
Interest Revenue		17.81	Interest Payable		17.81
To record the adjusting entry on December 31 to accrue interest from December 5 to December 31.			*To record the adjusting entry on December 31 to accrue interest from December 5 to December 31.*		
Cash	5,041.10		Notes Payable – BDCC	5,000.00	
Note Receivable – Bendix		5,000.00	Interest Expense	23.29	
Interest Receivable		17.81	Interest Payable	17.81	
Interest Revenue		23.29	Cash		5,041.10
To record the collection of the principal and interest at maturity on February 3, 2024.			*To record the payment of the principal and interest at maturity on February 3, 2024.*		

Notice that the dollar amounts in the entries for BDCC are identical to those for Bendix. The difference is that BDCC is recognizing a receivable from Bendix while Bendix is recognizing a payable to BDCC.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Known (Determinable) Liabilities.

9.3 Estimated Current Liabilities  Watch video

LO3 – Record and disclose estimated current liabilities.

An **estimated liability** is known to exist where the amount, although uncertain, can be estimated. Two common examples of estimated liabilities are warranties and income taxes.

Warranty Liabilities

A **warranty** is an obligation incurred by the seller of a product or service to replace or repair defects. Warranties typically apply for a limited period of time. For example, appliances are often sold with a warranty for a specific time period. The seller does not know which product/service will require warranty work, when it might occur, or the amount. To match the warranty expense

to the period in which the revenue was realized, the following entry that estimates the amount of warranty expense and related liability must be recorded:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Warranty Expense		XXX	
	Estimated Warranty Liability			XXX
	To record estimated warranty expense and related liability.			

When the warranty work is actually performed, assuming both parts and labour, the following is recorded:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Estimated Warranty Liability		XXX	
	Parts Inventory			XXX
	Wages Payable			XXX
	To record the actual costs of parts and labour for warranty work.			

An exploration is available on the Lyryx site. Log into your Lyryx course to run Estimated Liabilities.

Income Tax Liabilities

A corporation is taxed on the taxable income it earns. As for any entity, corporations must file a tax return annually. However, the government typically requires the corporation to make advance monthly payments based on an estimated amount. When the total actual amount of income tax is known at the end of the accounting period, the corporation will record an adjustment to reconcile any difference between the total actual tax and the total monthly tax accrued in the accounting records. For example, assume it is estimated that the total income tax for the year ended December 31, 2023 will be $300,000. This translates into $25,000 of income tax to be accrued at the end of each month ($300,000 ÷ 12 months = $25,000/month). Assume further that the government requires payments to be made by the 15th of the following month. The entries at the end of each month from January through to November would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Income Tax Expense		25,000	
	Income Tax Payable			25,000
	To record estimated income tax expense.			

On the 15th of each month beginning February 15th to December 15th, the following entry would be recorded:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Income Tax Payable		25,000	
	Cash			25,000
	To record payment of income tax.			

Assume that at the end of December, the corporation's actual income tax was determined to be $297,000 instead of the originally estimated $300,000. The entry at December 31 would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Income Tax Expense		22,000	
	Income Tax Payable			22,000
	To report income tax expense; ($25,000 x 11 months = $275,000; $297,000 - $275,000 = $22,000).			

Contingent Liabilities

Recall that an estimated liability is recorded when the liability is probable and the amount can be reliably estimated. A **contingent liability** exists when one of the following two criteria are satisfied:

1. it is not probable or
2. it cannot be reliably estimated.

A liability that is determined to be contingent is not recorded, rather it is disclosed in the notes to the financial statements except when there is a remote likelihood of its existence. An example of a contingent liability is a lawsuit where it is probable there will be a loss but the amount cannot be reliably determined. A brief description of the lawsuit must be disclosed in the notes to the financial statements; it would not be recorded until the amount of the loss could be reliably estimated. Great care must be taken with contingencies — if an organization intentionally withholds information, it could cause decision makers, such as investors, to make decisions they would not otherwise have made.

Contingent assets, on the other hand, are not recorded until actually realized. If a contingent asset is probable, it is disclosed in the notes to the financial statements.

9.4 Long-Term Liabilities—Bonds Payable Watch video

LO4 – Identify, describe, and record bonds.

Corporations generally acquire long-lived assets like property, plant, and equipment through the issue of shares or long-term debt that is repayable over many years. Chapter 10 addresses the ways in which a corporation can raise funds by issuing shares, known as equity financing. This chapter discusses corporate financing by means of issuing long-term debt, known as debt financing. Types of long-term debt are typically classified according to their means of repayment.

1. **Bonds** pay *only interest* at regular intervals to investors. The original investment is repaid to bondholders when the bond *matures* (or comes due), usually after a number of years. Bonds are generally issued to many individual investors.
2. **Loans** are repaid in equal payments on a regular basis. The payments represent both *interest and principal* paid to creditors. Such payments are said to be *blended*. That is, each payment contains repayment of a certain amount of the original amount of the loan (the principal), as well as interest on the remaining principal balance.

Bonds are discussed in this section. Loans are expanded upon in the next section. Other types of debt, such as leases, are left for study in a more advanced accounting textbook.

Rights of Bondholders

As noted above, a **bond** is a debt instrument, generally issued to many investors, that requires future repayment of the original amount at a fixed date, as well as periodic interest payments during the intervening period. A contract called a **bond indenture** is prepared between the corporation and the future bondholders. It specifies the terms with which the corporation will comply, such as how much interest will be paid and when. Another of these terms may be a restriction on further borrowing by the corporation in the future. A **trustee** is appointed to be an intermediary between the corporation and the bondholder. The trustee administers the terms of the indenture.

Ownership of a bond certificate carries with it certain rights. These rights are printed on the actual certificate and vary among bond issues. The various characteristics applicable to bond issues are the subject of more advanced courses in finance and are not covered here. However, individual bondholders always acquire two rights.

1. The right to receive the face value of the bond at a specified date in the future, called the *maturity date*.

2. The right to receive periodic interest payments at a specified percent of the bond's face value.

Bond Authorization

Every corporation is legally required to follow a well-defined sequence in authorizing a bond issue. The bond issue is presented to the board of directors by management and must be approved by shareholders. Legal requirements must be followed and disclosure in the financial statements of the corporation is required.

Shareholder approval is an important step because bondholders are creditors with a prior claim on the corporation's assets if liquidation occurs. Further, dividend distributions may be restricted during the life of the bonds, and those shareholders affected usually need to approve this. These restrictions are typically reported to the reader of financial statements through note disclosure.

Assume that Big Dog Carworks Corp. decides to issue $30 million of 12% bonds to finance its expansion. The bonds are repayable three years from the date of issue, January 1, 2023. The amount of authorized bonds, their interest rate, and their maturity date can be shown in the accounts as follows:

GENERAL LEDGER
Bonds Payable –
Long-Term
Due Jan. 1, 2026

Acct. No. 272

Date		Description	Debit	Credit	DR/CR	Balance
2023						
Jan.	1	Authorized to issue $30,000,000				
		of 12%, 3-year bonds, due				
		January 1, 2026.				

Bonds in the Financial Statement

Each bond issue is disclosed separately in the notes to the financial statements because each issue may have different characteristics. The descriptive information disclosed to readers of financial statements includes the interest rate and maturity date of the bond issue. Also disclosed in a note are any restrictions imposed on the corporation's activities by the terms of the bond indenture and the assets pledged, if any.

Other Issues Related to Bond Financing

There are several additional considerations related to the issue of bonds.

1. **Cash Required in the Immediate and the Foreseeable Future**

   Most bond issues are sold in their entirety when market conditions are favourable. However, more bonds can be authorized in a particular bond issue than will be immediately sold. Authorized bonds can be issued whenever cash is required.

2. **Time Periods Associated with Bonds**

   The interest rate of bonds is associated with time, their maturity date is based on time, and other provisions — such as convertibility into share capital and restrictions on future dividend distributions of the corporation — are typically activated at a given point in time. These must also be considered, as the success of a bond issue often depends on the proper combination of these and other similar features.

3. **Assets of the Corporation to Be Pledged**

   Whether or not long-lived assets like property, plant, and equipment are pledged as security is an important consideration for bondholders because doing so helps to safeguard their investments. This decision is also important to the corporation because pledging all these assets may restrict future borrowings. The total amount of authorized bonds is usually a fraction of the pledged assets, such as 50%. The difference represents a margin of safety to bondholders. The value of these assets can shrink substantially but still permit reimbursement of bondholders should the company be unable to pay the bond interest or principal, and need to sell the pledged assets.

Bond Characteristics

Each corporation issuing bonds has unique financing needs and attempts to satisfy various borrowing situations and investor preferences. Many types of bonds have been created to meet these varying needs.

Secured bonds are backed by physical assets of the corporation. These are usually long-lived assets. When real property is legally pledged as security for the bonds, they are called **mortgage bonds**.

Unsecured bonds are commonly referred to as **debentures**. A debenture is a formal document stating that a company is liable to pay a specified amount with interest. The debt is not backed by any collateral. As such, debentures are usually only issued by large, well-established companies. Debenture holders are ordinary creditors of the corporation. These bonds usually command a higher interest rate because of the added risk for investors.

Registered bonds require the name and address of the owner to be recorded by the corporation or its trustee. The title to **bearer bonds** passes on delivery of the bonds to new owners and is not tracked. Payment of interest is made when the bearer clips coupons attached to the bond and presents these for payment. Bearer bonds are becoming increasingly rare.

When **serial bonds** are issued, the bonds have differing maturity dates, as indicated on the bond contract. Investors are able to choose bonds with a term that agrees with their investment plans. For example, in a $30 million serial bond issue, $10 million worth of the bonds may mature each year for three years.

The issue of bonds with a **call provision** permits the issuing corporation to redeem, or call, the bonds before their maturity date. The bond indenture usually indicates the price at which bonds are callable. Corporate bond issuers are thereby protected in the event that market interest rates decline below the bond contract interest rate. The higher interest rate bonds can be called to be replaced by bonds bearing a lower interest rate.

Some bonds allow the bondholder to exchange bonds for a specified type and amount of the corporation's share capital. Bonds with this feature are called **convertible bonds**. This feature permits bondholders to enjoy the security of being creditors while having the option to become shareholders if the corporation is successful.

When **sinking fund bonds** are issued, the corporation is required to deposit funds at regular intervals with a trustee. This feature ensures the availability of adequate cash for the redemption of the bonds at maturity. The fund is called "sinking" because the transferred assets are tied up or "sunk," and cannot be used for any purpose other than the redemption of the bonds.

The corporation issuing bonds may be required to restrict its retained earnings. The **restriction of dividends** means that dividends declared cannot exceed a specified balance in retained earnings. This protects bondholders by limiting the amount of dividends that can be paid.

Investors consider the interest rates of bonds as well as the quality of the assets, if any, that are pledged as security. The other provisions in a bond contract are of limited or no value if the issuing corporation is in financial difficulties. A corporation in such difficulties may not be able to sell its bonds, regardless of the attractive provisions attached to them.

Recording the Issuance of Bonds at Face Value (at Par)

Each bond has an amount printed on the face of the bond certificate. This is called the **face value** of the bond; it is also referred to as the **par-value** of the bond. When the cash received is the same as a bond's face value, the bond is said to be issued at *par*. A common face value of bonds is $1,000, although bonds of other denominations exist. A $30 million bond issue can be divided into 30,000 bonds, for example. This permits a large number of individuals and institutions to participate in corporate financing.

If a bond is sold at face value, the journal entry is:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash		1,000	
	Bonds Payable			1,000
	To record the issue of 8% bonds at par.			

Recording the Issuance of Bonds at a Premium

A $1,000 bond is sold at a **premium** when it is sold for more than its face value. This results when the bond interest rate is higher than the market interest rate. For instance, assume Big Dog Carworks Corp. issues a bond on January 1, 2023 with a face value of $1,000, a maturity date of one year, and a stated or contract interest rate of 8% per year, at a time when the market interest rate is 7%. Potential investors will bid up the bond price to $1,009.34 based on present value calculations where FV = $1,000; PMT = $80; i = 7 (the market rate); and n = 1.[2] We will round the $1,009.34 to $1,009 to simplify the demonstration.

The premium is the $9 difference between the $1,009 selling price of the bond and the $1,000 face value. The journal entry to record the sale of the bond on January 1, 2023 is:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1	Cash		1,009	
	Bonds Payable			1,000
	Premium on Bonds Payable			9
	To record the issue of 8% bonds at a premium.			

The Premium on Bonds Payable account is a contra liability account that is added to the value of the bonds on the balance sheet. Because the bonds mature in one year, the bond appears in the current liabilities section of the balance sheet as follows:

Liabilities		
Current		
Bonds payable	$1,000	
Add: Premium on bonds payable	9	$1,009

On the maturity date of December 31, 2023, the interest expense of $80 is paid, bondholders are repaid, and the premium is written off as a reduction of interest expense.

[2] Present Value (PV) calculations can be done using tables or a business calculator. Table values are rounded causing results to be less accurate. Since business calculators have PV functionality, all PV calculations should be done using a calculator. PV calculations are reviewed in Section 9.6. Given the variety of calculators on the market, students should take responsibility for knowing how to do PV calculations using their own calculator.

These three journal entries would be made:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Interest Expense		80	
	Cash			80
	To record interest paid on bonds.			

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Bonds Payable		1,000	
	Cash			1,000
	To record payment of bonds.			

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Premium on Bonds Payable		9	
	Interest Expense			9
	To record write-off of premium against interest.			

Alternatively, a single entry would be preferable as follows:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Interest Expense		71	
	Premium on Bonds Payable		9	
	Bonds Payable		1,000	
	Cash			1,080
	To record payment of bond and interest on maturity date.			

Note that the interest expense recorded on the income statement would be $71 ($80 – 9). This is equal to the market rate of interest at the time of bond issue.

Recording the Issuance of Bonds at a Discount

If the bond is sold for less than $1,000, then the bond has been sold at a **discount**. This results when the bond interest rate is lower than the market interest rate. To demonstrate the journal entries, assume a $1,000, one-year, 8% bond is issued by BDCC when the market interest rate is 9%. The selling amount will be $990.83 using PV calculations where FV = $1,000; PMT = $80; i = 9 (the market rate); and n = 1. We will round the $990.83 to $991 to simplify the demonstration.

The difference between the face value of the bond ($1,000) and the selling price of the bond ($991) is $9. This is the *discount*.

The journal entry to record the transaction on January 1, 2023 is:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1	Cash		991	
	Discount on Bonds Payable		9	
	Bonds Payable			1,000
	To record issue of bonds at a discount.			

The $9 amount is a contra liability account and is *deducted* from the face value of the bonds on the balance sheet as follows:

	Liabilities		
Current			
	Bonds payable	$1,000	
	Less: Discount on bonds payable	(9)	$991

On December 31, 2023, when the bonds mature, the following entries would be recorded:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Interest Expense		80	
	Cash			80
	To record interest paid on bonds.			

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Bonds Payable		1,000	
	Cash			1,000
	To record payment of bonds.			

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Interest Expense		9	
	Discount on Bonds Payable			9
	To record write-off of discount against interest.			

Alternatively, a single entry would be preferable as follows:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31	Interest Expense		89	
	Bonds Payable		1,000	
	Discount on Bonds Payable			9
	Cash			1,080
	To record payment of bond and interest on maturity date.			

The interest expense recorded on the income statement would be \$89 (\$80 + 9). This is equal to the market rate of interest at the time of bond issue.

These are simplified examples, and the amounts of bond premiums and discounts in these examples are insignificant. In reality, bonds may be outstanding for a number of years, and related premiums and discounts can be substantial when millions of dollars of bonds are issued. These premiums and discounts are *amortized* using the effective interest method over the same number of periods as the related bonds are outstanding. The amortization of premiums and discounts is an intermediate financial accounting topic and is not covered here.

Refer to the Appendix Section 9.8 at the end of this chapter for discussions and illustrations regarding the use of the effective interest method for bonds issued at a premium or discount.

Bonds Issued in Between Interest Payments

If investors purchase bonds on dates falling in between the interest payment dates, then the investor pays an additional interest amount. This is because the bond issuer always pays the full six months interest to the bondholder on the interest payment date because it is the easiest way to administer multiple interest payments to potentially thousands of investors. For example, if an investor purchases a bond four months after the last interest payment, then the issuer will add these additional four months of interest to the purchase price. When the next interest payment date occurs, the issuer pays the full six months interest to the purchaser. The interest amount paid and received by the bond-holder will net to two months. This makes intuitive sense given that the bonds have only been held for two months making interest for two months the correct amount.

For example, on September 1, 2023, an investor purchases **at face value**, \$100,000, 10-year, 8% bonds with interest payable each May 1 and November 1.

Bond payable	\$100,000
Accrued interest (100,000 $\times$ 8% $\times$ 4 $\div$ 12)	2,667
Total cash paid	\$102,667

To record the bond issuance on September 1, with four months' accrued interest:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Sept 1, 2023	Cash		102,667	
	Bond payable			100,000
	Interest payable			2,667

To record the first semi-annual interest payment on November 1 and zero out the interest payable:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Nov 1, 2023	Interest payable		2,667	
	Bond interest expense		1,333	
	Cash ($100,000 × 8% × 6 ÷ 12)			4,000

Note that the bond interest on November 1 is for the amount the bondholder is entitled to, which is two months' of interest.

The December 31 year-end accrued interest entry:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31, 2023	Interest expense		1,333	
	Interest payable ($100,000 × 8% × 2 ÷ 12)			1,333

At maturity, the May 1, 2026, entry would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
May 1, 2026	Bond payable		100,000	
	Cash			100,000

Repayment Before Maturity Date

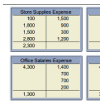
In some cases, a company may want to repay a bond issue before its maturity. Examples of such bonds are callable bonds, which give the issuer the right to call and retire the bonds before maturity. For example, if market interest rates drop, the issuer will want to take advantage of the lower interest rate. In this case, the reacquisition price paid to extinguish and derecognize the bond issuance will likely be slightly higher than the bond carrying value on that date, and the difference will be recorded by the issuing corporation as a loss on redemption. The company can, then, sell a new bond issuance at the new, lower interest rate.

For example, on January 1, 2020, Angen Ltd. issued bonds with a par value of $500,000 at 99, due in 2030. On January 1, 2024, the entire issue was called at 101 and cancelled. The bond payable carrying value on the call date was $495,000. Interest is paid annually and the discount amortized using the straight-line method. The carrying value of the bond on January 1, 2024, would be calculated as follows:

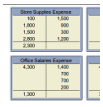
Carrying value on call date	$495,000
Re-acquisition price ($500,000 × 101)	505,000
Loss on redemption	$ 5,000

Angen Ltd. would make the following entry:

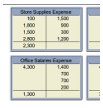
General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1, 2024	Bond Payable		500,000	
	Loss on redemption of bonds		10,000	
	Cash			505,000
	Discount on Bonds Payable			5,000



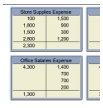
An exploration is available on the Lyryx site. Log into your Lyryx course to run Issuance of bond at par.



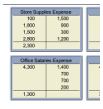
An exploration is available on the Lyryx site. Log into your Lyryx course to run Recording payment of Bond Interest.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Pricing Bonds Using a Calculator.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Issuing Bonds at a Discount.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Issuing Bonds at a Premium.

9.5 Long-term Liabilities—Loans Payable Watch video

LO5 – Explain, calculate, and record long-term loans.

A *loan* is another form of long-term debt that a corporation can use to finance its operations. Like bonds, loans can be *secured*, giving the lender the right to specified assets of the corporation if the debt cannot be repaid. For instance a mortgage is a loan secured by specified real estate of the company, usually land with buildings on it.

Unlike a bond, a loan is typically obtained from one lender such as a bank. Also, a loan is repaid in equal *blended* payments over a period time. These payments contain both interest payments and some repayment of principal. As well, a loan does not give rise to a premium or discount because it is obtained at the market rate of interest in effect at the time.

To demonstrate the journal entries related to long-term loans, assume BDCC obtained a three-year, $100,000, 10% loan on January 1, 2023 from First Bank to acquire a piece of equipment. When the loan proceeds are deposited into BDCC's bank account, the following entry is recorded:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1	Cash		100,000	
	Loan Payable			100,000
	To record 10%, 3-year, $100,000 bank loan.			

The loan is repayable in three annual blended payments. To calculate the payments, PV analysis is used whereby the following keystrokes are entered into a business calculator:

PV = 100000 (the cash received from the bank),

i = 10 (the interest rate),

n = 3 (the term of the loan is three years), and

Compute PMT.

The PMT (or payment) is -40211.48. The result is negative because payments are cash outflows. While the payments remain the same each year, the amount of interest paid decreases and the amount of principal increases. Figure 9.2 illustrates this effect.

Year Ended Dec. 31	(a) Beginning Loan Balance (e)	(b) Periodic Interest Expense (a) x 10%	(c) Reduction of Loan Payable (d) - (b)	(d) Total Loan Payment	(e) Ending Loan Balance (a) - (c)
2023	$100,000	$10,000	$30,211	$40,211	$69,789
2024	69,789	6,979	33,232	40,211	36,557
2025	36,557	3,654	36,557	40,211	-0-
			$100,000		

Interest expense and the principal balance decrease with each loan payment.

Figure 9.2: Effect of Blended Interest and Principal Payments

Figure 9.2 can be used to construct the journal entries to record the loan payments at the end of each year:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec. 31, 2023	Interest Expense		10,000	
	Loan Payable		30,211	
	Cash			40,211
Dec. 31, 2024	Interest Expense		6,979	
	Loan Payable		33,232	
	Cash			40,211
Dec. 31, 2025	Interest Expense		3,654	
	Loan Payable		36,557	
	Cash			40,211

The amounts in Figure 9.2 can also be used to present the related information on the financial statements of BDCC at each year end. Recall that assets and liabilities need to be classified as current and non-current portions on the balance sheet. Current liabilities are amounts paid within one year of the balance sheet date. That part of the loan payable to First Bank to be paid in the upcoming year needs to be classified as a current liability on the balance sheet. The amount of the total loan outstanding at December 31, 2023, 2024, and 2025 and the current and non-current portions are shown in Figure 9.3:

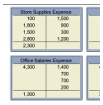
A	*B*	*C*	*D*
Year ended Dec. 31	*Ending loan balance per general ledger (Fig 9.2, Col. E)*	*Current portion (Fig. 9.2, Col. C)*	*(B – C) Long-term portion*
2023	$69,788	$33,232	$36,557
2024	36,557	36,557	-0-
2025	-0-	-0-	-0-

Figure 9.3: Current and Long-term Portions of Loan Principal

Balance sheet presentation would be as follows at the end of 2023, 2024, and 2025:

	2023	*2024*	*2025*
Current liabilities			
Current portion of bank loan	$33,232	$36,557	$ -0-
Long-term liabilities			
Bank loan (Note X)	36,557	-0-	-0-

Details of the loan would be disclosed in a note to the financial statements. Only the *principal* amount of the loan is reported on the balance sheet. The *interest* expense portion is reported on the income statement as an expense. Because these loan payments are made at BDCC's year end, no interest payable is accrued or reported on the balance sheet.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Equal Payments.

9.6 Appendix A: Present Value Calculations

Interest is the time value of money. If you borrow $1 today for one year at 10% interest, its future value in one year is $1.10 ($1 × 110% = $1.10). The increase of 10 cents results from the interest on $1 for the year. Conversely, if you are to pay $1.10 one year from today, the *present value* is $1 — the amount you would need to invest today at 10% to receive $1.10 in one year's time ($1.10/110% = $1). The exclusion of applicable interest in calculating present value is referred to as *discounting*.

If the above $1.10 amount at the end of the first year is invested for an additional year at 10% interest, its future value would be $1.21 ($1.10 x 110%). This consists of the original $1 investment, $.10 interest earned in the first year, and $.11 interest earned during the second year. Note that the second year's interest is earned on both the original $1 and on the 10 cents interest earned during the first year. This increase provides an example of *compound interest* — interest earned on interest.

The following formula can be used to calculate this:

$$\text{FV} = \text{PV} \times (1+i)^n$$

where FV = future value, PV = present value, i = the interest rate, and n = number of periods.

Substituting the values of our example, the calculation would be $\text{FV} = \$1[(1+.1)^2]$, or $1.21.

If the *future* value of today's $1 at 10% interest compounded annually amounts to $1.21 at the end of two years, the *present* value of $1.21 to be paid in two years, discounted at 10%, is $1. The formula to calculate this is just the inverse of the formula shown above, or

$$\text{PV} = \frac{\text{FV}}{(1+i)^n}$$

Substituting the values of our example,

$$\text{PV} = \frac{\$1.21}{(1+.1)^2}$$

That is, the present value of $1.21 received two years in the future is $1. The present value is always less than the future value, since an amount received today can be invested to earn a return (interest) in the intervening period. Calculating the present value of amounts payable or receivable over several time periods is explained more thoroughly below.

Instead of using formulas to calculate future and present values, a business calculator can be used where:

PV = present value

FV = future value

i = interest rate per period (for a semi-annual period where the annual interest rate is 8%, for example, i = 4% and would be entered into the calculator as '4' – not .04)

PMT = dollar amount of interest per period

n = number of periods.

The following three scenarios demonstrate how PV analysis is used to determine the issue price of a $100,000 bond.

1. Big Dog Carworks Corp. issues $100,000 of 3-year, 12% bonds on January 1, 2023 when the market rate of interest is 12%. Interest is paid semi-annually.
2. BDCC's bonds are issued at a premium because the market rate of interest is 8% at the date of issue.
3. BDCC's bonds are issued at a discount because the market rate of interest is 16% at the date of issue.

In each scenario, the bond *principal* of $100,000 will be repaid at the end of three years, and *interest* payments of $6,000 (calculated as $100,000 x 12% x 6/12) will be received every six months for three years.

Scenario 1: The Bond Contract Interest Rate is 12% and the Market Interest Rate Is 12%

The market interest rate is the same as the bond interest rate, therefore the bond is selling at par. The present value will be $100,000, the face value of the bond, which can be confirmed by entering the following into a business calculator:

FV = -100000 (we enter this as a negative because it is a cash outflow — it is being paid and not received when the bond matures)

i = 6 (calculated as 12%/year ÷ 2 periods per year)

PMT = -6000 (we enter this as a negative because it is a cash outflow — it is being paid and not received each semi-annual interest period)

n = 6 (3-year bond × 2 periods per year)

Compute PV

The PV = 100000. This result confirms that the bond is being issued at par or face value.

Scenario 2: The Bond Contract Interest Rate is 12% and the Market Interest Rate Is 8%

The market interest rate is less than the bond interest rate, therefore the bond is selling at a premium. The present value can be determined by entering the following into a business calculator:

FV = -100000 (we enter this as a negative because it is a cash outflow — it is being paid and not received when the bond matures)

i = 4 (calculated as 8%/year ÷ 2 periods per year)

PMT = -6000 (we enter this as a negative because it is a cash outflow — it is being paid and not received each semi-annual interest period)

n = 6 (3-year bond × 2 periods per year)

Compute PV

The PV = 110484.27. This confirms that the bond is being issued at a premium. The premium is $10,484.27 calculated as the difference between the present value of $110,484.27 and the face value of $100,000.

Scenario 3: The Bond Contract Interest Rate is 12% and the Market Interest Rate Is 16%

The market interest rate is more than the bond interest rate, therefore the bond is selling at a discount. The present value can be determined by entering the following into a business calculator:

FV = -100000 (we enter this as a negative because it is a cash outflow — it is being paid and not received when the bond matures)

i = 8 (calculated as 16%/year ÷ 2 periods per year)

PMT = -6000 (we enter this as a negative because it is a cash outflow — it is being paid and not received each semi-annual interest period)

n = 6 (3-year bond × 2 periods per year)

Compute PV

The PV = 90754.24. This confirms that the bond is being issued at a discount. The discount is $9,245.76 calculated as the difference between the present value of $90,754.24 and the face value of $100,000.

9.7 Appendix B: Additional Payroll Transactions

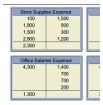
Net pay calculations

A business maintains a **Payroll Register** that summarizes the hours worked for each employee per pay period. The payroll register details an employee's regular pay plus any overtime pay *before* deductions, known as **gross pay**. An employee is paid their **net pay** (gross pay less total deductions). **Payroll deductions** are amounts subtracted by the employer from an employee's gross pay. Deductions are also known as withholdings or withheld amounts. Deductions can vary depending on the employer. Some deductions are optional and deducted by the employer based on directions made by the employee. Examples of optional deductions include an employee's charitable donations or Canada Savings Bonds contributions.

Certain payroll deductions are required by law. Deductions legally required to be deducted by the employer from an employee's gross pay are income tax, Employment Insurance (EI), and Canada Pension Plan (CPP or QPP in Quebec). The amount of legally required deductions is prescribed and based on an employee's income. For more detailed information regarding the calculation of these deductions, go to: https://www.canada.ca/en/revenue-agency/services/tax/businesses/topics/payroll/calculating-deductions.html

Other deductions that are often withheld by employers include union dues and health care premiums.

All deductions withheld by employers must be paid to the appropriate authority. For example, income tax, EI, and CPP must be paid to the Receiver General for Canada. Charitable donations withheld by an employer would be paid to the charity as directed by the employee.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Net Pay Calculations.

Recording Payroll

The entry made by the employer to record payroll would debit the appropriate salary or wage expense category and credit:

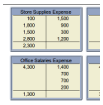
1. Salaries Payable or Wages Payable for the net pay and
2. Each deduction such as EI Payable, CPP Payable, etc.

To demonstrate, assume the following payroll information for Wil Stavely and Courtney Dell:

		Deductions				Distribution	
	Gross Pay	Income Tax	EI	CPP	Net Pay	Exec Salaries	Office Wages
Dell, Courtney	5,800	1,160	106	280	4,254	5,800	
Stavely, Will	3,500	700	70	170	2,560		3,500

The payroll journal entry would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Exec Salaries Expense		5,800	
	Office Wages Expense		3,500	
	Employee Income Tax Payable			1,860
	EI Payable			176
	CPP (or QPP) Payable			450
	Salaries Payable			6,814
	To record payroll.			



An exploration is available on the Lyryx site. Log into your Lyryx course to run Recording Payroll.

Recording Employer's CPP and EI Amounts

As already indicated, employers are legally required to deduct/withhold an employee's amount for each of the following from an employee's gross pay:

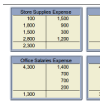
1. the employee's amount for Canada Pension Plan (CPP or QPP in Quebec) and
2. the employee's amount for Employment Insurance (EI).

The employer is required by law to pay Employment Insurance (EI) at the rate of 1.4 times the EI withheld from each employee. For example, if the employer withheld $100 of EI from Employee A's gross pay, the employer would have to pay EI of $140 (calculated as $100 x 1.4). Therefore, the total amount of EI being paid to the government regarding Employee A is $240 (calculated as the employee's portion of $100 plus the employer's portion of $140).

The employer is also required by law to pay CPP (or QPP in Quebec) of an amount that equals the employee amount. For example, if the employer withheld $50 of CPP from Employee A's gross pay, the employer would have to pay CPP of $50. Therefore, the total amount of CPP being paid to the government regarding Employee A is $100 (calculated as the employee's portion of $50 plus the employer's portion of $50).

The journal entry to record the employer's amounts above for EI and CPP would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	EI Expense		140	
	CPP (or QPP) Expense		50	
	EI Payable			140
	CPP (or QPP) Payable			50
	To record employer's EI and CPP amounts.			

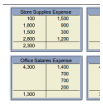


An exploration is available on the Lyryx site. Log into your Lyryx course to run Journalizing Liability for Employer Payroll Amounts.

Employer's Entries to Pay the Payroll Deductions

Employers are required by law to pay/remit to the Receiver General for Canada all income tax, EI, and CPP amounts deducted/withheld from employees along with the employer's portion of EI and CPP. Any other amounts deducted/withheld from employees such as union dues, health care premiums, or charitable donations must also be paid/remitted to the appropriate organizations. The journal entry to record these payments/remittances by the employer would debit the respective liability account and credit cash. For example, using the information from our previous example, we know that the employer withheld from the employee's gross pay $100 of EI and $50 of CPP. Additionally, the employer recorded its share of the EI ($140) and CPP ($50) amounts. The total EI to be paid is therefore $240 and the total CPP $100. The payment by the employer would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	EI Payable[3]		240	
	CPP (or QPP[4]) Payable		100	
	Cash			340
	To record employer's EI and CPP amounts.			



An exploration is available on the Lyryx site. Log into your Lyryx course to run Journalizing Payment of Employer Amounts.

Fringe Benefits and Vacation Benefits

Some employers pay for an employee's benefits such as health insurance. The journal entry to record benefits would be:

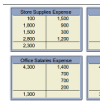
[3] Employee's $100 portion + Employer's $140 portion
[4] Employee's $50 portion + Employer's $50 portion

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Benefits Expense		XX	
	Health Insurance Payable			XX
	To record health insurance benefits.			

Employers are also required to pay for vacation time equal to 4% of gross income. The entry to accrue vacation benefits would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Benefits Expense		XX	
	Estimated Vacation Liability			XX
	To record accrual of vacation benefits.			

When vacation benefits are realized by the employee, the Estimated Vacation Liability account is debited and the appropriate liability accounts to record deductions/withholdings and net pay are credited.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Recording Employee Benefits.

9.8 Appendix C: The Effective Interest Rate Method

Another way to calculate the interest expense when a bond is issued at a premium or discount is the **effective interest rate method**.

Below are two examples where a bond is issued at a premium or discount. The interest expense and the amortization of the premium or discount is computed using the effective interest rate method.

Note that the bond's fair value can be determined by either using the market spot rate or by performing a present value calculation. Use of the market spot rate is shown in the bond premium example, while the present value calculation is shown in the bond discount example. These are discussed next.

Bonds Issued at a Premium

On May 1, 2023, Impala Ltd. issued a 10-year, 8%, $500,000 face value bond at a spot rate of 102 (2% above par). Interest is payable each year on May 1 and November 1. The company uses the

effective interest rate method to calculate interest expense and amortize the bond premium.

The spot rate is 102, so the amount to be paid is $510,000 (500,000 $\times$ 1.02) and, therefore, represents the fair value or present value of the bond issuance on the purchase date.

The entry for the bond issuance is:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
May 1, 2023	Cash		510,000	
	Bond payable			500,000
	Premium on bonds payable			10,000

Below is a portion of the effective interest rate method table:

	Payment	**Interest 3.8547%**	**Amortization of Premium**	**Balance**
May 1, 2023				510,000
Nov 1, 2023	20,000	19,659	341	509,659
May 1, 2024	20,000	19,646	354	509,305
Nov 1, 2024	20,000	19,632	368	508,937

Using the information from the schedule, the entries are completed below.

To record the interest payment and amortization of premium on November 1:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Nov 1, 2023	Interest expense		19,659	
	Premium on bonds payable		341	
	Cash			20,000

Recording the accrued interest at the December 31 year-end uses the relevant portion of the effective interest schedule. For example, at December 31, 2023, the table shows interest of $19,646 and bond amortization of $354 at May, 2024. Prorating these amounts for November and December, or two months, results in the following entry:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31, 2023	Interest expense (19,646 $\times$ 2 $\div$ 6)		6,549	
	Premium on bonds payable (354 $\times$ 2 $\div$ 6)		118	
	Interest payable			6,667

To record the interest payment on May 1, 2024, interest expense and amortization will be for the remainder of the table amounts of $19,646 and $354 respectively:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
May 1, 2024	Interest expense (19,646 − 6,549)		13,097	
	Interest payable		6,667	
	Premium on bonds payable (354 − 118)		236	
	Cash			20,000

To record the interest payment on November 1, 2024:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Nov 1, 2024	Interest expense		19,632	
	Premium on bonds payable		368	
	Cash			20,000

At maturity, the May 1, 2033, entry would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
May 1, 2033	Bond payable		500,000	
	Cash			500,000

Bonds Issued at a Discount

On May 1, 2023, Engels Ltd. issued a 10-year, 8%, $500,000 face value bond with interest payable each year on May 1 and November 1. The market rate at the time of issuance is 9% and the company year-end is December 31. In this case the stated rate of 8% is less than the market rate of 9%. This means that the bond issuance is trading at a discount and the fair value, or its present value of the future cash flows, will be less than the face value upon issuance. The present value is calculated as:

20,000	PMT	(where semi-annual interest using the stated or face rate is $500,000 × 8% × 6 ÷ 12)
4.5	I/Y	(where 9% market or effective interest is paid twice per year)
20	N	(where interest is paid twice per year for 10 years)
500,000	FV	(where a single payment of the face value is due in a future year 2033);

Expressed in the following variables string, and using a financial calculator, the present value is calculated:

Present value (PV) = (20,000 PMT, 4.5 I/Y, 20 N, 500,000 FV) = $467,480

Had the market spot rate been used, this bond would be trading at a spot rate of 93.496 (or 93.496% of the bond's face value, which is below par). The fair value would also be $467,480 ($500,000 × 0.93496).

General Journal				
Date	Account/Explanation	PR	Debit	Credit
May 1, 2023	Cash		467,480	
	Discount on bonds payable		32,520	
	Bond payable			500,000

The stated rate of 8% is less than the market rate of 9%, resulting in a present value less than the face amount of $500,000. This bond issuance is trading at a discount. Since the market rate is greater, the investor would not be willing to purchase bonds paying less interest at the face value. The bond issuer must, therefore, sell these at a discount in order to entice investors to purchase them. The investor pays the reduced price of $467,480. For the seller, the discount amount of $32,520 ($500,000 − 467,480) is then amortized over the life of the bond issuance using the effective interest rate method. The total interest expense for either method will be the same.

The interest schedule for the bond issuance is shown below:

	Payment	Interest 4.5%	Amortization of Discount	Balance
May 1, 2023				467,480
Nov 1, 2023	20,000	21,037	1,037	468,517
May 1, 2024	20,000	21,083	1,083	469,600
Nov 1, 2024	20,000	21,132	1,132	470,732
May 1, 2025	20,000	21,183	1,183	471,915
Nov 1, 2025	20,000	21,236	1,236	473,151
May 1, 2026	20,000	21,292	1,292	474,443
Nov 1, 2026	20,000	21,350	1,350	475,793
May 1, 2027	20,000	21,411	1,411	477,203
Nov 1, 2027	20,000	21,474	1,474	478,677
May 1, 2028	20,000	21,540	1,540	480,218
Nov 1, 2028	20,000	21,610	1,610	481,828
May 1, 2029	20,000	21,682	1,682	483,510
Nov 1, 2029	20,000	21,758	1,758	485,268
May 1, 2030	20,000	21,837	1,837	487,105
Nov 1, 2030	20,000	21,920	1,920	489,025
May 1, 2031	20,000	22,006	2,006	491,031
Nov 1, 2031	20,000	22,096	2,096	493,127
May 1, 2032	20,000	22,191	2,191	495,318
Nov 1, 2032	20,000	22,289	2,289	497,607
May 1, 2033	20,000	22,392	2,392	500,000

Using the information from the schedule, the entries are completed below.

To record the interest payment on November 1:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Nov 1, 2023	Interest expense (467,480 × 4.5%)		21,037	
	Discount on bonds payable			1,037
	Cash			20,000

Recording the accrued interest at the December 31 year-end uses the relevant portion of the effective interest schedule. For example, at December 31, 2023, the table shows interest of $21,083 and bond amortization of $1,083 at May, 2024. Prorating these amounts for November and December, or two months, results in the following entry

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 31, 2023	Interest expense (21,083 × 2 ÷ 6)		7,028	
	Discount on bonds payable (1,083 × 2 ÷ 6)			361
	Interest payable			6,667

To record the interest payment on May 1, 2024, interest expense and amortization will be for the remainder of the table amounts of $21,083 and $1,083 respectively:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
May 1, 2024	Interest expense (21,083 – 7,028)		14,055	
	Interest payable		6,667	
	Discount on bonds payable (1,083 – 361)			722
	Cash			20,000

At maturity, the May 1, 2033, entry would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
May 1, 2033	Bond payable		500,000	
	Cash			500,000

Summary of Chapter 9 Learning Objectives

LO1 – Identify and explain current versus long-term liabilities.

Current or short-term liabilities are a form of debt that is expected to be paid within the longer of one year of the balance sheet date or one operating cycle. Long-term liabilities are a form of debt that is expected to be paid beyond one year of the balance sheet date or the next operating cycle, whichever is longer. Current and long-term liabilities must be shown separately on the balance sheet.

LO2 – Record and disclose known current liabilities.

Known current liabilities are those where the payee, amount, and timing of payment are known. Payroll liabilities are a type of known current liability. Employers are responsible for withholding from employees amounts including Employment Insurance (EI), Canada Pension Plan (CPP), and income tax, and then remitting the amounts to the appropriate authority. Sales taxes, including the Goods and Services Tax (GST) and Provincial Sales Tax (PST), must be collected by registrants and subsequently remitted to the Receiver General for Canada. Short-term notes payable, also a known current liability, can involve the accrual of interest if the maturity date falls in the next accounting period.

LO3 – Record and disclose estimated current liabilities.

An estimated liability is known to exist where the amount, although uncertain, can be estimated. Warranties and income taxes are examples of estimated liabilities. Contingent liabilities are neither a known liability nor an estimated liability and are not recorded if they are determined to exist. A contingent liability exists when it is not probable or it cannot be realiably estimated. A contingent liability is disclosed in the notes to the financial statements.

LO4 – Identify, describe, and record bonds.

Bonds pay interest at regular intervals to bondholders. The original investment is repaid to bondholders when the bonds mature. There are different types of bonds: secured or unsecured, as well as registered or bearer bonds. Bonds can have a variety of characteristics, including: varying maturity dates, call provisions, conversion privileges, sinking fund requirements, or dividend restrictions. Bonds are issued: (a) at par (also known as the face value) when the market interest rate is the same as the bond (or contract) interest rate; (b) at a discount when the market interest rate is higher than the bond interest rate; or (c) at a premium when the market interest rate is lower than the bond interest rate.

LO5 – Explain, calculate, and record long-term loans.

A loan is a form of long-term debt that can be used by a corporation to finance its operations. Loans can be secured and are typically obtained from a bank. Loans are often repaid in equal blended payments containing both interest and principal.

Chapter 10

Equity Financing

Corporations sometimes finance a large portion of their operations by issuing equity in the form of shares. This chapter discusses in detail the nature of the corporate form of organization, the different types of shares used to obtain funds for business activities, and how these transactions are recorded. It also expands on the concept of dividends.

Chapter 10 Learning Objectives Watch video

LO1 – Identify and explain characteristics of the corporate form of organization and classes of shares.

LO2 – Record and disclose preferred and common share transactions including share splits.

LO3 – Record and disclose cash dividends.

LO4 – Record and disclose share dividends.

LO5 – Calculate and explain the book value per share ratio.

Concept Self-Check

Use the following as a self-check while working through Chapter 10.

1. What are the characteristics of a corporation?
2. What types of shares can a corporation issue to investors?
3. What are the rights of common shareholders in a corporation?
4. How are the rights of common shareholders different from those of preferred shareholders?
5. How are share transactions recorded?
6. When both preferred and common shares are issued by a corporation, how is this disclosed in the equity section of the balance sheet?
7. What is meant by *authorized* shares?

8. How do *issued* shares differ from *outstanding* shares?
9. What is a share split?
10. How does a share split affect equity?
11. How are cash dividends recorded?
12. What is a share dividend and how is it recorded?
13. How does a share dividend affect equity?
14. What is book value and how is it calculated?

NOTE: The purpose of these questions is to prepare you for the concepts introduced in the chapter. Your goal should be to answer each of these questions as you read through the chapter. If, when you complete the chapter, you are unable to answer one or more the Concept Self-Check questions, go back through the content to find the answer(s). Solutions are not provided to these questions.

10.1 The Corporate Structure Watch video

LO1 – Identify and explain characteristics of the corporate form of organization and classes of shares.

The accounting equation expresses the relationship between assets owned by a corporation and the claims against those assets by creditors and shareholders. Accounting for equity in a corporation requires a distinction between the two main sources of shareholders' equity: share capital and retained earnings. Their relationship to the accounting equation is shown in Figure 10.1.

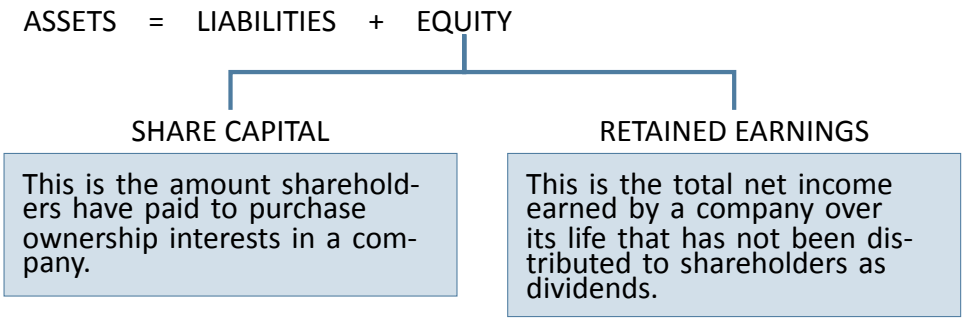


Figure 10.1: Share Capital Versus Retained Earnings

Corporate Characteristics

A unique characteristic of corporations is that they are legally separate from their owners, who are called **shareholders**. Each unit of ownership of a corporation is called a **share**. If a corporation issues 1,000 shares and you own 100 of them, you own 10% of the company. Corporations can be *privately-held* shares or *publicly-held* shares. A privately-held corporation's shares are not issued for sale to the general public. A publicly-held corporation offers its shares for sale to the general public, sometimes on a stock market like the Toronto Stock Exchange or the New York Stock Exchange.

A corporation has some of the same rights and obligations as individuals. For instance, it pays income taxes on its earnings, can enter into legal contracts, can own property, and can sue and be sued. A corporation also has distinctive features. It is separately regulated by law, has an indefinite life, its owners have limited liability, and it can usually acquire capital more easily than an individual. These features are discussed below.

- **Creation by law**

A corporation is formed under legislation enacted by a country or a political jurisdiction within it. For instance, in Canada a corporation can be formed under either federal or provincial laws. Although details may vary among jurisdictions, a legal document variously described as *articles of incorporation*, a *memorandum of association*, or *letters patent* is submitted for consideration to the appropriate government by prospective shareholders. The document lists the **classes** or types of shares that will be issued as well as the total number of shares of each class that can be issued, known as the **authorized** number of shares.

When approved, the government issues a certificate of incorporation. Investors then purchase shares from the corporation. They meet and elect a board of directors. The board formulates corporation policy and broadly directs the affairs of the corporation. This includes the appointment of a person in charge of day-to-day operations, often called a president, chief executive officer, or similar title. This person in turn has authority over the employees of the corporation.

A shareholder or group of shareholders who control more than 50% of the voting shares of a corporation are able to elect the board of directors and thus direct the affairs of the company. In a large public corporation with many shareholders, minority shareholders with similar ideas about how the company should be run sometimes delegate their votes to one person who will vote on their behalf by signing a **proxy** statement. This increases their relative voting power, as many other shareholders may not participate in shareholders' meetings.

Shareholders usually meet annually to vote for a board of directors — either to re-elect the current directors or to vote in new directors. The board meets regularly, perhaps monthly or quarterly, to review the operations of the corporation and to set policies for future operations. The board may decide to distribute some assets of the corporation as a dividend to shareholders. It may

also decide that some percentage of the assets of the corporation legally available for dividends should be made unavailable; in this case, a *restriction* is created. Accounting for such restrictions is discussed later in this chapter.

Wherever it is incorporated, a company is generally subject to the following regulations:

1. It must provide timely financial information to investors.
2. It must file required reports with the government.
3. It cannot distribute profits arbitrarily but must treat all shares of the same class alike.
4. It is subject to special taxes and fees.

Despite these requirements, a corporation's advantages usually outweigh its disadvantages when compared to other forms of business such as a proprietorship or partnership. These features of a corporation are described further below. Proprietorships and partnerships are discussed in more detail in Chapter 13.

- **Indefinite life**

A corporation has an existence separate from that of its owners. Individual shareholders may die, but the corporate entity continues. The life of a corporation comes to an end only when it is dissolved, becomes bankrupt, or has its charter revoked for failing to follow laws and regulations.

- **Limited liability**

The corporation's owners are liable only for the amount that they have invested in the corporation. If the corporation fails, its assets are used to pay creditors. If insufficient assets exist to pay all debts, there is no further liability on the part of shareholders. This situation is in direct contrast to a proprietorship or a partnership. In these forms of organization, creditors have full recourse to the personal assets of the proprietorship or partners if the business is unable to fulfill its financial obligations. For the protection of creditors, the limited liability of a corporation must be disclosed in its name. The words "Limited," "Incorporated," or "Corporation" (or the abbreviations Ltd., Inc., or Corp.) are often used as the last word of the name of a company to indicate this corporate form.

- **Ease of acquiring capital**

Issuing shares allows many individuals to participate in the financing of a corporation. Both small and large investors are able to participate because of the relatively small cost of a share, and the ease with which ownership can be transferred — shares are simply purchased or sold. Large amounts of capital can be raised by a corporation because the risks and rewards of ownership can be spread among many investors.

A corporation only receives money when shares are first issued. Once a share is issued, it can be bought and sold a number of times by various investors. These subsequent transactions between investors do not affect the corporation's balance sheet.

Income Taxes on Earnings

Because corporations are considered separate legal entities, they pay income taxes on their earnings. To encourage risk-taking and entrepreneurial activity, certain types of corporations may be taxed at rates that are lower than other corporations and individual shareholders' income tax rates. This can encourage research and development activity or small-company start-ups, for instance.

Classes of Shares

There are many types of shares, with differences related to voting rights, dividend rights, liquidation rights, and other preferential features. The rights of each shareholder depend on the class or type of shares held.

Every corporation issues **common shares**. The rights and privileges usually attached to common shares are outlined below.

- The right to participate in the management of the corporation by voting at shareholders' meetings (this participation includes voting to elect a board of directors; each share normally corresponds to one vote).
- The right to receive dividends when they are declared by the corporation's board of directors.
- The right to receive assets upon liquidation of the corporation.
- The right to appoint auditors through the board of directors.

For other classes of shares, some or all of these rights are usually restricted. The articles of incorporation may also grant the shareholders the **pre-emptive** right to maintain their proportionate interests in the corporation if additional shares are issued.

If the company is successful, common shareholders may receive dividend payments. As well, the value of common shares may increase. Common shareholders can submit a proposal to raise any matter at an annual meeting and have this proposal circulated to other shareholders at the corporation's expense. If the corporation intends to make fundamental changes in its business, these shareholders can often require the corporation to buy their shares at their fair value. In addition, shareholders can apply to the courts for an appropriate remedy if they believe their interests have been unfairly disregarded by the corporation.

Some corporations issue different classes of shares in order to appeal to as large a group of investors as possible. This permits different risks to be assumed by different classes of shareholders in the same company. For instance, a corporation may issue common shares but divide these into different classes like class A and class B common shares. When dividends are declared, they might only be paid to holders of class A shares.

Preferred shares is a class of share where the shareholders are entitled to receive dividends before common shareholders. These shares usually do not have voting privileges. Preferred shareholders typically assume less risk than common shareholders. In return, they receive only a limited amount of dividends. Issuing preferred shares allows a corporation to raise additional capital without requiring existing shareholders to give up control. Preferred shares are listed before common shares in the equity section of the balance sheet. Other characteristics of preferred shares and dividend payments are discussed later in this chapter.

The shares of a corporation can have a different status at different points in time. They can be **unissued** or **issued**, issued and **outstanding**, or issued and reacquired by the corporation (called **treasury shares**). The meaning of these terms is summarized in Figure 10.2:

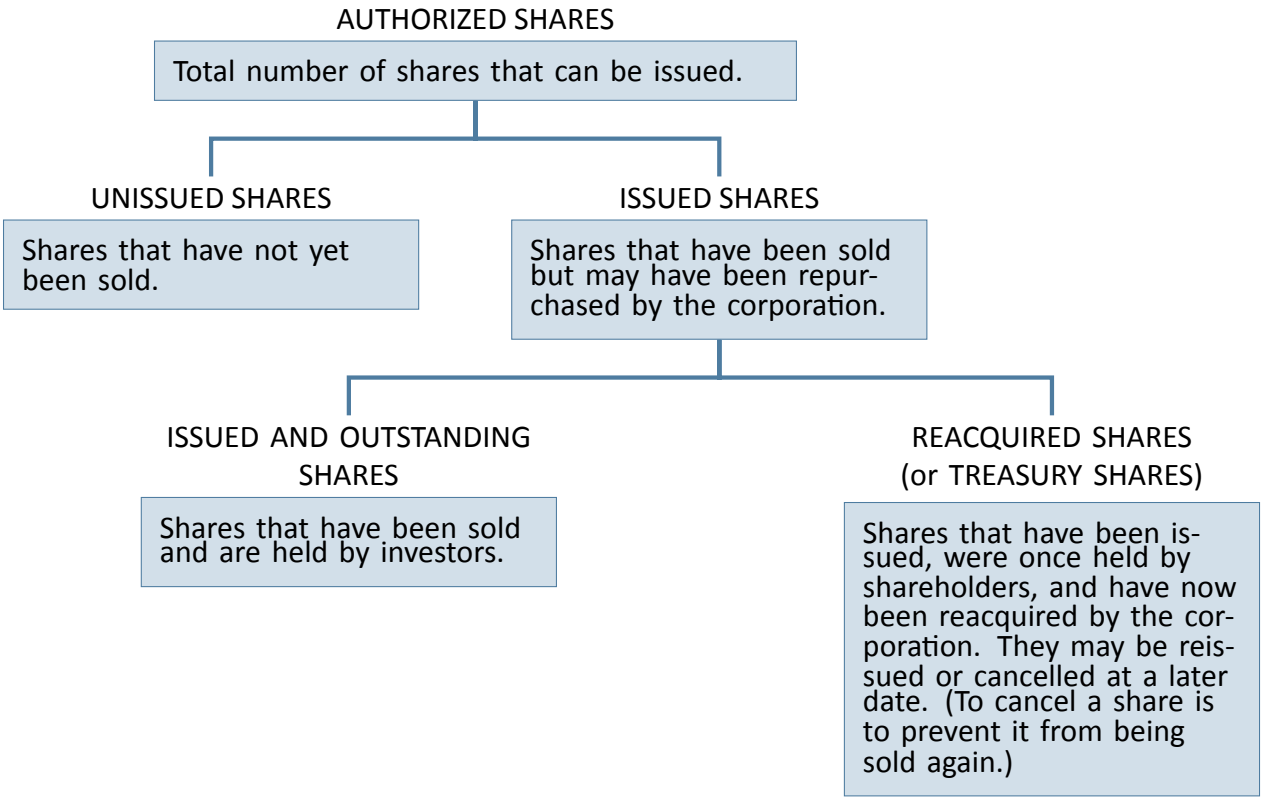


Figure 10.2: Status of Shares

The Debt Versus Equity Financing Decision

Many factors influence management in its choice between the issue of debt and the issue of share capital. One of the most important considerations is the potential effect of each of these financing methods on the present shareholders.

Consider the example of Old World Corporation, which has 100,000 common shares outstanding, is a growth company, and is profitable. Assume Old World requires $30 million in cash to finance a new plant. Management is currently reviewing three financing options:

1. Issue 12% debt, due in three years
2. Issue 300,000 preferred shares at $100 each (dividend $8 per share annually)
3. Issue an additional 200,000 common shares at $150 each.

Management estimates that the new plant should result in income before interest and tax of $6

million. Management has prepared the following analysis to compare and evaluate each financing option.

	Plan 1: Issue Debt	*Plan 2:* Issue Preferred Shares	*Plan 3:* Issue Common Shares
Income before interest and income taxes	$ 6,000,000	$ 6,000,000	$ 6,000,000
Less: Interest expense ($30M x 12%)	(3,600,000)	-0-	-0-
Income before taxes	$ 2,400,000	$ 6,000,000	$ 6,000,000
Less: Income taxes assumed to be 50%	(1,200,000)	(3,000,000)	(3,000,000)
Net income	1,200,000	3,000,000	3,000,000
Less: Preferred dividends (300,000 x $8 per share)	-0-	(2,400,000)	-0-
Net income available to common shareholders	$ 1,200,000	$ 600,000	$ 3,000,000
Number of common shares outstanding	100,000	100,000	300,000
Earnings per common share[1]	$ 12	$ 6	$ 10

Plan 1, the issue of debt, has several advantages for existing common shareholders.

- **Advantage 1: Earnings per share**

If the additional long-term financing were acquired through the issue of debt, the corporate earnings per share (EPS) on each common share would be $12. This EPS is greater than the EPS earned through financing with either preferred shares or additional common shares. On this basis alone, the issue of debt is more financially attractive to existing common shareholders.

- **Advantage 2: Control of the corporation**

Creditors have no vote in the affairs of the corporation. If additional common shares were issued, there might be a loss of corporate control by existing shareholders because ownership would be distributed over a larger number of shareholders, or concentrated in the hands of one or a few new owners. In the Old World case, issuing common shares would increase the number threefold from 100,000 to 300,000 shares.

- **Advantage 3: Income taxes expense**

[1]The amount of net income earned in a year can be divided by the number of common shares outstanding to establish how much return has been earned for each outstanding share. EPS is calculated as:

$$\frac{\text{Net income}}{\text{Number of common shares outstanding}}$$

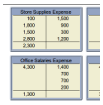
EPS is quoted in financial markets and is disclosed on the income statement of publicly-traded companies. It is discussed in more detail in Chapter 12.

Interest expense paid on debt is deductible from income for income tax purposes. Dividend payments are distributions of retained earnings, which is after-tax income. Thus, dividends are not deductible again for tax purposes. With a 50% income tax rate, the after-tax interest expense to the corporation is only 6% (12% x 50%), with the other 6% being used to offset income tax that would be otherwise due. However, for preferred shares 8% ($8/$100) of the money raised will be paid to the new shareholders as preferred dividends in the first year.

Debt Financing Disadvantages

There are also some disadvantages in long-term financing with debt that must be carefully reviewed by management and the board of directors. The most serious disadvantage is the possibility that the corporation might earn less than $6 million before interest expense and income taxes. The interest expense is a fixed amount. It must be paid to creditors at specified times, unlike dividends.

Another disadvantage is the fact that debt must be repaid at maturity, whether or not the corporation is financially able to do so. Shares do not have to be repaid.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Debt vs Equity Financing.

10.2 Recording Share Transactions Watch video

LO2 – Record and disclose preferred and common share transactions including share splits.

Shares have a **stated (or *nominal*) value**—the amount for which they are issued. Alternatively, but rarely, shares will have a **par-value** which is the amount stated in the corporate charter below which shares cannot be sold upon initial offering. For consistency, we will assume all shares have a stated value.

To demonstrate the issuance and financial statement presentation of shares, assume that New World Corporation is authorized to issue share capital consisting of an unlimited number of voting common shares and 100,000 non-voting preferred shares.

Transaction 1: On January 1, 2023, New World sells 1,000 common shares to its first shareholders for $10 per share, or $10,000 cash. New World records the following entry:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 1	Cash		10,000	
	Common Shares			10,000
	To record the issuance of 1,000 common shares at $10 per share.			

Transaction 2: On February 1, 2023, 2,500 preferred shares are issued to the owner of land and buildings that have a fair value of $35,000 and $50,000, respectively. The journal entry to record this transaction is:

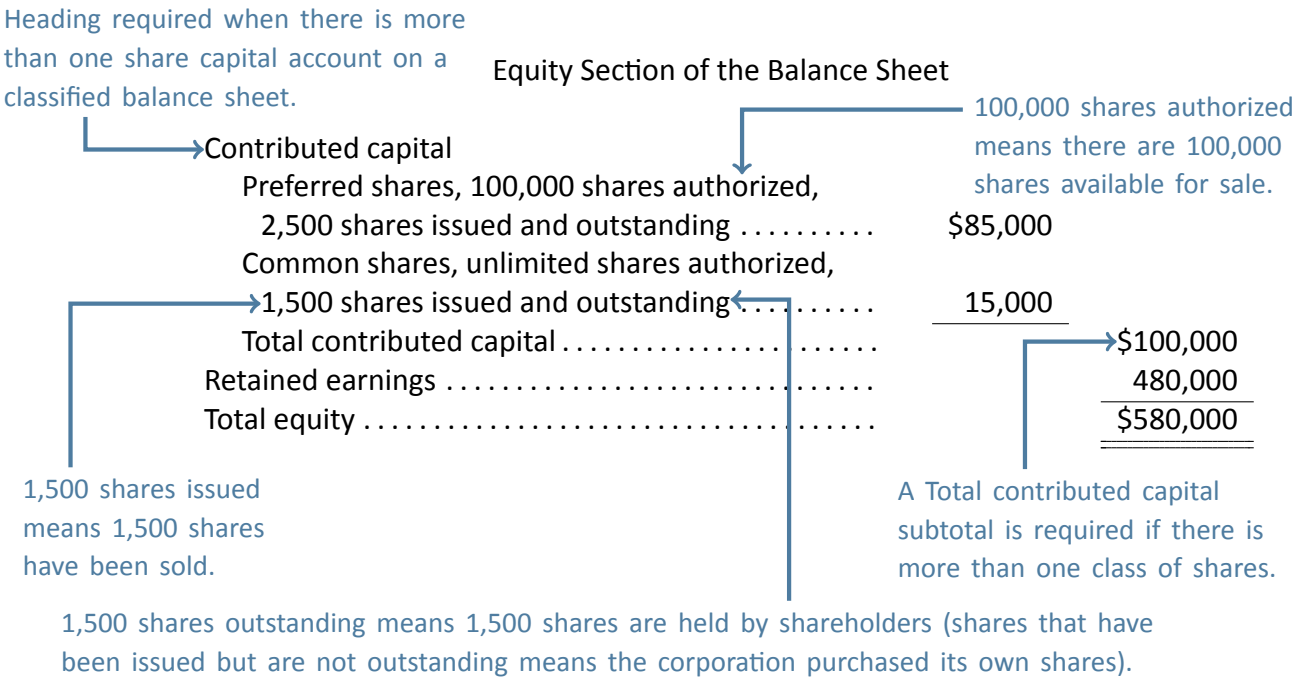
General Journal				
Date	Account/Explanation	PR	Debit	Credit
Feb 1	Land		35,000	
	Building		50,000	
	Preferred Shares			85,000
	To record the issuance of 2,500 preferred shares in exchange for land and buildings.			

Usually, one or more individuals decide to form a corporation and before the corporation is created, may then use their own funds to pay for legal and government fees, travel and promotional costs, and so on. When the corporation is legally formed, it is not unusual for the corporation to issue shares to these organizers for these amounts. These expenditures are referred to as **organization costs** (**start-up costs**) and are expensed.

Transaction 3: On March 1, 2023, 500 common shares are issued to the organizers of New World to pay for their services, valued at $5,000. The journal entry to record this transaction is:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Mar 1	Organization Expense		5,000	
	Common Shares			5,000
	To record the issuance of 500 common shares in exchange for organization efforts.			

Assuming no further share transactions and a retained earnings balance of $480,000, the equity section of the New World Corporation balance sheet would show the following at December 31, 2023:



Transaction 4: Corporate legislation permits a company to reacquire some of its shares, provided that the purchase does not cause insolvency. A company can repurchase and then cancel the repurchased shares. When repurchased shares are cancelled, they are no longer issued and no longer outstanding. A company can also repurchase shares and then hold them in treasury. Treasury shares are issued but not outstanding. A company can use treasury shares for purposes such as giving to employees as an incentive or bonus.

Assume that New World Corporation decides to repurchase 200 common shares on December 1, 2024 and hold them in treasury. Assume that the price of each share is the average issue price of the outstanding common shares, or $10. The journal entry to record the repurchase is:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 1	Common Shares		2,000	
	Cash			2,000
	To record the repurchase of 200 common shares at $10 per share to be held in treasury.			

Assuming no further transactions, the equity section of the New World Corporation balance sheet would show the following at December 31, 2024:

Equity Section of the Balance Sheet

Contributed capital		
Preferred shares, 100,000 shares authorized, 2,500 shares issued and outstanding	$85,000	
Common shares, unlimited shares authorized, 1,500 shares issued; 1,300 shares outstanding	13,000	
Total contributed capital		$98,000
Retained earnings		480,000
Total equity		$578,000

Notice that the repurchase of shares caused a decrease in both the paid-in capital for the common shares ($2,000 decrease) and in the number of shares outstanding decreased (decreased by 200 shares). If the 200 shares had been cancelled, both the number of shares issued and outstanding would have decreased by 200 shares.

Transaction 5: Shares Retirement

If New World Corporation decides to repurchase and cancel 100 common shares on December 15, 2024. Assume that the purchase price is $9, which is less than the average issue price of $10 per share. The entry would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 15	Common Shares ($10 × 100 shares)		1,000	
	Contributed surplus, shares retirement			100
	Cash ($9 × 100 shares)			900
	To record the repurchase of 100 common shares at $9 per share.			

The contributed surplus account is reported in the equity section of the balance sheet, below the share capital accounts. The share capital accounts and the contributed capital account are then subtotalled and reported as ***total contributed capital*** of $99,100 as shown below:

Equity Section of the Balance Sheet

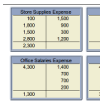
Contributed capital		
Preferred shares, 100,000 shares authorized, 2,500 shares issued and outstanding	$85,000	
Common shares, unlimited shares authorized, 1,400 shares issued and outstanding	14,000	
Contributed surplus	100	
Total contributed capital		$99,100
Retained earnings		480,000
Total equity		$579,100

If New World Corporation also repurchases and cancels another 150 common shares on December 17, 2024, at a price of $11, this is more than the average issue price of $10 per share, and the entry

would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 17	Common Shares ($10 × 150 shares)		1,500	
	Contributed suplus, shares retirement . . .		100	
	Retained earnings		50	
	Cash ($11 × 150 shares)			1650
	To record the repurchase of 150 common shares at $11 per share.			

The excess of the purchase price of $11 over the average shares issue price of $10 totals $150 for 150 shares. This would be debited to retained earnings. However, in this case, New World already has contributed surplus of $100 from the December 15 shares cancellation, so this amount must be reversed first. The remainder, or $50, is debited to retained earnings.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Issuing Share Capital.

Share Splits

A corporation may find its shares are selling at a high price on a stock exchange, perhaps putting them beyond the reach of many investors. To increase the marketability of a corporation's shares, management may opt for a **share split**. A share split increases the number of shares issued and outstanding, and lowers the cost of each new share. The originally-issued shares are exchanged for a larger number of new shares.

Assume that on December 1, 2023 New World Corporation declares a 3-for-1 common share split. This results in three new common shares replacing each currently-issued and outstanding common share. The number of issued and outstanding shares has now been tripled. The market price of each share will decrease to about one-third of its former market price. Since there is no change in the dollar amount of common shares, no debit-credit entry is required to record the share split. Instead, a memorandum entry would be recorded in the general ledger indicating the new number of shares issued and outstanding, as follows:

Common Shares — Acct. No. 320

Date		Description	Debit	Credit	DR/CR	Balance
2023						
Dec.	1	Memorandum Entry:				
		Because of a 3-for-1 share split, the issued and outstanding common shares				
		increased, respectively, from 1,500 and 1,300 to 4,500 and 3,900.				

The dollar amount shown on the balance sheet and statement of changes in equity will not change. The only change is an increase in the number of issued and outstanding common shares. After the share split, the equity section of the New World Corporation would appear as follows:

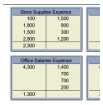
The number of common shares issued changed from 1,500 shares before the share split to 4,500 after the share split.

Equity Section of the Balance Sheet

The paid-in capital is not affected by a share split.

Contributed capital		
Preferred shares, 100,000 shares authorized, 2,500 shares issued and outstanding	$85,000	
Common shares, unlimited shares authorized, 4,500 shares issued; 3,900 shares outstanding	13,000	
Total contributed capital		$98,000
Retained earnings		480,000
Total equity		$578,000

The number of common shares outstanding changed from 1,300 shares before the share split to 3,900 after the share split.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Share Splits.

10.3 Cash Dividends Watch video

LO3 – Record and disclose cash dividends.

Both creditors and shareholders are interested in the amount of assets that can be distributed as dividends. Dividends The paid-in share capital is not available for distribution as dividends. This helps protect creditors by preventing shareholders from withdrawing assets as dividends to the point where remaining assets become insufficient to pay creditors. For example, assume total assets are $40,000; total liabilities $39,000; and total equity $1,000, consisting of $900 in common shares and $100 of retained earnings. The maximum dividends that could be declared in this situation is $100, the balance in retained earnings.

Dividend Policy

Sometimes the board of directors may choose not to declare any dividends. There may be financial conditions in the corporation that make the payment impractical.

- **Consideration 1: There may not be adequate cash**

Corporations regularly reinvest their earnings in assets in order to make more profits. In this way, growth occurs and reliance on creditor financing can be minimized. As a result, there may not be enough cash on hand to declare and pay a cash dividend. The assets of the corporation may be tied up in property, plant, and equipment, for instance.

- **Consideration 2: A policy of the corporation may preclude dividend payments**

Some corporations pay no dividends. Instead, they reinvest their earnings in the business. Shareholders generally benefit through increased earnings, reflected in increased market price for the corporation's shares. A stated policy to this effect can apprise investors. This type of dividend policy is often found in growth-oriented corporations.

- **Consideration 3: No legal requirement that dividends have to be paid**

The board of directors may decide that no dividends should be paid. Legally, there is no requirement to do so. If shareholders are dissatisfied, they can elect a new board of directors or sell their shares.

- **Consideration 4: Dividends may be issued in shares of the corporation rather than in cash**

Share dividends may be issued to conserve cash or to increase the number of shares to be traded on the stock market. Shares dividends are discussed in Section 10.4.

Dividend Declaration

Dividends can be paid only if they have been officially declared by the board of directors. The board must pass a formal resolution authorizing the dividend payment. Notices of the dividend are then published. Once a dividend declaration has been made public, the dividend becomes a liability and must be paid. An example of a dividend notice is shown in Figure 10.3.

New World Corporation
Dividend Notice

On May 25, 2023 the board of directors of New World Corporation declared a dividend of $0.50 per share on common shares outstanding (3,900). The dividend will be paid on June 26, 2023 to shareholders of record on June 7, 2023.

By order of the board

[signed]
Lee Smith
Secretary
May 25, 2023

Figure 10.3: An Example of a Dividend Notice

There are three dates associated with a dividend. Usually dividends are declared on one date, the **date of declaration** (May 25, 2023 in this case); they are payable to shareholders on a second date, the date of record (June 7, 2023); and the dividend is paid on a third date, the **date of payment** (June 26, 2023).

Date of Declaration

The dividend declaration provides an official notice of the dividend. It specifies the amount of the dividend as well as which shareholders will receive the dividend. The liability for the dividend is recorded in the books of the corporation at its declaration date.

The following entry would be made in the general ledger of New World Corporation on May 25, 2023, the date of declaration:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
May 25	Cash Dividends Declared		1,950	
	Dividends Payable			1,950
	To record $0.50 per common share cash dividend declared; 3,900 shares x $0.50/share = $1,950.			

OR

General Journal				
Date	Account/Explanation	PR	Debit	Credit
May 25	Retained Earnings		1,950	
	Dividends Payable			1,950
	To record $0.50 per common share cash dividend declared; 3,900 shares x $0.50/share = $1,950.			

If, as shown in the second entry above, retained earnings is debited instead of cash dividends declared, a closing entry is not required for dividends during the closing process.

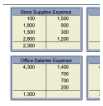
Date of Record

Shareholders who own shares on the date of record will receive the dividend even if they have sold the shares before the dividend is actually paid. No journal entry is made in the accounting records for the date of record.

Date of Payment

The dividend is paid on this date and recorded as:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Dividends Payable		1,950	
	Cash			1,950
	To record payment of dividend.			



An exploration is available on the Lyryx site. Log into your Lyryx course to run Dividends.

Preferred Shareholder Dividends

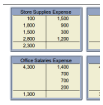
Preferred shares are offered to attract investors who have lower tolerance for risk than do common shareholders. Preferred shareholders are content with a smaller but more predictable share of a corporation's profits. For instance, preferred shareholders are entitled to dividends before any dividends are distributed to common shareholders. Also, most preferred shares specifically state what amount of dividends their holders can expect each year. For example, owners of $8 preferred shares would be paid $8 per share held each year. These dividends are often paid even if the corporation experiences a net loss in a particular year.

Preferred shares may also have other dividend preferences, depending on what rights have been attached to preferred shares at the date of incorporation. One such preference is the accumulation of undeclared dividends from one year to the next — referred to as *cumulative dividends*. Discussion of other preferences is beyond the scope of this introductory textbook. Cumulative dividends are discussed in the next section.

Cumulative Dividend Preferences

Cumulative preferred shares require that any unpaid dividends accumulate from one year to the next and are payable from future earnings when a dividend is eventually declared by a corporation. These accumulated dividends must be paid before any dividends are paid on common shares. The unpaid dividends are called **dividends in arrears**. Dividends in arrears are not recorded as a liability on the balance sheet of the company until they have been declared by the board of directors. However, disclosure of dividends in arrears must be made in a note to the financial statements.

If a preferred share is **non-cumulative**, a dividend not declared by the board of directors in any one year is never paid to shareholders.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Allocating Dividends.

10.4 Share Dividends  Watch video

LO4 – Record and disclose share dividends.

A **share dividend** is a dividend given to shareholders in the form of shares rather than cash. In this way, the declaring corporation is able to retain cash in the business and reduce the need to finance its activities through borrowing. Like a cash dividend, a share dividend reduces retained earnings. However, a share dividend does not cause assets to change. Instead, it simply transfers an amount from retained earnings to contributed capital. Total assets, total liabilities, and total equity remain unchanged when there is a share dividend. Like a cash dividend, there are three dates regarding a share dividend: date of declaration, date of record, and date of distribution. Notice that there is no 'date of payment' as there was for a cash dividend. This is because there is no cash payment involved for a share dividend. Instead, shares are distributed, or given, to the shareholders.

Accounting for Share Dividends

To demonstrate a share dividend, assume that the Sherbrooke Corporation declares a 10% share dividend to common shareholders. The share dividend is declared on December 15, 2023 payable to shareholders of record on December 20, 2023. The share dividend is distributed on January 10, 2024. At the time of the dividend declaration, the shares were trading on the stock exchange at $4 per share and the equity of the corporation consisted of the following:

Common shares; 20,000 shares authorized;	
5,000 shares issued and outstanding	$25,000
Retained earnings	100,000
Total equity	$125,000

The 10% share dividend equals 500 shares (calculated as 5,000 outstanding shares x 10% share dividend). The market price on the date of declaration is used to record a share dividend. On the declaration date, the journal entry to record the share dividend is:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 15	Share Dividends Declared		2,000	
	Common Share Dividends Distributable			2,000
	To record declaration of share dividend; 5,000 shares x 10% = 500 shares; 500 shares x $4 = $2,000.			

OR

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Dec 15	Retained Earnings		2,000	
	Common Share Dividends Distributable			2,000
	To record declaration of share dividend; 5,000 shares x 10% = 500 shares; 500 shares x $4 = $2,000.			

If, as shown in the second entry above, retained earnings is debited instead of share dividends, a closing entry is not required for dividends during the closing process. Common Share Dividends Distributable is an equity account, specifically, a share capital account.

On the share dividend distribution date, the following entry is recorded:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
Jan 10	Common Share Dividends Distributable . .		2,000	
	Common Shares			2,000
	To record distribution of share dividend.			

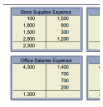
The effect of these entries is to transfer $2,000 from retained earnings to share capital. No assets are paid by the corporation when the additional shares are issued as a share dividend, and therefore the total equity remains unchanged.

Is There Any Change in the Investor's Percentage of Corporate Ownership Because of a Share Dividend?

Since a share dividend is issued to all shareholders of a particular class, as a result of a share dividend, each shareholder has a larger number of shares. However, ownership percentage of the company remains the same for each shareholder, as illustrated below, for the four shareholders of Sherbrooke Corporation.

Each shareholder has received a 10% share dividend but their ownership percentage of the company remains constant. Since total equity does not change when there is a share dividend, the proportion owned by each shareholder does not change.

	Corporate ownership			
	Before share dividend		*After share dividend*	
Shareholder	Shares	Percent	Shares	Percent
1	1,000	20%	1,100	20%
2	500	10%	550	10%
3	2,000	40%	2,200	40%
4	1,500	30%	1,650	30%
	5,000	100%	5,500	100%



An exploration is available on the Lyryx site. Log into your Lyryx course to run Share Dividends.

10.5 Book Value  Watch video

LO5 – Calculate and explain the book value per share ratio.

The **book value** of a share is the amount of net assets represented by one share. When referring to common shares, book

value represents the amount of net assets not claimed by creditors and preferred shareholders. When referring to preferred shares, book value represents the amount that preferred shareholders would receive if the corporation were liquidated.

Book value per preferred share =

$$\frac{\text{Paid-in capital for preferred shares plus dividends in arrears}}{\text{Number of preferred shares outstanding}}$$

Book value per common share =

$$\frac{\text{Total equity less (paid-in capital for preferred shares plus dividends in arrears)}}{\text{Number of common shares outstanding}}$$

Calculation of the Book Value of Shares

The calculation of the book value of preferred and common shares can be illustrated by using the following data:

Equity Section of the Balance Sheet

Contributed capital		
Preferred shares; 5,000 shares authorized; 1,000 shares issued and outstanding . .	$10,000	
Common shares; 200,000 shares authorized; 60,000 shares issued and outstanding . .	20,000	
Total contributed capital		$30,000
Retained earnings		105,000
Total equity		$135,000

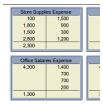
Book value is calculated as:

Preferred shares		*Common shares*	
Dividends in arrears	$ 5,000	Total equity	$135,000
Plus: Paid-in capital	10,000	*Less:* Preferred claims	15,000
Balance	$15,000	Balance	$120,000
Shares outstanding	1,000	Shares outstanding	60,000
Book value per share	$15	Book value per share	$2

Comparison of book value with market value provides insight into investors' evaluations of the corporation. For instance, if the book value of one common share of Corporation A is $20 and its common shares are traded on a public stock exchange for $40 per share (market value), it is said to be trading for "two times book value." If Corporation B is trading for three times book value,

investors are indicating that the future profit prospects for corporation B are higher than those for Corporation A. They are willing to pay proportionately more for shares of Corporation B than Corporation A, relative to the underlying book values.

Some shares regularly sell for less than their book value on various stock exchanges. This does not necessarily mean they are a bargain investment. The market price of a share is related to such factors as general economic outlook and perceived potential of the company to generate earnings.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Book Value per Share.

10.6 Appendix A: Reporting for Multiple Classes of Shares

Multiple classes of shares are to be separately reported in the financial statements. For example, in Section 10.5 the equity portion of the balance sheet has separated the preferred shares and common shares. This provides important information about the composition of the company's share capital for its shareholders and creditors. Recall that preferred shares are entitled to receive dividends before common shareholders.

Another statement affected by multiple classes of shares is the statement of changes in equity, where multiple classes of shares are to be separately reported, as shown below using some sample data:

Sample Company Ltd.
Statement of Changes in Equity
For the year ended December 31, 2023

	Preferred Shares	Common Shares	Retained Earnings	Total Equity
Jan 1, 2023, opening balance	$ 5,000	$ 15,000	$ 80,000	$100,000
Additional shares issued	5,000	5,000		10,000
Dividends declared			(12,000)	(12,000)
Net income			20,000	20,000
Dec 31, 2023, closing balance	$ 10,000	$ 20,000	$ 88,000	$118,000

Summary of Chapter 10 Learning Objectives

LO1 – Identify and explain characteristics of the corporate form of organization and classes of shares.

A corporation is a legal entity that is separate from its owners, known as shareholders. The board of directors is responsible for corporate policy and broad direction of the corporation, including hiring the person in charge of day-to-day operations. A corporation has an indefinite life, its shareholders have limited liability, it can acquire capital more easily than a sole proprietorship or partnership, and it pays income taxes on its earnings since it is a separate legal entity. A corporation can issue common and preferred shares. Common shares have voting rights while preferred shares do not. Preferred shares are listed before common shares in the equity section of the balance sheet. Preferred shareholders are entitled to receive dividends before common shareholders. Authorized shares are the total number of shares that can be issued or sold. Shares that have been issued can be repurchased by the corporation and either held in treasury for subsequent sale/distribution or cancelled. Outstanding shares are those that have been issued and are held by shareholders. Shares repurchased by a corporation are not outstanding shares.

LO2 – Record and disclose preferred and common share transactions including share splits.

Common and preferred shares can be issued for cash or other assets. Organization costs are expensed when incurred and organizers sometimes accept shares in lieu of cash for their work in organizing the corporation. When more than one type of share has been issued, the equity section of the balance sheet must be classified by including a Contributed Capital section. When a corporations shares are selling at a high price, a share split may be declared to increase the marketability of the shares. There is no journal entry for a share split. Instead, a memorandum entry is entered into the records detailing the split. A share split increases the number of shares but does not change any of the dollar amounts on the financial statements.

LO3 – Record and disclose cash dividends.

Cash dividends are a distribution of earnings to the shareholders and are declared by the board of directors. On the declaration date, cash dividends declared (or retained earnings) is debited and dividends payable is credited. On the date of record, no journal entry is recorded. Shareholders who hold shares on the date of record are eligible to receive the declared dividend. On the date of payment, dividends payable is debited and cash is credited. Preferred shares may have a feature known as cumulative or non-cumulative. Cumulative preferred shares accumulate undeclared dividends from one year to the next. These unpaid dividends are called dividends in arrears. When dividends are subsequently declared, dividends in arrears must be paid before anything is paid to the other shareholders. Non-cumulative preferred shares do not accumulate undeclared dividends.

LO4 – Record and disclose share dividends.

Share dividends distribute additional shares to shareholders and are declared by the board of directors. On the declaration date, share dividends declared (or retained earnings) is debited and common share dividends distributable, a share capital account, is credited. When the share dividend is distributed to shareholders, the Common Share Dividends Distributable account is debited and common shares is credited. Share dividends cause an increase in the number of shares issued and outstanding but do not affect account balances. Share dividends simply transfer an amount from retained earnings to share capital within the equity section of the balance sheet.

LO5 – Calculate and explain the book value per share ratio.

The book value of a share is the amount of net assets represented by one share. Book value per common share is the amount of net assets not claimed by creditors and preferred shareholders. Preferred book value per share is the net assets that preferred shareholders would receive if the corporation were liquidated.

Chapter 11

The Statement of Cash Flows

Details about the amount of cash received and paid out during an accounting period are not shown on the balance sheet, income statement, or statement of changes in equity. This information is disclosed on the statement of cash flows (SCF). This chapter discusses the purpose of the statement of cash flows, the steps in preparing the SCF, as well as how to interpret various sections of the statement of cash flows.

Chapter 11 Learning Objectives  Watch video

LO1 – Explain the purpose of the statement of cash flows.

LO2 – Prepare a statement of cash flows.

LO3 – Interpret a statement of cash flows.

Concept Self-Check

Use the following as a self-check while working through Chapter 11.

1. What is the definition of cash and cash equivalents?
2. Why is a statement of cash flows prepared?
3. What are the three sections of a statement of cash flows?
4. What two methods can be used to prepare the operating activities section of the statement of cash flows?
5. Why is depreciation expense an adjustment in the operating activities section of the statement of cash flows?
6. Where are dividend payments listed on the statement of cash flows?
7. In what section of the statement of cash flows are the cash proceeds resulting from the sale of a non-current asset listed?
8. Where on the statement of cash flows is a long-term bank loan payment identified?

NOTE: The purpose of these questions is to prepare you for the concepts introduced in the chapter. Your goal should be to answer each of these questions as you read through the chapter. If, when you complete the chapter, you are unable to answer one or more the Concept Self-Check questions, go back through the content to find the answer(s). Solutions are not provided to these questions.

11.1 Financial Statement Reporting  Watch video

LO1 – Explain the purpose of the statement of cash flows.

Cash flow is an important factor in determining the success or failure of a corporation. It is quite possible for a profitable business to be short of cash. As discussed in Chapter 7, a company can have liquidity issues because of large amounts of cash tied up in inventory and accounts receivable, for instance. Conversely, an unprofitable business might have sufficient cash to pay its bills if it has access to enough financing from loans or by issuing share capital.

We know that the financial activities of a corporation are reported through four financial statements: a balance sheet, an income statement, a statement of changes in equity, and a statement of cash flows (SCF). Statement of cash flowsThis chapter discusses the statement of cash flows in detail.

The SCF identifies the sources (inflows) and uses (outflows) of cash during the accounting period. It explains why the cash balance at the end of the accounting period is different from that at the beginning of the period by describing the enterprise's *financing*, *investing*, and *operating* activities.

Cash flow information is useful to management when making decisions such as purchasing equipment, plant expansion, retiring long-term debt, or declaring dividends. The SCF is useful to external users when evaluating a corporation's financial performance.

The SCF, together with the income statement, provides a somewhat limited means of assessing future cash flows because these statements are based on historical, not prospective data. Nevertheless, the ability to generate cash from past operations is often an important indication of whether the enterprise will be able to meet obligations as they become due, pay dividends, pay for recurring operating costs, or survive adverse economic conditions.

For SCF purposes, cash includes cash and cash equivalents — assets that can be quickly converted into a known amount of cash, such as short-term investments that are not subject to significant risk of changes in value. For our purposes, an investment will be considered a cash equivalent when it has a maturity of three months or less from the date of acquisition.

Because of differences in the nature of each entity and industry, management judgment is required

to determine what assets constitute cash and cash equivalents for a particular firm. This decision needs to be disclosed on the SCF or in a note to the financial statements as shown in the following example:

Note X
Cash and cash equivalents consist of cash on deposit and short-term investments held for the purposes of meeting cash commitments within three months from the balance sheet date. Cash and cash equivalents consist of the following:

	($000s)		
	2024	2023	2022
Cash on Deposit	$20	$30	$50
Short-term Investments	36	31	37
	$56	$61	$87

For simplicity, examples throughout this chapter involving cash and cash equivalents will include only cash.

Cash flows result from a wide variety of a corporation's activities as cash is received and disbursed over a period of time. Because the income statement is based on accrual accounting that matches expenses with revenues, net income most often does not reflect cash receipts and disbursements during the time period they were made. As we will see, the statement of cash flows converts accrual net income to a cash basis net income.

11.2 Preparing the Statement of Cash Flows  Watch video

LO2 – Prepare a statement of cash flows.

The general format for a SCF is shown in Figure 11.1. The SCF details the cash inflows and outflows that caused the beginning of the period cash account balance to change to its end of period balance.

Name of Company
Statement of Cash Flows
For the Period Ended

Cash flows from operating activities:		
[Each operating inflow/outflow is listed]		
Net cash inflow/outflow from operating activities	$	XX
Cash flows from investing activities:		
[Each investing inflow/outflow is listed]		
Net cash inflow/outflow from investing activities		XX
Cash flows from financing activities:		
[Each financing inflow/outflow is listed]		
Net cash inflow/outflow from financing activities		XX
Net increase/decrease in cash	$	XX
Cash at beginning of period		XX
Cash at end of period	$	XX

Figure 11.1: General Format for a Statement of Cash Flows

Notice that the cash flows in Figure 11.1 are separated into three groups: cash flows from operating, investing, and financing activities. Grouping or classifying cash flows is a key component of preparing a SCF.

Classifying Cash Flows—Operating Activities

Cash flow from operating activities represents cash flows generated from the principal activities that produce revenue for a corporation, such as selling products, and the related expenses reported on the income statement. Because of accrual accounting, the net income reported on the income statement includes noncash transactions. For example, revenue earned on account is included in accrual net income but it does not involve cash (debit accounts receivable and credit revenue). Therefore, the operating activities section of the SCF must convert accrual net income to a cash basis net income. There are two generally accepted methods for preparing the operating activities section of the SCF, namely the direct method and the indirect method. This chapter illustrates the indirect method because it is more commonly used in Canada. The direct method is addressed in a different textbook. Both methods result in the same cash flows from operating activities — it is the way in which the number is calculated that differs. The method used has an impact on only the operating activities section and not on the investing or financing activities sections.

In using the indirect method for preparing the operating activities section, the accrual net income is adjusted for changes in current assets (except cash), current liabilities (except dividends payable), depreciation expense, and gains/losses on the disposition of non-current assets. Figure 11.2 illustrates the effect of these items on the SCF.

Cash flows from operating activities:		
Net income/net loss	$	XX
Adjustments to reconcile net income/loss to cash provided/used by operating activities:		
Add: Decreases in current assets (except Cash)		XX
Subtract: Increases in current assets (except Cash)		XX
Add: Increases in current liabilities (except Dividends payable)		XX
Subtract: Decreases in current liabilities (except Dividends payable)		XX
Add: Depreciation expense		XX
Add: Losses on disposal of non-current assets		XX
Subtract: Gains on disposal of non-current assets		XX
Net cash inflow/outflow from operating activities	$	XX

Figure 11.2: Detailed Adjustments to Convert Accrual Net Income to a Cash Basis

Decreases in current assets are added back as an adjustment to net income because, for example, a decrease in accounts receivable indicates that cash was collected from credit customers (debit cash and credit accounts receivable) yet it is not part of accrual net income, so the cash collected must be added. An increase in accounts receivable indicates that sales on account were recorded (debit accounts receivable and credit sales) so it is part of accrual net income. However, since no cash was collected, this must be subtracted from accrual net income to adjust it to a cash basis.

Increases in current liabilities are added back as an adjustment to net income because, for example, an increase in accounts payable indicates that a purchase/expense was made on account (debit expense and credit accounts payable) so it was subtracted in calculating accrual net income. However, since no cash was paid, this must be added back to accrual net income to adjust it to a cash basis. A decrease in accounts payable indicates that a payment was made to a creditor (debit accounts payable and credit cash) yet it is not part of accrual net income so the cash paid must be subtracted.

Depreciation expense is subtracted in calculating accrual net income. However, an analysis of the journal entry shows that no cash was involved (debit depreciation expense and credit accumulated depreciation), so it must be added back to adjust the accrual net income to a cash basis.

A loss on the disposal of a non-current asset is added back as an adjustment to net income because, in analyzing the journal entry when losses occur (e.g., debit cash, debit loss, credit land), the loss represents the difference between the cash proceeds and the book value of the non-current asset. Since a loss is subtracted on the income statement and does not represent a cash outflow, it is added back to adjust the accrual net income to a cash basis. The same logic applies for a gain on the disposal of a non-current asset.

Classifying Cash Flows—Investing Activities

Cash flows from investing activities involve increases and decreases in long-term asset accounts. These include outlays for the acquisition of property, plant, and equipment, as well as proceeds from their disposal. Figure 11.3 illustrates the effect of these items on the SCF.

Cash flows from investing activities:		
Cash proceeds from sale of non-current assets	XX	
Cash paid to purchase non-current assets	XX	
Net cash inflow/outflow from investing activities		XX

Figure 11.3: Detail of Inflows/(Outflows) From Investing Activities

Classifying Cash Flows—Financing Activities

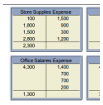
Cash flows from financing activities result when the composition of the debt and equity capital structure of the entity changes. This category is generally limited to increases and decreases in long-term liability accounts and share capital accounts such as common and preferred shares. These include cash flows from the issue and repayment of debt, and the issue and repurchase of share capital. Dividend payments are generally considered to be financing activities, since these represent a return to shareholders on the original capital they invested. Figure 11.4 illustrates the effect of these items on the SCF.

Cash flows from financing activities:		
Cash proceeds from issuance of shares	XX	
Cash paid for repurchase of shares	XX	
Cash proceeds from borrowings	XX	
Cash repayments of borrowings	XX	
Cash paid for dividends	XX	
Net cash inflow/outflow from financing activities		XX

Figure 11.4: Detail of Inflows/(Outflows) From Financing Activities

Classifying Cash Flows—Noncash Investing and Noncash Financing Activities

There are some transactions that involve the direct exchange of non-current balance sheet items so that cash is not affected. For example, noncash investing and noncash financing activities would include the purchase of a non-current asset by issuing debt or share capital, the declaration and issuance of a share dividend, retirement of debt by issuing shares, or the exchange of noncash assets for other noncash assets. Although noncash investing and noncash financing activities do not appear on the SCF, the full disclosure principle requires that they be disclosed either in a note to the financial statements or in a schedule on the SCF.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Cash Flow Statement Categories.

Now, let us demonstrate the preparation of a SCF using the balance sheet, income statement, and statement of changes in equity of Example Corporation shown below.

Example Corporation
Balance Sheet
At December 31
($000s)

	2023	*2022*
Assets		
Current assets		
Cash	$ 27	$ 150
Accounts receivable	375	450
Merchandise inventory	900	450
Prepaid expenses	20	10
Total current assets	1,322	1,060
Property, plant, and equipment		
Land	70	70
Buildings	1,340	620
Less: Accumulated depreciation - buildings	(430)	(280)
Machinery	1,130	920
Less: Accumulated depreciation - machinery	(250)	(240)
Total property, plant, and equipment	1,860	1,090
Total assets	$ 3,182	$ 2,150
Liabilities		
Current liabilities		
Accounts payable	$ 235	$ 145
Dividends payable	25	30
Income taxes payable	40	25
Total current liabilities	300	200
Long-term loan payable	1,000	500
Total liabilities	1,300	700
Equity		
Common shares	1,210	800
Retained earnings	672	650
Total equity	1,882	1,450
Total liabilities and equity	$ 3,182	$ 2,150

Example Corporation
Income Statement
For the Year Ended December 31, 2023
($000s)

Sales		$ 1,200
Cost of goods sold		674
Gross profit		526
Operating expenses		
Selling, general, and administration	$ 115	
Depreciation	260	375
Income from operations		151
Other revenues and expenses		
Interest expense	26	
Loss on disposal of machinery	10	36
Income before income taxes		115
Income taxes		35
Net Income		$ 80

Example Corporation
Statement of Changes in Equity
For the Year Ended December 31, 2023
($000s)

	Share Capital	*Retained Earnings*	*Total Equity*
Opening balance	$ 800	$ 650	$ 1,450
Common shares issued	410	-	410
Net income	-	80	80
Dividends declared	-	(58)	(58)
Ending balance	$ 1,210	$ 672	$ 1,882

The SCF can be prepared from an analysis of transactions recorded in the Cash account. Accountants summarize and classify these cash flows on the SCF for the three major activities noted earlier, namely operating, investing, and financing. To aid our analysis, the following list of additional information from the records of Example Corporation will be used.

Additional Information

1. A building was purchased for $720 cash.
2. Machinery was purchased for $350 cash.
3. Machinery costing $140 with accumulated depreciation of $100 was sold for $30 cash.
4. Total depreciation expense of $260 was recorded during the year; $150 on the building and $110 on the machinery.
5. Example Corporation received $500 cash from issuing a long-term loan with the bank.

6. Shares were issued for $410 cash.
7. $58 of dividends were declared during the year.

Analysis of Cash Flows

There are different ways to analyze cash flows and then prepare the SCF; only one of those techniques will be illustrated here using the following steps.

1. Set up a cash flow table.
2. Calculate the changes in each balance sheet account.
3. Calculate and analyze the changes in retained earnings and dividends payable (if there is a Dividends Payable account).
4. Calculate and analyze the changes in the noncash current assets and current liabilities (excluding Dividends Payable account).
5. Calculate and analyze changes in non-current asset accounts
6. Calculate and analyze changes in Long-term Liability and Share Capital accounts.
7. Reconcile the analysis.
8. Prepare a statement of cash flows.

Step 1: Set up a cash flow table

Set up a table as shown below with a row for each account shown on the balance sheet. Enter amounts for each account for 2022 and 2023. Show credit balances in parentheses. Total both columns and ensure they equal zero. The table should appear as follows after this step has been completed:

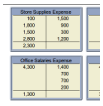
Account	*Balance ($000s) 2023 Dr. (Cr.)*	*2022 Dr. (Cr.)*
Cash	27	150
Accounts receivable	375	450
Merchandise inventory	900	450
Prepaid expenses	20	10
Land	70	70
Buildings	1,340	620
Accum. dep.- buildings	(430)	(280)
Machinery	1,130	920
Accum. dep.- machinery	(250)	(240)
Accounts payable	(235)	(145)
Dividends payable	(25)	(30)
Income taxes payable	(40)	(25)
Long-term loan payable	(1,000)	(500)
Share capital	(1,210)	(800)
Retained earnings	(672)	(650)
Total	-0-	-0-

Step 2: Calculate the change in cash

Add two columns to the cash flow table. Calculate the net debit or net credit change in cash and insert this change in the appropriate column. This step is shown below.

	Balance ($000s)		Step 2 Change	
Account	*2023 Dr. (Cr.)*	*2022 Dr. (Cr.)*	*Dr.*	*Cr.*
Cash	**27**	**150**		**123**
Accounts receivable	375	450		
Merchandise inventory	900	450		
Prepaid expenses	20	10		
Land	70	70		
Buildings	1,340	620		
Accum. dep. – buildings	(430)	(280)		
Machinery	1,130	920		
Accum. dep. – machinery	(250)	(240)		
Accounts payable	(235)	(145)		
Dividends payable	(25)	(30)		
Income taxes payable	(40)	(25)		
Long-term loan payable	(1,000)	(500)		
Share capital	(1,210)	(800)		
Retained earnings	(672)	(650)		
Total	-0-	-0-		

Cash has decreased by $123k. This is the amount that the SCF analysis must reconcile to.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Cash Balance.

Step 3: Calculate and analyze the changes in retained earnings and dividends payable (if there is a Dividends Payable account)

When we calculate the changes for each of retained earnings and dividends payable, the net difference may not always reflect the causes for change in these accounts. For example, the net difference between the beginning and ending balances in retained earnings is an increase of $22 thousand. However, two things occurred to cause this net change: a net income of $80 thousand (a debit to income summary and a credit to retained earnings) and dividends of $58 thousand that were declared during the year per the additional information (a debit to retained earnings of $58k and a credit to dividends payable of $58k). ***The net income of $80 thousand is the starting position in the operating activities section of the SCF (see Figure 11.5).***

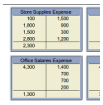
The change in the dividends payable balance was also caused by two transactions — the dividend declaration of $58 thousand (a debit to retained earnings and a credit to dividends payable) and a $63 thousand payment of dividends (a debit to dividends payable and a credit to cash).

The $63 thousand cash payment is subtracted in the financing activities section of the SCF (see Figure 11.5). Dividends payable can change because of two transactions, as in this example, or because of one transaction, which could be either a dividend declaration with no payment of cash, or a payment of the dividend payable and no dividend declaration. Step 3 as it applies to Example Corporation is detailed below.

During 2023, dividends of $58k were declared (this information was given). The beginning balance of $30k plus $58k means $63k were paid, creating the ending balance of $25k (the $63k was not given so had to be calculated and results in a debit to dividends payable). The payment of $63k of dividends is a financing activity.

	Balance ($000s)		Step 3 Change	
Account	*2023 Dr. (Cr.)*	*2022 Dr. (Cr.)*	*Dr.*	*Cr.*
Cash	27	150		123
Accounts receivable	375	450		75
Merchandise inventory	900	450	450	
Prepaid expenses	20	10	10	
Land	70	70		
Buildings	1,340	620		
Accum. dep. – buildings	(430)	(280)		
Machinery	1,130	920		
Accum. dep. – machinery	(250)	(240)		
Accounts payable	(235)	(145)		90
Dividends payable	**(25)**	**(30)**	**63**	**58**
Income taxes payable	(40)	(25)		15
Long-term loan payable	(1,000)	(500)		
Share capital	(1,210)	(800)		
Retained earnings	**(672)**	**(650)**	**58**	**80**
Total	-0-	-0-		

During 2023, net income of $80k was earned. The beginning balance in retained earnings of $650k plus net income of $80 means $58k of dividends were declared, creating the $672k ending retained earnings balance.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Net income/loss and Dividends Paid.

Step 4: Calculate and analyze the changes in the noncash current assets and current liabilities (excluding Dividends Payable account)

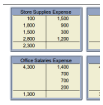
Calculate the net debit or net credit changes for each current asset and current liability account on the balance sheet and insert these changes in the appropriate column. Step 4 as it applies to Example Corporation is detailed below. ***The $75 thousand decrease in accounts receivable is added in the operating activities section of the SCF, the $450 thousand increase in merchandise inventory is subtracted, the $10 thousand increase in prepaid expenses is subtracted, the $90***

thousand increase in accounts payable is added, and the $15 thousand increase in income taxes payable is added (see Figure 11.5).

	Balance ($000s)		Step 4 Change	
Account	*2023 Dr. (Cr.)*	*2022 Dr. (Cr.)*	*Dr.*	*Cr.*
Cash	27	150		123
Accounts receivable	**375**	**450**		**75**
Merchandise inventory	**900**	**450**	**450**	
Prepaid expenses	**20**	**10**	**10**	
Land	70	70		
Buildings	1,340	620		
Accum. dep. – buildings	(430)	(280)		
Machinery	1,130	920		
Accum. dep. – machinery	(250)	(240)		
Accounts payable	**(235)**	**(145)**		**90**
Dividends payable	(25)	(30)		
Income taxes payable	**(40)**	**(25)**		**15**
Long-term loan payable	(1,000)	(500)		
Share capital	(1,210)	(800)		
Retained earnings	(672)	(650)		
Total	-0-	-0-		

The net change in each of accounts receivable, merchandise inventory, and prepaid expenses are classified as operating activities.

The net change in each of accounts payable and income taxes payable are classified as operating activities.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Cash Flows from Operating Activities.

Step 5: Calculate and analyze changes in non-current asset accounts

Changes in non-current assets are classified as investing activities. There was no change in the Land account. We know from the additional information provided that buildings and machinery were purchased and that machinery was sold.

Buildings were purchased for $720 thousand (a debit to buildings and a credit to cash). ***The cash payment of $720 thousand is shown in the investing activities section (see Figure 11.5)***.

Accumulated depreciation–buildings is a non-current asset account and it increased by $150 thousand. This change was caused by a debit to depreciation expense and a credit to accumulated depreciation–building. We know from an earlier discussion that depreciation expense is an ad-

justment in the operating activities section of the SCF therefore ***the $150 thousand is added in the operating activities section (see Figure 11.5)***.

Two transactions caused machinery to change. First, the purchase of $350 thousand of machinery (debit machinery and credit cash); ***the $350 thousand cash payment is shown in the investing activities section (see Figure 11.5).*** Second, machinery costing $140 thousand with accumulated depreciation of $100 thousand was sold for cash of $30 thousand resulting in a loss of $10 thousand. ***The cash proceeds of $30 thousand is shown in the investing activities section of the SCF and the $10 thousand loss is added in the operating activities section (see Figure 11.5).***

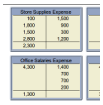
Accumulated depreciation–machinery not only decreased $100 thousand because of the sale of machinery but it increased by $110 thousand because of depreciation (debit depreciation expense and credit accumulated depreciation–machinery). ***The $110 thousand of depreciation expense is added in the operating activities section of the SCF (see Figure 11.5).***

Total depreciation expense of $260k was recorded during the year; $150k on the building and $110k on the machinery, an adjustment under operating activities on the SCF.

		Balance ($000s)		Step 5 Change	
	Account	2023 Dr. (Cr.)	2022 Dr. (Cr.)	Dr.	Cr.
	Cash	27	150		123
	Accounts receivable	375	450		75
	Merchandise inventory	900	450	450	
	Prepaid expenses	20	10	10	
	Land	**70**	**70**	**-0-**	
	Buildings	**1,340**	**620**	**720**	
→	**Accum. dep. – buildings**	**(430)**	**(280)**		**150**
	Machinery	**1,130**	**920**	**350**	**140**
→	**Accum. dep. – machinery**	**(250)**	**(240)**	**100**	**110**
	Accounts payable	(235)	(145)		90
	Dividends payable	(25)	(30)	5	
	Income taxes payable	(40)	(25)		15
	Long-term loan payable	(1,000)	(500)		
	Share capital	(1,210)	(800)		
	Retained earnings	(672)	(650)		
	Total	-0-	-0-		

A building was purchased for cash of $720k, an investing activity.

Machinery costing $140k with accum. dep. of $100k was sold for cash of $30k, an investing activity.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Investing Activities.

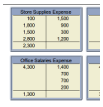
Step 6: Calculate and analyze changes in Long-term Liability and Share Capital accounts

Changes in Long-term Liability and Share Capital accounts result from financing activities. We know from the additional information provided earlier that Example Corporation received cash of $500k from a bank loan (debit cash and credit long-term loan payable) and issued shares for $410k cash (debit cash and credit share capital). ***The $500 thousand cash proceeds from the bank loan and $410 thousand cash proceeds from the issuance of shares are listed in the financing section of the SCF (see Figure 11.5)***.

			Step 6	
	Balance ($000s)		*Change*	
Account	*2023 Dr. (Cr.)*	*2022 Dr. (Cr.)*	*Dr.*	*Cr.*
Cash	27	150		123
Accounts receivable	375	450		75
Merchandise inventory	900	450	450	
Prepaid expenses	20	10	10	
Land	70	70	-0-	
Buildings	1,340	620	720	
Accum. dep. – buildings	(430)	(280)		150
Machinery	1,130	920	350	140
Accum. dep. – machinery	(250)	(240)	100	110
Accounts payable	(235)	(145)		90
Dividends payable	(25)	(30)	5	
Income taxes payable	(40)	(25)		15
Long-term loan payable	**(1,000)**	**(500)**		**500**
Share capital	**(1,210)**	**(800)**		**410**
Retained earnings	(672)	(650)	58	80
Total	-0-	-0-		

Shares were issued for cash of $410k, a financing activity.

$500k of cash was received because of an additional bank loan, a financing activity.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Financing Activities.

Step 7: Reconcile the analysis

The analysis is now complete. Add the debit and credit changes, excluding the change in cash. The total debits of $1,693 less the total credits of $1,570 equal a difference of $123 which reconciles to the decrease in cash calculated in Step 2.

	Balance ($000s)		Step 7 Change	
Account	*2023 Dr. (Cr.)*	*2022 Dr. (Cr.)*	*Dr.*	*Cr.*
Cash	27	150		**123**
Accounts receivable	375	450		75
Merchandise inventory	900	450	450	
Prepaid expenses	20	10	10	
Land	70	70	-0-	
Buildings	1,340	620	720	
Accum. dep. – buildings	(430)	(280)		150
Machinery	1,130	920	350	140
Accum. dep. – machinery	(250)	(240)	100	110
Accounts payable	(235)	(145)		90
Dividends payable	(25)	(30)	5	
Income taxes payable	(40)	(25)		15
Long-term loan payable	(1,000)	(500)		500
Share capital	(1,210)	(800)		410
Retained earnings	(672)	(650)	58	80
Total	-0-	-0-	**1,693**	**1,570**
Change in cash				**123**

The change in cash calculated in Step 2…

…must agree to the change in cash resulting from the analysis.

The information in the completed analysis can be used to prepare the statement of cash flows shown in Figure 11.5.

Example Corporation
Statement of Cash Flows
For the Year Ended December 31, 2023
($000s)

Cash flows from operating activities:		
Net income		$ 80
Adjustments to reconcile net income cash provided by operating activities:		
Decrease in accounts receivable		75
Increase in merchandise inventory		(450)
Increase in prepaid expenses		(10)
Increase in accounts payable		90
Increase in income taxes payable		15
Depreciation expense		260
Loss on disposal of machinery		10
Net cash inflow from operating activities		$ 70
Cash flows from investing activities:		
Proceeds from sale of machinery	30	
Purchase of building	(720)	
Purchase of machinery	(350)	
Net cash outflow from investing activities		(1,040)
Cash flows from financing activities:		
Payment of dividends	(63)	
Proceeds from bank loan	500	
Issuance of shares	410	
Net cash inflow from financing activities		847
Net decrease in cash		$ (123)
Cash at beginning of year		150
Cash at end of year		$ 27

Figure 11.5: Statement of Cash Flows for Example Corporation

11.3 Interpreting the Statement of Cash Flows  Watch video

LO3 – Interpret a statement of cash flows.

Readers of financial statements need to know how cash has been used by the enterprise. The SCF provides external decision makers such as creditors and investors with this information. The statement of cash flows provides information about an enterprise's financial management policies and practices. It also may aid in predicting future cash flows, which is an important piece of information for investors and creditors.

The *quality* of earnings as reported on the income statement can also be assessed with the information provided by the SCF. The measurement of net income depends on a number of accruals and allocations that may not provide clear information about the cash-generating power of a company. Users will be more confident in a company with a high correlation between cash provided by

operations and net income measured under the accrual basis. Recall, for instance, that although Example Corporation has net income of $80,000 during 2023, its net cash inflow from operations is only $70,000, chiefly due to the large increase in inventory levels. Although net cash flow from operations is still positive, this discrepancy between net income and cash flow from operations may indicate looming cash flow problems, particularly if the trend continues over time.

Example Corporation's SCF also reveals that significant net additions to plant and equipment assets occurred during the year ($1,070,000), financed in part by cash flow from operating activities but primarily by financing activities. These activities included the assumption of loans and issue of shares that amounted to $847,000, net of dividend payments ($500,000 from issuing a long-term loan plus $410,000 from issuing shares less $63,000 for payment of dividends).

It appears that a significant plant and equipment asset acquisition program may be underway, which may affect future financial performance positively. This expansion has been financed mainly by increases in long-term debt and the issuance of common shares. However, the magnitude of the plant and equipment asset purchases, coupled with the payment of the dividends to shareholders, has more than offset cash inflows from operating and financing activities, resulting in a net overall decrease in cash of $123,000. Though the current cash expenditure on long-term productive assets may be a prudent business decision, it has resulted in (hopefully temporary) adverse effects on overall cash flow.

The SCF is not a substitute for an income statement prepared on the accrual basis. Both statements should be used to evaluate a company's financial performance. Together, the SCF and income statement provide a better basis for determining the enterprise's ability to generate funds from operations and thereby meet current obligations when they fall due (liquidity), pay dividends, meet recurring operating costs, survive adverse economic conditions, or expand operations with internally-generated cash.

The SCF highlights the amount of cash available to a corporation, which is important. Excess cash on hand is unproductive. Conversely, inadequate cash decreases liquidity. Cash is the most liquid asset, and its efficient use is one of the most important tasks of management. Cash flow information, interpreted in conjunction with other financial statement analyses, is useful in assessing the effectiveness of the enterprise's cash management policies.

Readers who wish to evaluate the financial position and results of an enterprise's operations also require information on cash flows produced by investing and financing activities. The SCF is the only statement that explicitly provides this information. By examining the relationship among the various sources and uses of cash during the year, readers can also focus on the effectiveness of management's investing and financing decisions and how these may affect future financial performance.

11.4 Appendix A: Putting It All Together: Corporate Financial Statements

Watch video

The core financial statements connect to complete an overall picture of the company's operations and its current financial state. It is important to understand how these reports connect; therefore, a review of some simplified financial statements for Wellbourn Services Ltd. is presented below.

Wellbourn Services Ltd.
Statement of Income
for the year ended December 31, 2023

Revenues:		
Sales	$ 250,000	
Services revenue	53,000	
Total revenue		$ 303,000
Operating expenses:		
Cost of good sold	100,000	
Depreciation expense	3,000	
Rent expense	20,000	
Salaries expense	65,000	
Total operating expense		188,000
Income from continuing operations before tax		115,000
Income tax		34,500
Net income		$ 80,500
Earnings per share		$ 24

Wellbourn Services Ltd.
Statement of Changes in Equity
for the year ended December 31, 2023

	Common Shares	Retained Earnings	Total
Balance, January 1	$200,000	$75,000	$275,000
Net income		80,500	80,500
Issuance of common shares	10,000		10,000
Dividends declared		(50,000)	(50,000)
Balance, December 31	$210,000	$105,500	$315,500

Wellbourn Services Ltd.
Statement of Financial Position
December 31, 2023

Assets		Liabilities	
Current assets		Current liabilities	
Cash	$135,500	Accounts payable	$ 77,500
Accounts receivable (net)	225,000	Accrued liabilities	225,000
Inventory	130,000	Total current liabilities	302,500
Total current assets	490,500	Bonds payable	160,000
Investments	100,000	Total liabilities	462,500
Property, plant, and equipment (net)	172,500	Equity	
Intangible assets	15,000	Common shares	210,000
Total assets	$778,000	Retained earnings	105,500
		Total equity	315,500
		Liabilities and equity	$778,000

Wellbourn Services Ltd.
Statement of Cash Flows
for the year ended December 31, 2023

Cash flows from operating activities		
Net income	$ 80,500	
plus: Depreciation	3,000	
Increase in accounts receivable	(50,000)	
Increase in inventory	(34,700)	
Decrease in accounts payable	(20,000)	
Decrease in accrued liabilities	(5,000)	
Net cash used by operating activities		(26,200)
Cash flows from investing activities		
Purchase of equipment	(25,000)	
Net cash used by investing activities		(25,000)
Cash flows from financing activities		
Dividends paid	(50,000)	
Issued bonds	160,000	
Net cash received by financing activities		110,000
Net increase in cash		58,800
Cash balance, January 1		76,700
Cash balance, December 31		$135,500

As can be seen from the flow of the numbers above, the net income from the statement of income is closed to retained earnings.

The statement of changes in equity total column flows to the equity section of the balance sheet. Finally, the **statement of cash flows** (SCF) ending cash balance must be equal to the cash ending balance reported in the balance sheet, which completes the loop of interconnecting accounts and amounts.

Statement of Income with Discontinued Operations

Single-step and Multiple-step Statement of Income

Companies can choose whichever format best suits their reporting needs. Smaller companies tend to use the simpler single-step format, while larger companies tend to use the multiple-step format.

The Wellbourn Services Ltd. statement of income, shown earlier, is an example of a typical **single-step** income statement. For this type of statement, revenue and expenses are each reported in the two sections for continuing operations. Discontinued operations are separately reported below the continuing operations. The separate disclosure and format for the discontinued operations section is a reporting requirement and is discussed and illustrated below. The single-step format makes the statement simple to complete and keeps sensitive information out of the hands of competitive companies, but provides little in the way of analytical detail.

The **multiple-step** income statement format provides much more detail. Below is an example of a multiple-step statement of income for Toulon Ltd. for the year ended December 31, 2023.

Multiple-step format - typical sections and subtotals:

Heading

Toulon Ltd.
Statement of Income
for the year ended December 31, 2023

In $000's except per share amounts	2023	2022
Gross profit section with subtotal — Sales	$6,260	$5,008
Cost of goods sold	2,500	1,750
Gross profit	3,760	3,258
Operating expenses with subtotal — Operating expenses		
Salaries and benefits expense	650	520
Depreciation expense	35	20
Travel and entertainment expense	150	120
Advertising expense	55	45
Freight-out expenses	10	8
Supplies and postage expense	5	4
Telephone and internet expense	15	12
Legal and professional expenses	8	6
Insurance expense	6	5
	934	740
Income from operations	2,826	2,518
Non-operationing section with subtotal — Other revenue and expense		
Interest income from investments	5	5
Gain from sale of trade investments	4	0
Interest expense	(2)	(3)
	7	2
Income from continuing operations before income tax	2,833	2,520
Income tax expense → Income tax expense	850	680
Subtotal from continuing operatings → Income from continuing operations	1,983	1,840
Discontinued — Discontinued operations		
Loss from disposal of division (net of tax of $63,000)	(147)	0
	(147)	0
Net income (profit or loss) — Net income	1,836	1,840
Earnings per share — Basic earnings per share		
Continuing operations	$16.32	$13.25
Discontinued operations	(1.21)	0

The multiple-step format with its section subtotals makes performance analysis and ratio calculations such as gross profit margins easier to complete and makes it easier to assess the company's future earnings potential. The multiple-step format also enables investors and creditors to evaluate company performance results from continuing and ongoing operations having a high predictive value separately, compared to non-operating or unusual items having little predictive value.

Operating Expenses

As discussed in an earlier chapter, expenses from operations can be reported by their nature and, optionally, by function. **Expenses by nature** relate to the type of expense or the source of expense such as salaries, insurance, advertising, travel and entertainment, supplies expense, depreciation and amortization, and utilities expense, to name a few. The statement for Toulon Ltd. is an example of reporting expenses by nature.

Expenses by function relate to how various expenses are incurred within the various departments and activities of a company such as selling and administrative expenses.

The sum of all the revenues, expenses, gains, and losses to this point represents the **income or loss from continuing operations**. This is a key component used in performance analysis.

Income Tax Allocations

This is the process of allocating income tax expense to various categories within the statement of income such as income from continuing operations before taxes and discontinued operations. The purpose of these allocations is to make the information within the statements more informative and complete. For example, Toulon's statement of income for the year ending December 31, 2023, allocates tax at a rate of 30% to the following:

- Income from continuing operations of $850,000 ($2,833,000 $\times$ 30%)
- Loss from disposal of discontinued operations of $63,000

Discontinued operations

Sometimes companies will sell or shut down certain business operations because the operating segment is no longer profitable, or they may wish to focus their resources on other business operations. Examples are a major business line or geographical area. If the discontinued operation has not yet been sold, then *there must be a formal plan in place to dispose of the component within one year and to report it as a discontinued operation*.

The items reported in this section of the statement of income are to be reported net of tax, with the tax amount disclosed.

Earnings per Share

Basic earnings per share represent the amount of income attributable to each outstanding common share, as shown in the calculation below:

$$\text{Basic earnings per share (EPS)} = \frac{\text{Net income} - \text{preferred dividends}}{\text{Number of common shares outstanding}}$$

The earnings per share amounts are not required for private companies. This is because ownership of privately owned companies is often held by only a few investors, compared to publicly-traded companies where shares are held by many investors.

Basic earnings per share are to be reported on the face of the statement of income as follows:

- Basic EPS from continuing operations
- Basic EPS from discontinued operations, if any

If the outstanding common shares for Toulon was 121,500, the EPS from continuing operations would be $16.32 (1,983,000÷121,500) and $(1.21) from discontinued operations ($147,000 loss÷121,500), as reported in their statement above. There is also a requirement to report diluted EPS but this is beyond the scope of this course.

11.5 Appendix B: Statement of Cash Flows – Direct Method

The Importance of Cash Flow – For Better, For Worse, For Richer, For Poorer…

A business is a lot like a marriage. It takes work to make it succeed. One of the keys to business success is managing and maintaining adequate cash flows. In the field of financial management, there is an old saying that *revenue is vanity, profits are sanity, but cash is king*. In other words, a firm's revenues and profits may look spectacular, but this does not guarantee there will be cash in the bank. Without cash, a business cannot pay its bills and it will ultimately not survive.

Let's take a look at the distinctions between revenue and profits, and cash, using a numeric example for a new business:

Income Statement		Cash Flows	
Revenue*	$1,000,000	Revenue (cash received)	$ 400,000
Cost of goods sold**	(500,000)	Cost of goods sold (paid in cash)	(300,000)
Gross profit	500,000	Net cash	100,000
Operating expenses***	200,000	Operating expenses (paid in cash)	90,000
Net income/net profit	$ 300,000	Net cash	$ 10,000

* Sales of $400,000 were paid in cash

** Purchases of $300,000 were paid in cash

*** Operating expenses of $90,000 were cash paid

Revenue is reported in the income statement as $1 million which is a sizeable amount, but only $400,000 was cash paid by customers. (The rest is reported as accounts receivable.) Gross profit

is reported in the income statement as $500,000. This is also a respectable number, but only $100,000 translates into a positive cash flow, because only some of the inventory purchases were paid in cash. (The rest of the inventory is reported as accounts payable.) The company must still pay some of its operating expenses, leaving only $10,000 cash in the bank.

When investors and creditors review the income statement, they will see $1 million in revenue with gross profits of one-half million or 50%, and a respectable net income of $300,000 or 30% of revenue. They could conclude that this looks pretty good for the first year of operations and incorrectly assume that the company now has $300,000 available to spend.

However, lurking deeper in the financial statements is the cash position of the company–the amount of cash left over from this operating cycle. Sadly, there is only $10,000 cash in the bank, so the company cannot even pay its remaining accounts payable in the short term. So, how can management keep track of its cash?

The statement of cash flows is the definitive financial statement to bridge the gaps between revenues and profits, and cash. Therefore, it is vital to understand the statement of cash flows.

As cash is generally viewed by many as the most critical asset to success, this appendix will focus on how to correctly prepare and interpret the statement of cash flows using the direct method.

For example, below is the statement of cash flows using the direct method for the year ended December 31, 2023 for Wellbourn Services Ltd. at December 31, 2023.

Wellbourn Services Ltd.
Statement of Financial Position
December 31, 2023

Assets		Liabilities	
Current assets		Current liabilities	
Cash	$135,500	Accounts payable	$ 77,500
Accounts receivable (net)	225,000	Accrued liabilities	225,000
Inventory	130,000	Total current liabilities	302,500
Total current assets	490,500	Bonds payable	160,000
Investments	100,000	Total liabilities	462,500
Property, plant, and equipment (net)	246,000	Equity	
Intangible assets	15,000	Share capital	210,000
Total assets	$851,500	Contributed surplus	25,000
		Retained earnings	105,500
		Accum. Other Comp. Income(AOCI)	48,500
		Total equity	389,000
		Liabilities and equity	$851,500

Wellbourn Services Ltd.
Statement of Cash Flows
For the year ended December 31, 2023

Cash flows from operating activities		
Cash received from sales	$ 50,000	
Cash paid for goods and services	(25,000)	
Cash paid to or on behalf of employees	(51,200)	
Net cash flows from operating activities		(26,200)
Cash flows from investing activities		
Purchase of equipment	(25,000)	
Net cash flows from investing activities		(25,000)
Cash flows from financing activities		
Dividends paid	(50,000)	
Issued bonds	160,000	
Net cash flows from financing activities		110,000
Net increase in cash		58,800
Cash balance, January 1		76,700
Cash balance, December 31		$135,500

Note how Wellbourn's ending cash balance of $135,500, from the statement of cash flows for the year ended December 31, matches the ending cash balance in the balance sheet on that date. This is a critical relationship between these two financial statements. The balance sheet provides information about a company's resources (assets) *at a specific point in time*, and whether these resources are financed mainly by debt (current and long-term liabilities) or equity (shareholders' equity). The statement of cash flows identifies how the company utilized its cash inflows and outflows *over the reporting period* and, ultimately, ends with its current cash and cash equivalents balance at the balance sheet date. As well, since the statement of cash flows is prepared on a cash basis, it excludes non-cash accruals like depreciation and interest, making the statement of cash flows harder to manipulate than the other financial statements.

Two methods are used to prepare a statement of cash flows, namely the indirect method and the direct method. The indirect method was discussed earlier in this chapter. Both methods organize the reported cash flows into three activities: operating, investing, and financing. The only difference when applying the direct method is in the operating activities section; the investing and financing sections are prepared exactly the same way for both methods.

For the direct method categories are based on the ***nature*** of the cash flows. With the indirect method the cash flows are based on the income statement and changes in each current asset and liability account, except cash. Below is a comparison of the two methods:

Indirect Method			**Direct Method**		
Cash flows from operating activities:			Cash flows from operating activities:		
Net income	$$		Cash received from sales	$$	
Adjust for non-cash items:			Cash paid for goods and services	($$)	
Depreciation	$$		Cash paid to or on behalf of employees	($$)	
Gain on sale of asset	($$)		Cash received for interest income	$$	
Increase in accounts receivable	($$)		Cash paid for interest	($$)	
Decrease in inventory	$$		Cash paid for income taxes	($$)	
Increase in accounts payable	$$		Cash received for dividends	$$	
Net cash flows from operating activities		$$	Net cash flows from operating activities		$$

The direct method is straightforward due to the grouping of information by nature. This also makes interpretation of the statement easier for stakeholders. However, companies record thousands of transactions every year and many of them do not involve cash. Since the accounting records are kept on an accrual basis, it can be a time-consuming and expensive task to separate and collect the cash-only data required for the direct method categories by nature. Also, reporting on sensitive information, such as cash receipts from customers and cash payments to suppliers, may not be in the best interest of the company in light of competitor companies using the information to their advantage. For these reasons, many companies prefer not to use the direct method, even though IFRS standards prefer its use over the indirect method. Also, the indirect method may be easier to prepare because it collects much of its data directly from the existing income statement and balance sheet. However, it is more difficult to understand because it uses the accounts-based categories as shown above.

11.5.1Preparing a Statement of Cash Flows: Direct Method

As with the indirect method, preparing a statement of cash flows using the direct method is made much easier if specific steps are followed in sequence. Below is a summary of those steps to complete the operating section of the statement of cash flows using the direct method for Watson Ltd:

Watson Ltd.
Partial Balance Sheet
As at December 31, 2023

	2023	2022
Current assets		
Cash	$ 307,500	$ 250,000
Investments – trading	12,000	10,000
Accounts receivable (net)	249,510	165,000
Notes receivable	18,450	22,000
Inventory (LCNRV)	708,970	650,000
Prepaid insurance expenses	18,450	15,000
Total current assets	1,314,880	1,112,000
Current liabilities		
Accounts payable	$ 221,000	$ 78,000
Accrued interest payable	24,600	33,000
Income taxes payable	54,120	60,000
Unearned revenue	25,000	225,000
Current portion of long-term notes payable	60,000	45,000
Total current liabilities	384,720	441,000

Watson Ltd.
Income Statement
For the Year Ended December 31, 2023

Sales	$3,500,000
Cost of goods sold	2,100,000
Gross profit	1,400,000
Operating expenses	
Salaries and benefits expense	800,000
Depreciation expense	43,000
Travel and entertainment expense	134,000
Advertising expense	35,000
Freight-out expense	50,000
Supplies and postage expense	12,000
Telephone and internet expense	125,000
Legal and professional expenses	48,000
Insurance expense	50,000
	1,297,000
Income from operations	103,000
Other revenue and expenses	
Dividend income	3,000
Interest income	2,000
Gain from sale of building	5,000
Interest expense	(3,000)
	7,000
Income from continuing operations before income tax	110,000
Income tax expense	33,000
Net income	$ 77,000

Direct Method Steps:

Step 1. Record headings, categories, and three additional columns into an Operating Activities worksheet as shown below:

Watson Ltd.
Operating Activities

Cash flows from operating activities	I/S Accounts	Changes to Working Capital Accounts	Net Cash Flow In (Out)
Cash received from sales			
Cash paid for goods and services			
Cash paid to employees			
Cash received for interest income			
Cash paid for interest			
Cash paid for income taxes			
Cash received for dividends			
Net cash flows from operating activities			

Step 2. Record each income statement amount into the corresponding direct method category of the Operating Activities worksheet shown below (recall that non-cash items such as depreciation and gains or losses are excluded from a statement of cash flows so they are will be recorded as memo items only):

Watson Ltd. Income Statement For the year ended December 31, 2023			Watson Ltd. Operating Activities			Changes to Working Capital Accounts	Net Cash Flow In (Out)
			Cash flows from operating activities	I/S Accounts			
Sales	$3,500,000	1	Cash received from sales	$ 3,500,000	1		
Cost of goods sold	2,100,000	2	Cash paid for goods and services	(2,100,000)	2		
Gross profit	1,400,000			(134,000)	5		
				(35,000)	6		
Operating expenses				(50,000)	7		
Salaries and benefits expense	800,000	3		(12,000)	8		
Depreciation expense	43,000	4		(125,000)	9		
Travel and entertainment expense	134,000	5		(48,000)	10		
Advertising expense	35,000	6		(50,000)	11		
Freight-out expenses	50,000	7	Cash paid to employees	(800,000)	3		
Supplies and postage expense	12,000	8	Cash received for interest income	2,000	13		
Telephone and internet expense	125,000	9	Cash paid for interest	(3,000)	15		
Legal and professional expenses	48,000	10	Cash paid for income taxes	(33,000)	16		
Insurance expense	50,000	11	Cash received for dividends	3,000	12		
	1,297,000						
Income from operations	103,000						
Other revenue and expenses							
Dividend income	3,000	12					
Interest income from investments	2,000	13					
Gain from sale of building	5,000	14					
Interest expense	(3,000)	15					
	7,000						
Income from continuing operations before income taxes	110,000		*Memo items:*				
Income tax expense	33,000	16	*Depreciation expense*	(43,000)	4		
Net income	77,000		*Gain on sale of building*	5,000	14		
				$ 77,000			
			Net cash flows from operating activities				

Step 3. Calculate the net change amount for each current asset (except cash), and each current liability from the balance sheet below. Record each change amount in the second column of the Operating Activities worksheet:

Watson Ltd.
Balance Sheet
as at December 31, 2023

Calculate change

	2023	2022	Change	
Current assets				
Cash	$ 307,500	$ 250,000		
Investments – trading	12,000	10,000	$ (2,000)	17
Accounts receivable (net)	249,510	165,000	(84,510)	18
Notes receivable	18,450	22,000	3,550	19
Inventory	708,970	650,000	(58,970)	20
Prepaid insurance expenses	18,450	15,000	(3,450)	21
Total current assets	1,314,880	1,112,000		
Current liabilities				
Accounts payable	$ 221,000	$ 78,000	$ 143,000	22
Accrued interest payable	24,600	33,000	(8,400)	23
Income taxes payable	54,120	60,000	(5,880)	24
Unearned revenue	25,000	225,000	(200,000)	25
Current portion of long-term notes payable	60,000	45,000	N/A	
Total current liabilities	384,720	441,000	(216,660)	

Record each change to the corresponding category

Watson Ltd.
Operating Activities

Cash flows from operating activities	I/S Accounts		Changes to Working Capital Accounts		Net Cash Flow In (Out)
Cash received from sales	$ 3,500,000	1	$ (84,510)	18	
			3,550	19	
			(200,000)	25	
Cash paid for goods and services	(2,100,000)	2	(58,970)	20	
	(134,000)	5	(3,450)	21	
	(35,000)	6	143,000	22	
	(50,000)	7			
	(12,000)	8			
	(125,000)	9			
	(48,000)	10			
	(50,000)	11			
Cash paid to employees	(800,000)	3			
Cash received for interest income	2,000	13	(2,000)	17	
Cash paid for interest	(3,000)	15	(8,400)	23	
Cash paid for income taxes	(33,000)	16	(5,880)	24	
Cash received for dividends	3,000	12			
Memo items:					
Depreciation expense	(43,000)	4			
Gain on sale of building	5,000	14			
Net cash flows from operating activities	$ 77,000		$ (216,660)		

Note how items 13 and 17 on the operating activities statement cancel each other out. This is because the interest income was accrued and not actually received in cash. Also note that the current portion of long-term notes was excluded from the operating activities section. Recall from the earlier chapter material on the indirect method that this account is combined with its corresponding long-term note payable account in the financing section of the statement of cash flows.

Step 4. Calculate the net cash flow total for each category and the net cashflow total for the operating activities section. Transfer the amounts to the statement of cash flows, operating activities section:

	Watson Ltd. Operating Activities				↓
Cash flows from operating activities	I/S Accounts		Changes to Working Capital Accounts		Net Cash Flow In (Out)
Cash received from sales	$ 3,500,000	1	$ (84,510)	18	
			3,550	19	
			(200,000)	25	$ 3,219,040
Cash paid for goods and services	(2,100,000)	2	(58,970)	20	
	(134,000)	5	(3,450)	21	
	(35,000)	6	143,000	22	
	(50,000)	7			
	(12,000)	8			
	(125,000)	9			
	(48,000)	10			
	(50,000)	11			(2,473,420)
Cash paid to employees	(800,000)	3			(800,000)
Cash received for interest income	2,000	13	(2,000)	17	0
Cash paid for interest	(3,000)	15	(8,400)	23	(11,400)
Cash paid for income taxes	(33,000)	16	(5,880)	24	(38,880)
Cash received for dividends	3,000	12			3,000
Memo items:					↓
Depreciation expense	(43,000)	4			
Gain on sale of building	5,000	14			
Net cash flows from operating activities	$ 77,000		$ (216,660)		$ (101,660)

The completed portion of the statement of cash flows, operating section is shown below:

Watson Ltd.
Statement of Cash Flows – Operating Activities
For the Year Ended December 31, 2023

Cash flows from operating activities:		
Cash received from sales	$ 3,219,040	
Cash paid for goods and services	(2,473,420)	
Cash paid to or on behalf of employees	(800,000)	
Cash paid for interest	(11,400)	
Cash paid for income taxes	(38,880)	
Cash received for dividends	3,000	
Net cash flows from operating activities		$(101,660)

Summary of Chapter 11 Learning Objectives

LO1 – Explain the purpose of the statement of cash flows.

The statement of cash flows is one of the four financial statements. It highlights the net increase or decrease in the cash and cash equivalents balance during the accounting period, and details the sources and uses of cash that caused that change.

LO2 – Prepare a statement of cash flows.

The operating activities section of the statement of cash flows can be prepared using the direct or indirect method. This textbook focuses only on the indirect method. The result of both methods is identical; it is only how the calculations are performed that differs. The operating activities section begins with accrual net income and, by adjusting for changes in current assets, current liabilities, adding back depreciation expense, and adding back/subtracting losses/gains on disposal of non-current assets, arrives at net income on a cash basis. The investing activities section analyzes cash inflows and outflows from the sale and purchase of non-current assets. The finance activities section details the cash inflows and outflows resulting from the issue and payment of loans, issue and repurchase of shares, and payment of dividends.

LO3 – Interpret a statement of cash flows.

A statement of cash flows contributes to the decision-making process by explaining the sources and uses of cash. The operating activities section can signal potential areas of concern by focusing on differences between accrual net income and cash basis net income. The investing activities

section can highlight if cash is being used to acquire assets for generating revenue, while the financing activities section can identify where the cash to purchase those assets might be coming from. Those who use financial statements can focus on the effectiveness of management's investing and financing decisions and how these may affect future financial performance.

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Chapter 12

Financial Statement Analysis

Financial statements can be used by shareholders, creditors, and other interested parties to analyze a corporation's liquidity, profitability, and financial structure compared to prior years and other similar companies. As part of this analysis, financial evaluation tools are used. Some of these tools are discussed in this chapter.

Chapter 12 Learning Objectives  Watch video

LO1 – Describe ratio analysis, and explain how the liquidity, profitability, leverage, and market ratios are used to analyze and compare financial statements.

LO2 – Describe horizontal and vertical trend analysis, and explain how they are used to analyze financial statements.

Concept Self-Check

Use the following as a self-check while working through Chapter 12.

1. What is working capital?
2. What is meant by *liquidity?*
3. What are some ratios commonly used to evaluate liquidity?
4. What is a company's revenue operating cycle and how is it measured?
5. What profitability ratios can be used to evaluate a corporation?
6. How is the amount of shareholder claims against a corporation's assets compared to the amount of creditor claims?
7. What are the relative advantages of short-term and long-term debt?
8. What are some measures used to evaluate the future financial prospects of a company for investors?
9. What is a *horizontal analysis?* How does it differ from a *vertical analysis?*

10. What is a common-size analysis?

NOTE: The purpose of these questions is to prepare you for the concepts introduced in the chapter. Your goal should be to answer each of these questions as you read through the chapter. If, when you complete the chapter, you are unable to answer one or more the Concept Self-Check questions, go back through the content to find the answer(s). Solutions are not provided to these questions.

12.1 Introduction to Ratio Analysis  Watch video

LO1 – Describe ratio analysis, and explain how the liquidity, profitability, leverage, and market ratios are used to analyze and compare financial statements.

A common way to evaluate financial statements is through **ratio analysis**. A *ratio* is a relationship between two numbers of the same kind. For example, if there are two apples and three oranges, the ratio of the number of apples to the number of oranges is 2:3 (read as "two to three"). A *financial ratio* is a measure of the relative magnitude of two selected numerical values taken from a company's financial statements. For instance, the gross profit percentage studied in Chapter 6, also known as the gross profit ratio, expresses the numerical relationship between gross profit and sales. If a company has a gross profit ratio of 0.25:1, this means that for every $1 of sales, the company earns, on average, $0.25 to cover expenses other than cost of goods sold. Another way of stating this is to say that the gross profit ratio is 25%.[1]

Financial ratios are effective tools for measuring the financial performance of a company because they provide a common basis for evaluation — for instance, the amount of gross profit generated by each dollar of sales for different companies. Numbers that appear on financial statements need to be evaluated in context. It is their relationship to other numbers and the relative changes of these numbers that provide some insight into the financial health of a business. One of the main purposes of ratio analysis is to highlight areas that require further analysis and investigation. Ratio analysis alone will not provide a definitive financial evaluation. It is used as one analytic tool, which, when combined with informed judgment, offers insight into the financial performance of a business.

For example, one business may have a completely different product mix than another company even though both operate in the same broad industry. To determine how well one company is doing relative to others, or to identify whether key indicators are changing, ratios are often compared to *industry averages*. To determine trends in one company's performance, ratios are often compared to past years' ratios of the same company.

[1] Any ratio in the form X:1 can be expressed as a percentage by multiplying both the numerator and denominator by 100. For example, a 0.25:1 ratio would equal 25% $[(0.25 \times 100)/(1 \times 100) = 25/100 = 25\%]$

To perform a comprehensive analysis, qualitative information about the company as well as ratios should be considered. For example, although a business may have sold hundreds of refrigerators last year and all of the key financial indicators suggest growth, qualitative information from trade publications and consumer reports may indicate that the trend will be towards refrigerators using significantly different technologies in the next few years. If the company does not have the capacity or necessary equipment to produce these new appliances, the present positive financial indicators may not accurately reflect the likely future financial performance of the company.

An examination of qualitative factors provides valuable insights and contributes to the comprehensive analysis of a company. An important source of qualitative information is also found in the notes to the financial statements, which are an integral part of the company's financial statements.

In this chapter, financial ratios will be used to provide insights into the financial performance of Big Dog Carworks Corp. (BDCC). The ratios will focus on financial information contained within the income statement, statement of changes in equity, and balance sheet of BDCC for the three years 2022, 2023, and 2024. This information is shown below. Note that figures in these statements are reported in thousands of dollars (000s). ***For consistency, all final calculations in this chapter are rounded to two decimal places.***

Big Dog Carworks Corp.
Balance Sheet
At December 31
($000s)

	2024	2023	2022
Assets			
Current			
Cash	$ 20	$ 30	$ 50
Short-term Investments	36	31	37
Accounts Receivable	544	420	257
Inventories	833	503	361
	1,433	984	705
Property, Plant, and Equipment, net	1,053	1,128	712
Total Assets	$ 2,486	$ 2,112	$ 1,417
Liabilities			
Current			
Borrowings	$ 825	$ 570	$ 100
Accounts Payable	382	295	$ 219
Income Taxes Payable	48	52	$ 50
	1,255	917	369
Equity			
Share Capital	1,063	1,063	963
Retained Earnings	168	132	85
	1,231	1,195	1,048
Total Liabilities and Equity	$ 2,486	$ 2,112	$ 1,417

Big Dog Carworks Corp.
Income Statement
For the Year Ended December 31
($000s)

	2024	*2023*	*2022*
Sales (net)	$ 3,200	$ 2,800	$ 2,340
Cost of Goods Sold	2,500	2,150	1,800
Gross Profit	700	650	540
Operating Expenses			
Selling, General, and Administration	212	183	154
Employee Benefits	113	109	119
Depreciation	75	84	63
	400	376	336
Income from Operations	300	274	204
Financing Costs			
Interest	89	61	-0-
Income Before Income Taxes	211	213	204
Income Taxes	95	96	92
Net Income	$ 116	$ 117	$ 112

Big Dog Carworks Corp.
Statement of Changes in Equity
For the Year Ended December 31
($000s)

	2024			*2023*	*2022*
	Share Capital	*Retained Earnings*	*Total Equity*	*Total Equity*	*Total Equity*
Opening Balance	$1,063	$132	$1,195	$1,048	$ 43
Common Shares Issued				100	953
Net Income		116	116	117	112
Dividends Declared		(80)	(80)	(70)	(60)
Ending Balance	$1,063	$168	$1,231	$1,195	$1,048

Assume that 100,000 common shares are outstanding at the end of 2022, 2023, and 2024. Shares were issued in 2023, but at the end of year the number of outstanding shares was still 100,000.

There are four major types of financial ratios: a) *liquidity ratios* that measure the ability of a corporation to satisfy demands for cash as they arise in the near-term (such as payment of current liabilities); b) *profitability ratios* that measure various levels of return on sales, total assets employed, and shareholder investment; c) *leverage ratios* that measure the financial structure of a corporation, its amount of relative debt, and its ability to cover interest expense; and d) *market ratios* that measure financial returns to shareholders, and perceptions of the stock market about the corporation's value.

Initial insights into the financial performance of BDCC can be derived from an analysis of relative amounts of current and non-current debt. This analysis is addressed in the following sections.

12.2 Liquidity Ratios: Analyzing Short-term Cash Needs  Watch video

Current (Short-term) versus Non-current (Long-term) Debt

Short-term and long-term financing strategies both have their advantages. The advantage of some short-term debt (repayable within one year of the balance sheet date) is that it often does not require interest payments to creditors. For example, accounts payable may not require payment of interest if they are paid within the first 30 days they are outstanding. Short-term debt also has its disadvantages; payment is required within at least one year, and often sooner. Interest rates on short-term debt are often higher than on long-term debt. An increase in the proportion of short-term debt is more risky because it must be renewed and therefore renegotiated more frequently.

The advantages of long-term debt are that payment may be made over an extended period of time. Risk may be somewhat reduced through the use of a formal contractual agreement that is often lacking with short-term debt. The disadvantages of long-term debt are that interest payments must be made at specified times and the amounts owing may be secured by assets of the company.

Analyzing Financial Structure

As a general rule, long-term financing should be used to finance long-term assets. Note that in BDCC's case, property, plant, and equipment assets amount to $1,053,000 at December 31, 2024 yet the firm has no long-term liabilities. This is unusual. An analysis of the company's balance sheet reveals the following:

		(000s)	
	2024	*2023*	*2022*
Current Liabilities	$1,255	$917	$369
Non-current Liabilities	-0-	-0-	-0-

2024 information indicates that BDCC's management relies solely on short-term creditor financing, part of which is $382,000 of accounts payable that may bear no interest and $825,000 of borrowings that also need to be repaid within one year. The risk is that management will likely need to replace current liabilities with new liabilities. If creditors become unwilling to do this, the ability of BDCC to pay its short-term creditors may be compromised. As a result, the company may experience a liquidity crisis — the inability to pay its current liabilities as they come due. The ratios used to evaluate liquidity of a corporation are discussed below.

Even though a company may be earning net income each year (as in BDCC's case), it may still be unable to pay its current liabilities as needed because of a shortage of cash. This can trigger various problems related to current and non-current liabilities and equity.

Current Liabilities

- Creditors can refuse to provide any further goods or services on account.
- Creditors can sue for payment.
- Creditors can put the company into receivership or bankruptcy.

Non-current Liabilities

- Long-term creditors can refuse to lend additional cash.
- Creditors can demand repayment of their long-term debts, under some circumstances.

Equity

- Shareholders may be unwilling to invest in additional share capital of the company.
- Shareholders risk the loss of their investments if the company declares bankruptcy.

There are several ratios that can be used to analyze the liquidity of a company.

Working Capital

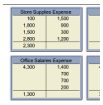
Working capital is the difference between a company's current assets and current liabilities at a point in time. BDCC's working capital calculation is as follows:

(000s)

	2024	*2023*	*2022*
Current Assets			
Cash	$ 20	$ 30	$ 50
Short-term Investments	36	31	37
Accounts Receivable	544	420	257
Inventories	833	503	361
Total Current Assets (a)	1,433	984	705
Current Liabilities			
Borrowings	825	570	100
Accounts Payable	382	295	219
Income Taxes Payable	48	52	50
Total Current Liabilities (b)	1,255	917	369
Net Working Capital (a-b)	$ 178	$ 67	$ 336

In the schedule above, working capital amounts to $178,000 at December 31, 2024. Between 2022 and 2024, working capital decreased by $158,000 ($336,000 – 178,000). BDCC is less liquid in 2024 than in 2022, though its liquidity position has improved since 2023 when it was only $67,000.

In addition to calculating an absolute amount of working capital, ratio analysis can also be used. The advantage of a ratio is that it is usually easier to interpret.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Working Capital.

Current Ratio

Is BDCC able to repay short-term creditors? The **current ratio** can help answer this question. It expresses working capital as a proportion of current assets to current liabilities and is calculated as:

$$\frac{\text{Current assets}}{\text{Current liabilities}}$$

The relevant BDCC financial data required to calculate this ratio is taken from the balance sheet, as follows:

		(000s)		
		2024	*2023*	*2022*
Current Assets	(a)	$1,433	$984	$705
Current Liabilities	(b)	1,255	917	369
Current Ratio	(a/b)	1.14:1	1.07:1	1.91:1

This ratio indicates how many current asset dollars are available to pay current liabilities at a point in time. The expression “1.14:1” is read, “1.14 to 1.” In this case it means that at December 31, 2024, $1.14 of current assets exist to pay each $1 of current liabilities. This ratio is difficult to interpret in isolation. There are two types of additional information that could help. First, what is the trend within BDCC over the last three years? The ratio declined between 2022 and 2023 (from 1.91 to 1.07), then recovered slightly between the end of 2023 and 2024 (from 1.07 to 1.14). The overall decline may be a cause for concern, as it indicates that in 2024 BDCC had fewer current assets to satisfy current liabilities as they became due.

A second interpretation aid would be to compare BDCC’s current ratio to a similar company or that of BDCC’s industry as a whole. Information is available from various trade publications and business analysts’ websites that assemble financial ratio information for a wide range of industries.

Some analysts consider that a corporation should maintain a 2:1 current ratio, depending on the industry in which the firm operates. The reasoning is that, if there were $2 of current assets to pay each $1 of current liabilities, the company should still be able to pay its current liabilities as they become due, even in the event of a business downturn. However, it is recognized that no one current ratio is applicable to all entities; other factors — such as the composition of current assets — must also be considered to arrive at an acceptable ratio. This is illustrated below.

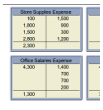
Composition of Specific Items in Current Assets

In the following example, both Corporation A and Corporation B have a 2:1 current ratio. Are the companies equally able to repay their short-term creditors?

	Corp. A	*Corp. B*
Current Assets		
Cash	$ 1,000	$ 10,000
Accounts Receivable	2,000	20,000
Inventories	37,000	10,000
Total Current Assets	$ 40,000	$ 40,000
Current Liabilities	$ 20,000	$ 20,000
Current Ratio	2:1	2:1

The companies have the same dollar amounts of current assets and current liabilities. However, they have different short-term debt paying abilities because Corporation B has more liquid current assets than does Corporation A. Corporation B has less inventory ($10,000 vs. $37,000) and more in cash and accounts receivable. If Corporation A needed more cash to pay short-term creditors quickly, it would have to sell inventory, likely at a lower-than-normal gross profit. So, Corporation B is in a better position to repay short-term creditors.

Since the current ratio doesn't consider the components of current assets, it is only a rough indicator of a company's ability to pay its debts as they become due. This weakness of the current ratio is partly remedied by the acid-test ratio discussed below.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Current Ratio.

Acid-Test Ratio

A more rigid test of liquidity is provided by the **acid-test ratio**; also called the **quick ratio**. To calculate this ratio, current assets are separated into *quick* current assets and *non-quick* current assets.

Quick Current Assets

Cash
Short-term investments
Accounts Receivable

} These current assets are considered to be readily convertible into cash.

Non-quick Current Assets

Inventories
Prepaid Expenses

} Cash cannot be obtained either at all or easily from these current assets.

Inventory and prepaid expenses cannot be converted into cash in a short period of time, if at all. Therefore, they are excluded in the calculation of this ratio. The acid-test ratio is calculated as:

$$\frac{\text{Quick current assets}}{\text{Current liabilities}}$$

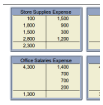
The BDCC information required to calculate this ratio is:

		(000s)		
		2024	*2023*	*2022*
Cash		$ 20	$ 30	$ 50
Short-term investments		36	31	37
Accounts receivable		544	420	257
Quick current assets	(a)	$ 600	$ 481	$ 344
Current liabilities	(b)	$ 1,255	$ 917	$ 369
Acid-test ratio	(a/b)	0.48:1	0.52:1	0.93:1

This ratio indicates how many quick asset dollars exist to pay each dollar of current liabilities. What is an adequate acid-test ratio? It is generally considered that a 1:1 acid test ratio is adequate to ensure that a firm will be able to pay its current obligations. However, this is a fairly arbitrary guideline and is not appropriate in all situations. A lower ratio than 1:1 can often be found in successful companies. However, BDCC's acid-test ratio trend is worrisome.

There were $0.48 of quick assets available to pay each $1 of current liabilities in 2024. This amount appears inadequate. In 2023, the acid-test ratio of $0.52 also seems to be too low. The 2022 ratio of $0.93 is less than 1:1 but may be reasonable. Of particular concern to financial analysts would be BDCC's declining trend of the acid-test ratio over the three years.

Additional analysis can also be performed to determine the source of liquidity issues. These are discussed next.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Acid-test Ratio.

Accounts Receivable Collection Period

Liquidity is affected by management decisions related to trade accounts receivable. Slow collection of receivables can result in a shortage of cash to pay current obligations. The effectiveness of management decisions relating to receivables can be analyzed by calculating the *accounts receivable collection period*.

The calculation of the **accounts receivable collection period** establishes the average number of days needed to collect an amount due to the company. It indicates the efficiency of collection procedures when the collection period is compared with the firm's sales terms (in BDCC's case, the sales terms are *net 30* meaning that amounts are due within 30 days of the invoice date).

The accounts receivable collection period is calculated as:

$$\frac{\text{Average net accounts receivable}^{2}}{\text{Net credit sales (or revenues)}} \times 365$$

The BDCC financial information required to make the calculation is shown below (the 2022 calculation cannot be made because 2021 Accounts Receivable amount is not available). Assume all of BDCC's sales are on credit.

		(000s)	
		2024	*2023*
Net credit sales	(a)	$3,200	$2,800
Average accounts receivable [(Opening balance + closing balance)/2]	(b)	$ 482[3]	$ 338.5[4]
Average collection period [(b/a) × 365 days]		54.98 days	44.13 days

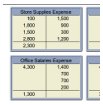
[2]Average balance sheet amounts are used when income statement amounts are compared to balance sheet amounts in a ratio. This is because the income statement item is realized over a fiscal year, while balance sheet amounts are recorded at points in time at the end of each fiscal year. Averaging opening and ending balance sheet amounts is an attempt to match numerators and denominators to an approximate midpoint in the fiscal year.

[3]($420 + 544)/2 = $482

[4]($257 + 420)/2 = $338.5

When Big Dog's 30-day sales terms are compared to the 54.98-day collection period, it can be seen that an average 24.98 days of sales (54.98 days – 30 days) have gone uncollected beyond the regular credit period in 2024. The collection period in 2024 is increasing compared to 2023. Therefore, some over-extension of credit and possibly ineffective collection procedures are indicated by this ratio. Quicker collection would improve BDCC's cash position. It may be that older or uncollectible amounts are buried in the total amount of receivables; this would have to be investigated.

Whether the increase in collection period is good or bad depends on several factors. For instance, more liberal credit terms may generate more sales (and therefore profits). The root causes of the change in the ratio need to be investigated. However, the calculation does provide an indication of the change in effectiveness of credit and collection procedures between 2023 and 2024.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Accounts Receivable Collection Period.

Number of Days of Sales in Inventory

The effectiveness of management decisions relating to inventory can be analyzed by calculating the number of days of sales that can be serviced by existing inventory levels.

The **number of days of sales in inventory** is calculated by dividing average inventory by the cost of goods sold and multiplying the result by 365 days.

$$\frac{\text{Average merchandise inventory}}{\text{Cost of goods sold}} \times 365$$

The BDCC financial data for 2023 and 2024 required to calculate this ratio are shown below.

		(000s)	
		2024	*2023*
Cost of goods sold	(a)	$2,500	$2,150
Average inventory [(Opening balance + closing balance)/2]	(b)	$ 668[5]	$ 432[6]
Cost of goods sold		365	365
Number of days sales in inventory [(b/a) × 365 days]		97.53 days	73.34 days

The calculation indicates that BDCC is investing more in inventory in 2024 than in 2023 because there are 97.53 days of sales in inventory in 2024 versus 73.34 days in 2023. BDCC has approx-

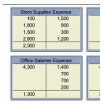
[5] ($503 + 833)/2 = $668
[6] ($361 + 503)/2 = $432

imately 3 months of sales with its existing inventory (98 days represents about 3 months). The increase from 2023 to 2024 may warrant investigation into its causes.

A declining number of days of sales in inventory is usually a sign of good inventory management because it indicates that the average amount of assets tied up in inventory is lessening. With lower inventory levels, inventory-related expenses such as rent and insurance are lower because less storage space is often required. However, lower inventory levels can have negative consequences since items that customers want to purchase may not be in inventory resulting in lost sales.

Increasing days of sales in inventory is usually a sign of poor inventory management because an excessive investment in inventory ties up cash that could be used for other purposes. Increasing levels may indicate that inventory is becoming obsolete (consider clothing) or deteriorating (consider perishable groceries). Obsolete and/or deteriorating inventories may be unsalable. However, the possible positive aspect of more days of sales in inventory is that there can be shorter delivery time to customers if more items are in stock.

Whether Big Dog's increasing days of sales in inventory is positive or negative depends on management's objectives. Is management increasing inventory to provide for increased sales in the next year, or is inventory being poorly managed? Remember that ratio analyses identify areas that require investigation. The resulting investigation will guide any required action.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Number of Days of Sales in Inventory Ratio.

The Revenue Portion of the Operating Cycle

As discussed in Chapter 4, the sale of inventory and resulting collection of receivables are part of a business's operating cycle as shown in Figure 12.1.

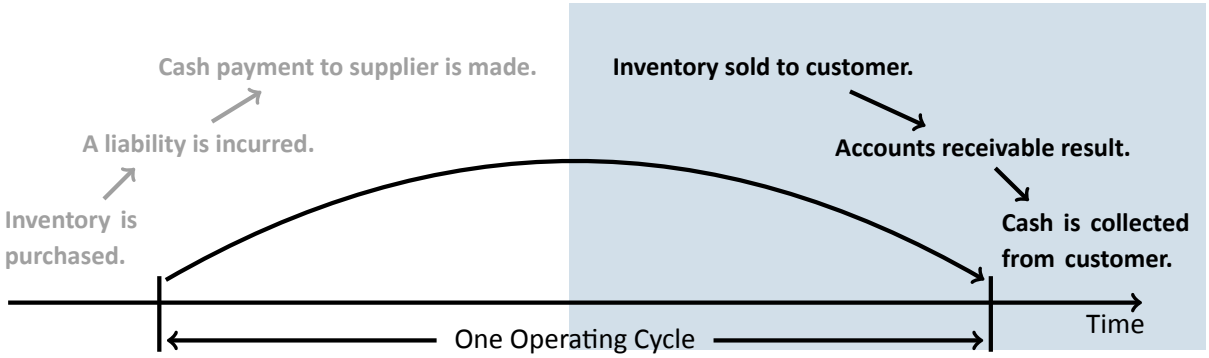


Figure 12.1: Sales and Collection Portion of the Operating Cycle

A business's **revenue operating cycle** is a subset of the operating cycle and includes the purchase

of inventory, the sale of inventory and creation of an account receivable, and the generation of cash when the receivable is collected. The length of time it takes BDCC to complete one revenue operating cycle is an important measure of liquidity and can be calculated by adding the number of days of sales in inventory plus the number of days it takes to collect receivables. The BDCC financial data required for this calculation follows.

	2024	*2023*
Average number of days of sales in inventory	97.53 days	73.34 days
Average number of days to collect receivables	54.98 days	44.13 days
Number of days to complete the revenue cycle	152.51 days	117.47 days

In 2024, 152.51 days were required to complete the revenue cycle, compared to 117.47 days in 2023. So, if accounts payable terms require payment within 60 days, BDCC may not be able to pay them because the number of days to complete the revenue cycle for both 2023 (117.47 days) and 2024 (152.51 days) are significantly greater than 60 days.

Analysis of BDCC's Liquidity

Reflecting on the results of all the liquidity ratios, it appears that Big Dog Carworks Corp. is growing less liquid. Current assets, especially quick assets, are declining relative to current liabilities. The revenue operating cycle is increasing.

12.3 Profitability Ratios: Analyzing Operating Activities  Watch video

Profitability ratios compare various expenses to revenues, and measure how well the assets of a corporation have been used to generate revenue.

Gross Profit Ratio

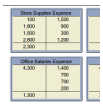
The **gross profit ratio**, as introduced briefly in Chapter 6, indicates the percentage of sales revenue that is left to pay operating expenses, creditor interest, and income taxes after deducting cost of goods sold. The ratio is calculated as:

$$\frac{\text{Gross profit}}{\text{Net sales}} \textit{ OR } \frac{\text{Gross profit}}{\text{Net sales}} \times 100$$

BDCC's gross profit ratios for the three years are:

		(000s)		
		2024	*2023*	*2022*
Gross profit	(a)	$ 700	$ 650	$ 540
Net sales	(b)	$ 3,200	$ 2,800	$ 2,340
Gross profit ratio	(a/b)	0.2188:1 or 21.88%	0.2321:1 or 23.21%	0.2308:1 or or 23.08%

In other words, for each dollar of sales BDCC has $0.22 of gross profit left to cover operating, interest, and income tax expenses ($0.23 in each of 2023 and 2022). The ratio has not changed significantly from year to year. However, even a small decline in this percentage can affect net income significantly because the gross profit is such a large component of the income statement. Changes in the gross profit ratio should be investigated, as it will impact future financial performance.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Gross profit ratio.

Operating Profit Ratio

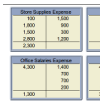
The **operating profit ratio** is one measure of relative change in these other expenses. This ratio indicates the percentage of sales revenue left to cover interest and income taxes expenses after deducting cost of goods sold and operating expenses. In other words:

$$\frac{\text{Income from operations}}{\text{Net sales}} \quad \textit{OR} \quad \frac{\text{Income from operations}}{\text{Net sales}} \times 100$$

BDCC's operating profit ratio for the 2022, 2023, and 2024 fiscal years is calculated as follows:

		(000s)		
		2024	*2023*	*2022*
Income from operations	(a)	$ 300	$ 274	$ 204
Net sales	(b)	$ 3,200	$ 2,800	$ 2,340
Operating profit ratio	(a/b)	0.0938:1 or 9.38%	0.0979:1 or 9.79%	0.0872:1 or 8.72%

For each dollar of sales revenue in 2024, the company had $0.09 left to cover interest and income tax expenses after deducting cost of goods sold and operating expenses. A review of the company's operating expenses (selling, general, and administrative expenses; employee benefits, and depreciation) show that they have all increased. As a result, and despite increasing sales revenue and gross profit, operating income has remained relatively flat. Although it seems reasonable that an increase in operating expenses would follow an increase in sales, the reasons for the operating expense increases should be investigated.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Operating Profit Ratio.

Net Profit Ratio

The **net profit ratio** is the percentage of sales revenue retained by the company after payment of operating expenses, interest expenses, and income taxes. It is an index of performance that can be used to compare the company to others in the same industry. This ratio is calculated by the following formula:

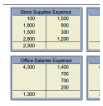
$$\frac{\text{Net income}}{\text{Net sales (or revenues)}} \quad OR \quad \frac{\text{Net income}}{\text{Net sales (or revenues)}} \times 100$$

BDCC's net profit ratios for the three years are calculated as follows:

		(000s)		
		2024	*2023*	*2022*
Net income	(a)	$ 116	$ 117	$ 112
Net sales	(b)	$ 3,200	$ 2,800	$ 2,340
Net profit ratio	(a/b)	0.0363:1 or 3.63%	0.0418:1 or 4.18%	0.0479:1 or or 4.79%

For each $1 of sales in 2024, BDCC earned $0.04 of net income. The net profit ratio has been relatively stable but needs to be compared with industry or competitors' averages for a better perspective.

Recall that revenues are generated from a business's asset holdings. The financial strength and success of a corporation depends on the efficient use of these assets. An analysis of asset investment decisions can be made by calculating several ratios, and is discussed next.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Net Profit Ratio.

Sales to Total Assets Ratio

Are BDCC's sales adequate in relation to its assets? The calculation of the sales to total assets ratio helps to answer this question by establishing the number of sales dollars earned for each dollar invested in assets. The ratio is calculated as:

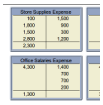
$$\frac{\text{Net sales}}{\text{Average total assets}} \textit{ OR } \frac{\text{Net sales}}{\text{Average total assets}} \times 100$$

BDCC's ratios are calculated as follows:

		(000s)	
		2024	*2023*
Net sales	(a)	$ 3,200	$ 2,800
Average total assets	(b)	$ 2,299[7]	$ 1,764.50[8]
Sales to total assets ratio	(a/b)	1.3919:1 or 139.19%	1.5869:1 or 158.69%

The ratio has decreased from 2023 to 2024. Each $1 of investment in assets in 2023 generated sales of $1.59. In 2024, each $1 of investment in assets generated only $1.39 in sales. Over the same period, BDCC's investment in assets increased. The ratios indicate that the additional assets are not producing revenue as effectively as in the past. It may be too soon to tell whether the increase in assets in 2023 will eventually create greater sales but an investigation is required.

As noted earlier, comparison with industry averages would be useful. A low ratio in relation to other companies in the same industry may indicate an over-investment in or inefficient use of assets by BDCC. On the other hand, a higher ratio in comparison to other companies would be a positive indicator.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Sales to Total Assets Ratio.

Return on Total Assets Ratio (ROA)

The return on total assets ratio or ROA is designed to measure the efficiency with which all of a company's assets are used to produce income from operations. The ratio is calculated as:

$$\frac{\text{Income from operations}}{\text{Average total assets}} \textit{ OR } \frac{\text{Income from operations}}{\text{Average total assets}} \times 100$$

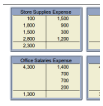
Note that expenses needed to finance the company operations are excluded from the calculation, specifically interest and income taxes. This is because all the assets of the company are considered in the ratio's denominator, whether financed by investors or creditors. Average Total Assets are used in the calculation because the amount of assets used likely varies during the year. The use of averages tends to smooth out such fluctuations.

[7] ($2,112 + 2,486)/2 = $2,299
[8] ($1,417 + 2,112)/2 = $1,764.50

BDCC's returns on total assets for 2023 and 2024 are calculated as follows:

		(000s)	
		2024	*2023*
Income from operations	(a)	$ 300	$ 274
Average total assets	(b)	$ 2,299[9]	$ 1,764.50[10]
Return on total assets ratio	(a/b)	0.1305:1 or 13.05%	0.1553:1 or 15.53%

The ratios indicate that Big Dog earned $0.13 of income from operations for every $1 of average total assets in 2024, a decrease from $0.16 per $1 in 2023. This downward trend indicates that assets are being used less efficiently. However, it may be that the increased investment in assets has not yet begun to pay off. On the other hand, although sales are increasing, it is possible that future sales volume will not be sufficient to justify the increase in assets. More information about the company's plans and projections would be useful. Recall that ratio analysis promotes the asking of directed questions for the purpose of more informed decision making.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Return on Total Assets Ratio.

Return on Equity Ratio (ROE)

The return on equity ratio measures the return to shareholders — how much net income was earned for the owners of a business. It is calculated as:

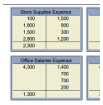
$$\frac{\text{Net income}}{\text{Average equity}} \; OR \; \frac{\text{Net income}}{\text{Average equity}} \times 100$$

The 2023 and 2024 returns on equity ratios for BDCC are calculated as follows (note that the 2022 ratio is excluded because average equity cannot be calculated since 2021 ending balances are not provided):

		(000s)	
		2024	*2023*
Net income	(a)	$ 116	$ 117
Average equity	(b)	$ 1,213[11]	$ 1,121.50[12]
Return on equity ratio	(a/b)	0.0956:1 or 9.56%	0.1043:1 or 10.43%

[9] ($2,112 + 2,486)/2 = $2,299
[10] ($1,417 + 2,112)/2 = $1,764.50
[11] ($1,195 + 1,231)/2 = $1,213
[12] ($1,048 + 1,195)/2 = $1,121.50

In both years, shareholders earned, on average, $0.10 for every $1 invested in BDCC, or 10%. Industry averages could help with this analysis. For instance, if the industry as a whole earned only a 5% return on equity in 2024, it could be concluded that BDCC performed better than the industry average in terms of return on equity.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Return on Equity Ratio.

12.4 Leverage Ratios: Analyzing Financial Structure Watch video

The accounting equation expresses a relationship between assets owned by an entity and the claims against those assets. Although shareholders own a corporation, they alone do not finance the corporation; creditors also finance some of its activities. Together, creditor and shareholder capital are said to form the financial structureFinancial structure of a corporation. At December 31, 2024, the balance sheet of BDCC shows the following financial structure:

ASSETS	=	LIABILITIES	+	EQUITY
$2,486	=	$1,255	+	$1,231

Debt Ratio

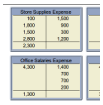
The proportion of total assets financed by debt is called the debt ratio, and is calculated by dividing total liabilities by total assets.

$$\frac{\text{Total liabilities}}{\text{Total assets}} \quad OR \quad \frac{\text{Total liabilities}}{\text{Total assets}} \times 100$$

In BDCC's case, these amounts are:

		(000s)	
		2024	*2023*
Total liabilities	(a)	$ 1,255	$ 917
Total assets	(b)	$ 2,486	$ 2,112
Debt ratio	(a/b)	0.5048:1 or 50.48%	0.4342:1 or 43.42%

In other words, 50.48% of BDCC's assets are financed by debt. Therefore, because assets are financed by debt (aka liabilities) and equity, we intuitively know that 49.52% of BDCC's assets must be financed by equity which is the topic of the next section.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Debt Ratio.

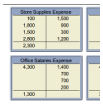
Equity Ratio

The proportion of total assets financed by equity is called the equity ratio, and is calculated by dividing total equity by total assets. In BDCC's case, these amounts are:

		(000s)	
		2024	*2023*
Total equity	(a)	$ 1,231	$ 1,195
Total assets	(b)	$ 2,486	$ 2,112
Equity ratio	(a/b)	0.4952:1 or 49.52%	0.5658:1 or 56.58%

In 2024, 49.52% of the assets were financed by equity while in 2023 56.58% of the assets were financed by equity. Generally, this is considered an unfavourable trend because as equity financing decreases, we know that debt financing must be increasing as evidenced by the debt ratio above. The greater the debt financing, the greater the risk because principal and interest payments are part of debt financing.

Notice that the sum of the debt and equity ratios will always equal 100% because of the accounting equation relationship: A = L + E where A = 100% and, in the case of BDCC, L = 43.42% in 2023 and E = 56.58% in 2023.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Equity Ratio.

Debt to Equity Ratio

The proportion of creditor to shareholders' claims is called the debt to equity ratio, and is calculated by dividing total liabilities by equity. In BDCC's case, these amounts are:

		(000s)		
		2024	*2023*	*2022*
Total liabilities	(a)	$ 1,255	$ 917	$ 369
Equity	(b)	$ 1,231	$ 1,195	$ 1,048
Debt to equity ratio	(a/b)	1.02:1	0.77:1	0.35:1

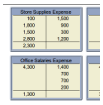
In other words, BDCC has $1.02 of liabilities for each dollar of equity at the end of its current fiscal year, 2024. The proportion of debt financing has been increasing since 2022. In 2022 there was

only $0.35 of debt for each $1 of equity. In 2024, creditors are financing a greater proportion of BDCC than are shareholders. This may be a cause for concern.

On the one hand, management's reliance on creditor financing is good. Issuing additional shares might require existing shareholders to give up some of their control of BDCC. Creditor financing may also be more financially attractive to existing shareholders if it enables BDCC to earn more with the borrowed funds than the interest paid on the debt.

On the other hand, management's increasing reliance on creditor financing increases risk because interest and principal have to be paid on this debt. Before deciding to extend credit, creditors often look at the total debt load of a company, and therefore the company's ability to meet interest and principal payments in the future. Total earnings of BDCC could be reduced if high interest payments have to be made, especially if interest rates rise. Creditors are interested in a secure investment and may evaluate shareholder commitment by measuring relative amounts of capital invested. From the creditors' perspective, the more capital invested by owners of the company, the greater the relative risk assumed by shareholders thus decreasing risk to creditors.

Although there is no single most appropriate debt to equity ratio, there are techniques for estimating the optimum balance. These are beyond the scope of introductory financial accounting. For now, it is sufficient to note that for BDCC the debt to equity ratio has increased considerably over the three-year period which is generally unfavourable because of the risk associated with debt financing.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Debt to Equity Ratio.

Times Interest Earned Ratio

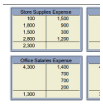
Creditors are interested in evaluating a company's financial performance, in order to project whether the firm will be able to pay interest on borrowed funds and repay the debt when it comes due. Creditors are therefore interested in measures such as the times interest earned ratio. This ratio indicates the amount by which income from operations could decline before a default on interest may result. The ratio is calculated by the following formula:

$$\frac{\text{Income from operations}}{\text{Interest expense}}$$

Note that income from operations is used, so that income before deduction of creditor payments in the form of income taxes and interest is incorporated into the calculation. BDCC's 2023 and 2024 ratios are calculated as follows:

		(000s)		
		2024	*2023*	*2022*
Income from operations	(a)	$ 300	$ 274	$ 204
Interest expense	(b)	$ 89	$ 61	-0-
Times interest earned ratio	(a/b)	3.37:1	4.49:1	n/a

The larger the ratio, the better creditors are protected. BDCC's interest coverage has decreased from 2023 to 2024 (3.37 times vs. 4.49 times), but income would still need to decrease significantly for the company to be unable to pay its obligations to creditors. The analysis does indicate, though, that over the past two years interest charges have increased compared to income from operations. Creditors need to assess company plans and projections, particularly those affecting income from operations, to determine whether their loans to the company are at risk. As discussed above, it may be that significant investments in assets have not yet generated related increases in sales and income from operations.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Times Interest Earned Ratio.

12.5 Market Ratios: Analysis of Financial Returns to Investors  Watch video

Investors frequently consider whether to invest or divest in shares of a corporation. There are various ratios that help them make this decision. These are called market ratios, because the stock market plays an important role in allocating financial resources to corporations that offer their shares to the public.

Earnings-per-Share (EPS)

Measures of efficiency can focus on shareholder returns on a per-share basis. That is, the amount of net income earned in a year can be divided by the number of common shares outstanding to establish how much return has been earned for each outstanding share. This earnings-per-share (EPS) value is calculated as:

$$\frac{\text{Net income}}{\text{Number of common shares outstanding}}$$

EPS is quoted in financial markets and is disclosed on the income statement of publicly-traded companies. If there are preferred shareholders, they have first rights to distribution of dividends.

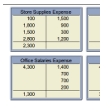
Therefore, when calculating EPS, preferred shareholders' claims on net income are deducted from net income to calculate the amount available for common shareholders:

$$\frac{\text{Net income} - \text{preferred share dividends}}{\text{Number of common shares outstanding}}$$

BDCC has no preferred shares and thus no preferred share dividends. Recall that 100,000 common shares are outstanding at the end of 2022, 2023, and 2024. For BDCC, EPS calculations for the three years are:

		(000s)		
		2024	*2023*	*2022*
Net income	(a)	$ 116	$ 117	$ 112
Number of common shares outstanding	(b)	100	100	100
Earnings per share	(a/b)	$ 1.16	$ 1.17	$ 1.12

Big Dog's EPS has remained relatively constant over the three-year period because both net income and number of outstanding shares have remained fairly stable. Increasing sales levels and the resulting positive effects on net income, combined with unchanged common shares issued, has generally accounted for the slight increase from 2022 to 2023.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Earnings Per Share.

Price-earnings (P/E) Ratio

A price at which a common share trades on a stock market is perhaps the most important measure of a company's financial performance. The market price of one share reflects the opinions of investors about a company's future value compared to alternative investments.

The earnings performance of common shares is often expressed as a price-earnings (P/E) ratio. Price-earnings (P/E) ratio It is calculated as:

$$\frac{\text{Market price per share}}{\text{Earnings per share}}$$

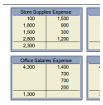
This ratio is used as an indicator of the market's expectation of a company's future performance. Assume Company A has a current market value of $15 per share and an EPS of $1 per share. It will have a P/E ratio of 15. If Company B has a market value of $4 per share and an EPS of $0.50 per share, it will have a P/E ratio of 8. This means that the stock market expects Company A to earn

relatively more in the future than Company B. For every $1 of net income generated by Company A, investors are willing to invest $15. In comparison, for every $1 of net income generated by Company B, investors are willing to pay only $8. Investors perceive shares of Company A as more valuable because the company is expected to earn greater returns in the future than is Company B.

Assume that BDCC's average market price per common share was $4 in 2022, $5 in 2023, and $6 in 2024. Its P/E ratio would be calculated as:

		(000s)		
		2024	*2023*	*2022*
Market price per common share	(a)	$ 6.00	$ 5.00	$ 4.00
Earnings per share (see above)	(b)	$ 1.16	$ 1.17	$ 1.12
Price-earnings ratio	(a/b)	5.17	4.27	3.57

BDCC's P/E ratio has increased each year. Although industry and competitor's P/E ratio comparisons would be important to compare, BDCC's increasingly positive ratio also indicates that investors are "bullish" on BDCC. That is, the stock market indicates that it expects BDCC to be increasingly profitable in the coming years. Despite a relatively constant EPS ratio from 2022 to 2024, investors are willing to pay more and more for the company's common shares. This must be because future financial prospects are anticipated to be better than in the past three years.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Price-Earnings Ratio.

Dividend Yield

Some investors' primary objective is to maximize dividend revenue from share investments, rather than realize an increasing market price of the shares. This type of investor is interested in information about the earnings available for distribution to shareholders and the actual amount of cash paid out as dividends rather than the market price of the shares.

The dividend yield ratio is a means to determine this. It is calculated as:

$$\frac{\text{Dividends per share}}{\text{Market price per share}}$$

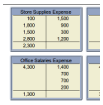
This ratio indicates how large a return in the form of dividends can be expected from an investment in a company's shares. The relevant information for BDCC over the last three years is shown in the financial statements, as follows:

		(000s – except per share values)		
		2024	*2023*	*2022*
Dividends declared	(a)	$ 80	$ 70	$ 60
Outstanding common shares	(b)	100	100	100
Dividends per share	(a/b)	$ 0.80	$ 0.70	$ 0.60

The dividend yield ratio is therefore:

		2024	*2023*	*2022*
Dividends per share	(a)	$ 0.80	$ 0.70	$ 0.60
Market price per share (given)	(b)	$ 6.00	$ 5.00	$ 4.00
Dividend yield ratio	(a/b)	0.13:1	0.14:1	0.15:1

The company's dividend yield ratio decreased from 2022 to 2024. In 2022, investors received $0.15 for every $1 invested in shares. By 2024, this had decreased to $0.13 for every $1 invested. Though the decline is slight, the trend may concern investors who seek steady cash returns. Also notice that total dividends declared increased from 2022 to 2024 even though net income did not substantially increase, and despite the company's poor liquidity position noted in an earlier analysis. Investors might ask why such high levels of dividends are being paid given this situation.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Dividend Yield.

12.6 Overall Analysis of Big Dog's Financial Statements

Results of ratio analysis are always more useful if accompanied by other information such as overall industry performance, the general economy, financial ratios of prior years, and qualitative factors such as analysts' opinions and management's plans.

However, there are some interpretations that can be made about BDCC from the foregoing ratio analyses even without other information. Although BDCC is experiencing growth in sales, net income has not substantially increased over the three-year period 2022 to 2024. The gross profit ratio is relatively constant. Their increasing operating expenses appear to be an issue. The sales to total assets and return on assets ratios have decreased due to a recent investment in property, plant and equipment assets and growth in current assets. Income from operations has not increased with the growth in the asset base. However, it may be premature to make conclusions regarding the timing of outlays for property, plant, and equipment.

The most immediate problem facing BDCC is the shortage of working capital and its poor liquidity. BDCC expanded its property, plant, and equipment in 2023 and experienced increases in revenue that did not correspond to increases in accounts receivable and inventories. The company should

therefore review its credit policies and monitor its investment in inventory to ensure that these expand in proportion to sales.

The plant expansion produced an increase in current liabilities (mainly borrowings). The company's ability to meet its debt obligations appears to be deteriorating. The ability of income from operations to cover interest expense has declined. The company's liquidity position is deteriorating, even though it continues to produce net income each year. BDCC should investigate alternatives to short-term borrowings, such as converting some of this to long-term debt and/or issuing additional share capital to retire some of its short-term debt obligations.

Despite these challenges, the stock market indicates that it expects BDCC to be increasingly profitable in the future. Perhaps it views the negative indicators noted above as only temporary or easily rectified by management.

The next section provides further insights into BDCC's operations through trend analysis of the company's financial statements.

12.7 Horizontal and Vertical Trend Analysis  Watch video

LO2 – Describe horizontal and vertical trend analysis, and explain how they are used to analyze financial statements.

Trend analysis is the evaluation of financial performance based on a restatement of financial statement dollar amounts to percentages. Horizontal analysis and vertical analysis are two types of trend analyses.

Horizontal analysis involves the calculation of percentage changes from one or more years over the base year dollar amount. The base year is typically the oldest year and is always 100%. The following two examples of horizontal analysis use an abbreviated income statement and balance sheet information where 2022 represents the base year. ***For demonstration purposes, the percentages have been rounded to the nearest whole number.***

	2024		2023		2022	
Sales[1]	$100	200%	$70	140%	$50	100%
Gross profit	$ 48	160%	$45	150%	$30	100%
Net income	$ 14	140%	$12	120%	$10	100%

1. Sales in 2023 were 140% of 2022 sales calculated as ($70/$50)x100. Sales in 2024 were 200% of 2022 sales calculated as ($100/$50)x100.

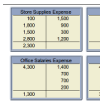
	2024		2023		2022	
Current assets[2]	$ 18	90%	$ 22	110%	$ 20	100%
Long-term investments	$ -0-	N/A	$ 48	60%	$ 80	100%
Total assets	$252	105%	$228	95%	$240	100%

2. Current assets in 2023 were 110% of 2022 current assets calculated as ($22/$20)x100. Current assets in 2024 were 90% of 2022 current assets calculated as ($18/$20)x100.

An alternate method of performing horizontal analysis calculations is to simply calculate the percentage change between two years as shown in the following example.

	2024	% Change	2023
Sales[3]	$100	43%	$70
Gross profit	$ 48	7%	$45
Net income	$ 14	17%	$12

3. Sales in 2024 increased 43% over 2023 calculated as ($100–$70)=$30; ($30/$70)x100=43%.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Horizontal Analysis.

Vertical analysis requires numbers in a financial statement to be restated as percentages of a base dollar amount. For income statement analysis, the base amount used is sales. For balance sheet analysis, total assets, or total liabilities and equity, are used as the base amounts. When financial statements are converted to percentages, they are called common-size financial statements. The

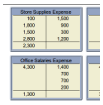
following two examples of vertical analysis use information from an abbreviated income statement and balance sheet.

	2024		*2023*		*2022*[1]	
Sales	$100	100%	$70	100%	$50	100%
Gross profit	$ 48	48%	$45	64%	$30	60%
Net income	$ 14	14%	$12	17%	$10	20%

1. 2022 Gross profit was 60% of Sales calculated as ($30/$50)x100; 2022 Net income was 20% of Sales calculated as ($10/$50)x100.

	2024		*2023*		*2022*[2]	
Current assets	$ 18	7%	$ 22	10%	$ 20	8%
Long-term investments	$ -0-	N/A	$ 48	21%	$ 80	33%
Total assets	$252	100%	$228	100%	$240	100%

2. 2022 Current assets were 8% of Total assets calculated as ($20/$240)x100. 2022 Long-term investments were 33% of Total assets calculated as ($80/$240)x100.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Vertical Analysis.

Notice that the same information was used for both the horizontal and vertical analyses examples but that the results are different because of how the dollar amounts are being compared.

Horizontal and vertical analyses of the balance sheets of Big Dog Carworks Corp. are as follows:

Horizontal Analysis: Balance Sheet

				Change		
	2024		*2023*	*Difference*	*Per Cent*	
Current assets	$1,433	(a)	$ 984	(b) +$449 (a-b)	+45.6	[(a-b)/b]
PPE assets	1,053		1,128	-75	-6.6	
Total	$2,486		$2,112	(c) +$374	+17.7	
Current liabilities	$1,255		$917	+$338	+36.9	
Equity	1,231		1,195	+36	+3.0	
Total	$2,486		$2,112	+$374	+17.7	

Notice the two columns introduced here. Analysis of the changes indicates a large increase in current assets (45.6%) together with a large increase in current liabilities (36.9%). There was a small decline in PPE assets (6.6%) and a small increase in equity (3%). The percentage change must always be interpreted together with the absolute dollar amount of change to avoid incorrect conclusions; percentage can sometimes be misleading.

Vertical Analysis (Common-size): Balance

	% *2024*	% *2023*	
Current assets	57.6	46.6	(b/c)
PPE assets	42.4	53.4	
Total	100.0	100.0	
Current liabilities	50.5	43.4	
Equity	49.5	56.6	
Total	100.0	100.0	

In the common-size balance sheet, the composition of the assets has changed with an overall shift to current assets in 2022 (57.6% vs. 46.6%). Also, an increase in the percentage of current liabilities has occurred, resulting in an overall shift from equity financing to debt financing from 2023 to 2024.

The same analysis of BDCC's income statement is as follows:

Horizontal Analysis: Income Statements

				Change		
	2024		*2023*	*Amount*	*Per Cent*	
Sales	$3,200	(a)	$2,800	(b) +$400 (a-b)	+14	[(a-b)/b]
Cost of Goods Sold	2,500		2,150	+$350	+16	
Gross Profit	700		650	(c) +$ 50	+8	
Expenses	584		533	+$ 51	+10	
Net Income	$ 116		$ 117	-$ 1	-1	

Although sales and gross profit increased in dollar amounts, net income decreased slightly from 2023 to 2024 (1%). This net decrease resulted because cost of goods sold increased at a faster rate than sales (16% vs. 14%).

Vertical Analysis (Common-size): Income Statements

	% *2024*	% *2023*	
Sales	100	100	(b/c)
Cost of Goods Sold	78	77	
Gross Profit	22	23	
Expenses	18	19	
Net Income	4	4	

Notice the relative change in the components. For example, cost of goods sold increased in 2024 relative to sales (78% vs. 77%), while expenses in 2024 relative to sales decreased (18% vs. 19%). The overall changes were almost offsetting, as net income remained fairly stable.

The percentages calculated become more informative when compared to earlier years. Further analysis is usually undertaken in order to establish answers to the following questions:

What caused this change? Is this change favourable or unfavourable?	How do the percentages of this company compare with other companies in the same industry? In other industries?

These and similar questions call attention to areas that require further study. One item of note becomes more apparent as a result of the trend analysis above. Initially, it was stated that operating expenses were increasing between 2022 and 2024. Based on trend analysis, however, these expenses are actually declining as a percentage of sales. As a result, their fluctuations may not be as significant as first inferred. Conversely, the increases each year in cost of goods sold may be worrisome. Initial gross profit ratio calculations seemed to indicate little variation, and thus little effect on income from operations. The increase in cost of goods sold (78% vs. 77% of sales) may warrant further investigation.

The ratios covered in this chapter are summarized in Figure 12.2.

Analysis of liquidity:	**Calculation of ratio:**	**Indicates:**
1. Working Capital	Current assets – Current liabilities	The excess of current assets available after covering current liabilities (expressed as a dollar amount).
2. Current ratio	$\frac{\text{Current assets}}{\text{Current liabilities}}$	The amount of current assets available to pay current liabilities.
3. Acid-test ratio	$\frac{\text{Quick current assets}}{\text{Current liabilities}}$	Whether the company is able to meet the immediate demands of creditors. (This is a more severe measure of liquidity.)
4. Accounts receivable collection period	$\frac{\text{Average net accounts receivable}}{\text{Net credit sales (or revenues)}} \times 365$	The average time needed to collect receivables.
5. Number of days of sales in inventory	$\frac{\text{Average inventory}}{\text{Cost of goods sold}} \times 365$	How many days of sales can be made with existing inventory
6. Revenue operating cycle	Average number of days to collect receivables + Average number of days of sales inventory	Length of time between the purchase of inventory and the subsequent collection of cash.

Analysis of profitability:	**Calculation of ratio:**	**Indicates:**
1. Gross profit ratio	$\frac{\text{Gross profit}}{\text{Net sales}}$	The percentage of sales revenue that is left to pay operating expenses, interest, and income taxes after deducting cost of goods sold.
2. Operating profit ratio	$\frac{\text{Income from operations}}{\text{Net sales}}$	The percentage of sales revenue that is left to pay interest and income taxes expenses after deducting cost of goods sold and operating expenses.
3. Net profit ratio	$\frac{\text{Net income}}{\text{Net sales (or revenues)}} \times 100$	The percentage of sales left after payment of all expenses.
4. Sales to total assets ratio	$\frac{\text{Net sales}}{\text{Average total assets}}$	The adequacy of sales in relation to the investment in assets.
5. Return on total assets	$\frac{\text{Income from operations}}{\text{Average total assets}}$	How efficiently a company uses its assets as resources to earn net income.
6. Return on equity	$\frac{\text{Net income}}{\text{Average equity}}$	The adequacy of net income as a return on equity.
Leverage ratios:	**Calculation of ratio:**	**Indicates:**
1. Debt ratio	$\frac{\text{Total liabilities}}{\text{Total assets}}$	The proportion of total assets financed by debt.
2. Equity ratio	$\frac{\text{Total equity}}{\text{Total assets}}$	The proportion of total assets financed by equity.
3. Debt to equity ratio	$\frac{\text{Total liabilities}}{\text{Equity}}$	The proportion of creditor financing to shareholder financing.
4. Times interest earned ratio	$\frac{\text{Income from operations}}{\text{Interest expense}}$	The ability of a company to pay interest to long-term creditors.
Market ratios:	**Calculation of ratio:**	**Indicates:**
1. Earnings per share	$\frac{\text{Net income} - \text{Preferred share dividends}}{\text{Average number of common shares outstanding}}$	The amount of net income that has been earned on each common share after deducting dividends to preferred shareholders.
2. Price-earnings ratio	$\frac{\text{Market price per share}}{\text{Earnings per share}}$	Market expectations of future profitability.
3. Dividend yield ratio	$\frac{\text{Dividends per share}}{\text{Market price per share}}$	The short-term cash return that can be expected from an investment in a company's shares.

Figure 12.2: Summary of Financial Statement Analysis Ratios

Schematically, the various analytical tools can be illustrated as shown in Figure 12.3.

Liquidity		Profitability		Financial Structure	Market Measures	Trend Analysis
Short-term cash needs	*Current asset performance*	*Returns on sales*	*Returns on balance sheet items*			
Current ratio	A/R collection period	Gross profit ratio	Sales to total assets ratio	Debt to equity ratio	Earnings per share	Horizontal
Acid-test ratio	Number of days of sales in inventory	Operating income ratio	Return on total assets	Times interest earned ratio	Price-earnings ratio	Vertical
	Revenue operating cycle	Net profit ratio	Return on equity		Dividend yield ratio	

Figure 12.3: Categorization of Financial Statement Analytical Tools

Summary of Chapter 12 Learning Objectives

LO1 – Describe ratio analysis, and explain how the liquidity, profitability, leverage, and market ratios are used to analyze and compare financial statements.

Ratio analysis measures the relative magnitude of two selected numerical values taken from a company's financial statements and compares the result to prior years and other similar companies. Financial ratios are an effective tool for measuring: (a) liquidity (current ratio, acid-test ratio, accounts receivable collection period, and number of days of sales in inventory); (b) profitability (gross profit ratio, operating profit ratio, net profit ratio, sales to total assets ratio, return on total assets, and return on equity); (c) leverage (debt ratio, equity ratio, debt to equity ratio, and times interest earned ratio); and (d) market ratios (earnings per share, price-earnings ratio, and dividend yield ratio). Ratios help identify the areas that require further investigation.

LO2 – Describe horizontal and vertical trend analysis, and explain how they are used to analyze financial statements.

Horizontal analysis involves the calculation of percentage changes from one or more years over the base year dollar amount. The base year is typically the oldest year and is always 100%. Vertical analysis requires that numbers in a financial statement be restated as percentages of a base dollar amount. For income statement analysis, the base amount used is sales. For balance sheet

analysis, total assets, or total liabilities and equity, are used as the base amounts. When financial statements are converted to percentages, they are called common-size financial statements.

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Chapter 13

Proprietorships and Partnerships

Chapter 1 introduced the three forms of business organizations — corporations, proprietorships, and partnerships. The corporation has been the focus in Chapters 1 through 12. This chapter will expand on some of the basic accounting concepts as they apply to proprietorships and partnerships.

Chapter 13 Learning Objectives  Watch video

LO1 – Describe the characteristics of a proprietorship, including how its financial statements are different from those of a corporation.

LO2 – Describe the characteristics of a partnership including how its financial statements are different from those of a corporation.

Concept Self-Check

Use the following questions as a self-check while working through Chapter 13.

1. What are some of the characteristics of a proprietorship, that are different from those of a corporation?
2. What is the journal entry to record the investment of cash by the owner into a proprietorship?
3. How are the closing entries for a proprietorship different than those recorded for a corporation?
4. Why is there only one equity account on a sole proprietorship's balance sheet and multiple accounts in the equity section of a corporate balance sheet?
5. What is mutual agency as it relates to a partnership?
6. How is a partnership different than a corporation?

NOTE: The purpose of these questions is to prepare you for the concepts introduced in the chapter. Your goal should be to answer each of these questions as you read through the chapter. If, when you complete the chapter, you are unable to answer one or more the Concept Self-Check questions, go back through the content to find the answer(s). Solutions are not provided to these questions.

13.1 Proprietorships  Watch video

LO1 – Describe the characteristics of a proprietorship including, how its financial statements are different from those of a corporation.

As discussed in Chapter 1, a proprietorship is a business owned by one person. It is not a separate legal entity, which means that the business and the owner are considered to be the same entity. As a result, for example, from an income tax perspective, the profits of a proprietorship are taxed as part of the owner's personal income tax return. Unlimited liability is another characteristic of a proprietorship meaning that if the business could not pay its debts, the owner would be responsible even if the business's debts were greater than the owner's personal resources.

Investing in a Proprietorship

When the owners of a corporation, known as shareholders, invest in the corporation, shares are issued. The shares represent how much of the corporation is owned by each shareholder. In a proprietorship, there is only one owner. When that owner invests in their business, the journal entry is:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash		XXX	
	Owner's Capital			XXX
	To record the owner's investment into their business.			

Distribution of Income in a Proprietorship – Withdrawals

A corporation distributes a portion of income earned to its owners, the shareholders, in the form of dividends. In a proprietorship, the owner distributes a portion of the business's income to

her/himself in the form of **withdrawals**. Typically, the owner will withdraw cash but they can withdraw other assets as well. The journal entry to record a cash withdrawal is:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Withdrawals		XXX	
	Cash			XXX
	To record the owner's withdrawal of cash.			

Closing Entries for a Proprietorship

The closing entries for a corporation involved four steps:

Entry 1: Close the revenue accounts to the Income Summary account

This would be identical for a proprietorship.

Entry 2: Close the expense accounts to the Income Summary account

This would also be identical for a proprietorship.

Entry 3: Close the income summary to retained earnings

Instead of closing the balance in the income summary to retained earnings, a proprietorship would close the income summary to the Owner's Capital account.

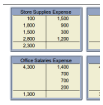
Entry 4: Close dividends to retained earnings

The equivalent to dividends for a proprietorship is withdrawals. There is no Retained Earnings account in a proprietorship. A corporation separates investments made by the owners (shareholders) into a Share Capital account while dividends and accumulated net incomes/losses are recorded in retained earnings. In a proprietorship, all owner investments, withdrawals, and net incomes/losses are maintained in the Owner's Capital account. Therefore, the fourth closing entry for a proprietorship closes withdrawals to this Owner's Capital account.

Figure 13.1 compares the closing entries for a proprietorship and a corporation.

Proprietorship			Corporation		
Entry 1: Close the revenue accounts to the Income Summary account.					
Revenues	XXX		Revenues	XXX	
Income Summary		XXX	Income Summary		XXX
Entry 2: Close the expense accounts to the Income Summary account.					
Income Summary	XXX		Income Summary	XXX	
Expenses		XXX	Expenses		XXX
Entry 3: Close the Income Summary account					
…to the Owner's Capital account.			**…to the Retained Earnings account.**		
Income Summary	XXX		Income Summary	XXX	
Owner's Capital		XXX	Retained Earnings		XXX
When there is a net income.			*When there is a net income.*		
OR			***OR***		
Owner's Capital	XXX		Retained Earnings	XXX	
Income Summary		XXX	Income Summary		XXX
When there is a net loss.			*When there is a net loss.*		
Entry 4: Close					
…withdrawals to the Owner's Capital account.			**…dividends to the Retained Earnings account.**		
Owner's Capital	XXX		Retained Earnings	XXX	
Withdrawals		XXX	Dividends		XXX

Figure 13.1: Comparing Closing Entries for a Proprietorship and Corporation



An exploration is available on the Lyryx site. Log into your Lyryx course to run Closing Entries.

Financial Statements

The financial statements for a proprietorship are much the same as for a corporation with some minor differences. As shown in Figure 13.2, the income statements only differ in that the proprietorship does not include income tax expense since its profits are taxed as part of the owner's personal income tax return.

Proprietorship

ABC Consulting
Income Statement
Year ended December 31, 2023

Revenues		$400
Operating expenses		180
Income from operations		$220
Other revenues and expenses		
Interest revenue	$20	
Loss on sale of equipment	(5)	15
Net income		$235

Corporation

ABC Inc.
Income Statement
Year ended December 31, 2023

Revenues		$400
Operating expenses		180
Income from operations		$220
Interest revenue	$20	
Loss on sale of equipment	(5)	
		15
Income before tax		$235
Income tax expense		50
Net income		$185

Figure 13.2: Comparing the Income Statement for a Proprietorship and for a Corporation

The statement of changes in equity for each of a proprietorship and corporation includes the same elements: beginning equity, additional investments by the owner(s), net income/loss, distribution of income to the owner(s), and the ending balance in equity. However, the statements are structured differently because in a proprietorship, all the equity items are combined in one account, the Owner's Capital account. In a corporation, equity is divided between share capital and retained earnings. These differences are illustrated in Figure 13.3.

Proprietorship

ABC Consulting
Statement of Changes in Equity
Year ended December 31, 2023

Owner's capital, January 1, 2023		$12,000
Add: Owner investment	$1,000	
Net income	235	1,235
Total		$13,235
Less: Withdrawals		150
Owner's capital, December 31, 2023		$13,085

Corporation

ABC Inc.
Statement of Changes in Equity
Year ended December 31, 2023

	Share Capital	Retained Earnings	Total Equity
Balance, January 1, 2023	$9,000	$3,000	$12,000
Issuance of share capital	1,000		1,000
Net income/loss		185	185
Dividends		(150)	(150)
Balance, December 31, 2023	$10,000	$3,035	$13,035

Figure 13.3: Comparing the Statement of Changes in Equity for a Proprietorship and for a Corporation

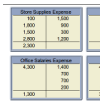
Although both statements are based on identical dollar amounts, notice that the total equity at December 31, 2023 for the proprietorship is $13,085 which is $50 more than the $13,035 shown for the corporation. The $50 difference is the income tax expense deducted on the corporation's income tax.

The balance sheet for each of a proprietorship and corporation includes the same elements: assets, liabilities, and equity. However, the equity section of the statement differs because in a proprietorship, all the equity items are combined in one account, the owner's capital account. In a corporation, equity is divided between share capital and retained earnings. These differences are illustrated in Figure 13.4.

Proprietorship		**Corporation**		
ABC Consulting Balance Sheet December 31, 2023		ABC Inc. Balance Sheet December 31, 2023		
Assets		Assets		
Cash	$ 4,000	Cash		$ 3,950
Other assets	86,000	Other assets		86,000
Total assets	$90,000	Total assets		$89,950
Liabilities	$76,915	Liabilities		$76,915
Equity		Equity		
Owner's capital	13,085	Share capital	$10,000	
Total liabilities and equity	$90,000	Retained earnings	3,035	
		Total equity		13,035
		Total liabilities and equity		$89,950

Figure 13.4: Comparing the Balance Sheet for a Proprietorship and for a Corporation

The $50 difference between the proprietorship's and corporation's balances in each of cash and total equity is because the corporation paid $50 income tax which the proprietorship is not subject to. The equity sections of the two balance sheets are different only in terms of the types of accounts used.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Financial Statements.

13.2 Partnerships Watch video

LO2 – Describe the characteristics of a partnership, including how its financial statements are different from
those of a corporation.

As discussed in Chapter 1, a partnership is a business owned by more than one person. Partners should have a partnership contract that details their agreement on things such as each partner's rights and duties, the sharing of incomes/losses and withdrawals, as well as dispute and termination procedures. A partnership is not a separate legal entity, which means that the business and the partners are considered to be the same entity. As a result, for example, from an income tax perspective, each partner's share of the profits is taxed as part of that partner's personal income tax return. Unlimited liability is another characteristic of a partnership, meaning that if the business could not pay its debts, the partners would be responsible even if the business's debts were greater than their personal resources.

The exception to this would be the formation of a **limited liability partnership (LLP)** that that is permitted for professionals such as lawyers and accountants. In an LLP, the **general partner(s)** is/are responsible for the management of the partnership and assume(s) unlimited liability, while the **limited partners** have limited liability but also limited roles in the partnership as specified in the partnership agreement. Partnerships also have a limited life and are subject to *mutual agency*. **Mutual agency** means that a partner can commit the partnership to any contract because each partner is an authorized agent of the partnership. For example, one partner could sign a contract to purchase merchandise that falls within the scope of the business's operations.

Investing in a Partnership

Recall that when the owners of a corporation, known as shareholders, invest in the corporation, shares are issued. Recall as well that in a proprietorship there is only one owner whose investments into the business are credited to their capital account. A partnership is similar to a proprietorship in that each partner's investment into the business is credited to an owner's capital account. The difference is that in a partnership there will be more than one owner's capital account. For example, assume Doug Wharton, Lisa Bartwiz, and Tahanni Butti started a partnership called WBB Consulting and invested cash of $20,000, $15,000, and $40,000, respectively. The journal entry to record the investment is:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Cash		75,000	
	Wharton, Capital			20,000
	Bartwiz, Capital			15,000
	Butti, Capital			40,000
	To record each partner's investment into the business.			

Distribution of Income in a Partnership — Withdrawals

Recall that a corporation distributes a portion of income earned to its owners, the shareholders, in the form of dividends. In a proprietorship and partnership, the owner/partners distribute a portion of the income to themselves in the form of withdrawals. Assume Wharton, Bartwiz, and Butti each withdraw $5,000. The journal entry is:

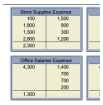
General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Wharton, Withdrawals		5,000	
	Bartwiz, Withdrawals		5,000	
	Butti, Withdrawals		5,000	
	Cash			15,000
	To record the partners' withdrawal of cash.			

Closing Entries for a Partnership

The closing entries for a partnership are much the same as those for a proprietorship except that for a partnership there is more than one withdrawals account and more than one capital account. The only complexity with the closing entries for a partnership is with closing the Income Summary account to the capital accounts. The complexity stems from the partnership agreement which details how incomes/losses are to be allocated. Let us review several scenarios.

Example 1: Assume WBB Consulting earned $60,000 during the year and the partnership agreement stipulates that incomes/losses are to be allocated equally. The journal entry to close the income summary to the partners' capital accounts would be:

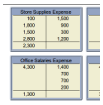
General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Income Summary		60,000	
	Wharton, Capital			20,000
	Bartwiz, Capital			20,000
	Butti, Capital			20,000
	To close the income summary based on equal allocation.			



An exploration is available on the Lyryx site. Log into your Lyryx course to run Allocating Income - No Partnership Agreement.

Example 2: Assume WBB Consulting had a net loss of $70,000 during the year and the partnership agreement stipulates that incomes/losses are to be allocated on a fractional basis of 2:1:4, respectively. The journal entry to close the income summary to the partners' capital accounts would be:

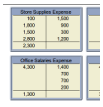
General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Wharton, Capital		20,000	
	Bartwiz, Capital		10,000	
	Butti, Capital		40,000	
	Income Summary			70,000
	To close the income summary based on 2:1:4 fractional allocation; calculations: 2/(2+1+4) x 70,000 = 20,000; 1/(2+1+4) x 70,000 = 10,000; 4/(2+1+4) x 70,000 = 40,000.			



An exploration is available on the Lyryx site. Log into your Lyryx course to run Allocating Income/Loss – Fractional Basis.

Example 3: Assume WBB Consulting had a net income of $100,000 during the year and the partnership agreement stipulates that incomes/losses are to be allocated on the ratio of capital investments. The journal entry to close the income summary to the partners' capital accounts would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Income Summary		100,000	
	Wharton, Capital			26,667
	Bartwiz, Capital			20,000
	Butti, Capital			53,333
	To close the income summary with the allocation based on a ratio of capital investments; calculations: (20,000/75,000) x 100,000 = 26,667 (rounded to the nearest whole dollar); (15,000/75,000) x 100,000 = 20,000; (40,000/75,000 x 100,000 = 53,333 (rounded to the nearest whole dollar).			



An exploration is available on the Lyryx site. Log into your Lyryx course to run Allocating Income – Ratio of Investments.

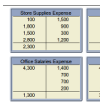
Example 4: Assume WBB Consulting had a net income of $60,000 during the year and the partnership agreement stipulates that incomes/losses are to be allocated based on salaries of $70,000 to Wharton; $20,000 to Bartwiz; zero to Butti; and the remainder equally. The journal entry to close the income summary to the partners' capital accounts would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Income Summary		60,000	
	Butti, Capital		10,000	
	Wharton, Capital			60,000
	Bartwiz, Capital			10,000
	To close the income summary with the allocation based on salaries and the remainder allocated equally; calculations:			

	Wharton	Bartwiz	Butti	Total
Net income				60,000
Salaries:	70,000	20,000	0	-90,000
Remainder to be allocated:				-30,000
-30,000x1/3	-10,000	-10,000	-10,000	30,000
Balance of net income to be allocated				0
Total to be allocated to each partner	60,000	10,000	-10,000	60,000

The sum of the totals **must** reconcile (be equal to) the net income/loss being allocated.

Notice in Example 4 that Butti is receiving a negative allocation which results in a debit to her Capital account.



An exploration is available on the Lyryx site. Log into your Lyryx course to run Allocating Income – Remainder to be Allocated.

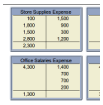
Example 5: Assume WBB Consulting had a net income of $90,000 during the year and the partnership agreement stipulates that incomes/losses are to be allocated based on a combination of: (a) 20% interest of each partner's beginning-of-year capital balance; (b) salaries of $70,000 to Wharton, $20,000 to Bartwiz, $15,000 to Butti; and (c) the remainder equally. The journal entry to close the income summary to the partners' capital accounts would be:

General Journal				
Date	Account/Explanation	PR	Debit	Credit
	Income Summary		90,000	
	Wharton, Capital			64,000
	Bartwiz, Capital			13,000
	Butti, Capital			13,000
	To close the income summary with the allocation based on a combination of interest and salaries with the remainder allocated equally; calculations:			

	Wharton	Bartwiz	Butti	Total
Net income				90,000
Interest:				
20%x20,000; 20%x15,000; 20%x40,000	4,000	3,000	8,000	-15,000
Salaries:	70,000	20,000	15,000	-105,000
Remainder to be allocated:				-30,000
-30,000x1/3	-10,000	-10,000	-10,000	30,000
Balance of net income to be allocated				0
Total to be allocated to each partner	64,000	13,000	13,000	90,000

The sum of the totals **must** reconcile (be equal to) the net income/loss being allocated.

The total income allocated to each partner is carried into the net income line of the Statement of Changes in Equity (as shown next).



An exploration is available on the Lyryx site. Log into your Lyryx course to run Allocating Incomes/Losses – Interest, Salaries, Remainder.

Financial Statements

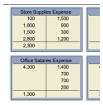
The income statement for a partnership is identical to that for a proprietorship. The statement of changes in equity for a partnership is similar to a proprietorship's except that there is a Capital account and Withdrawals account for each of the partners.

Assume that on January 1, 2023, the first year of operations for WBB Consulting, the partners, Wharton, Bartwiz, and Butti, invested $20,000, $15,000, and $40,000, respectively. During 2023 they each withdrew $5,000. The statement of changes in equity would appear as illustrated in Figure 13.5 given a net income for the year of $90,000 allocated as shown in Example 5 previously.

WBB Consulting
Statement of Changes in Equity
Year Ended December 31, 2023

	Wharton	Bartwiz	Butti	Totals
Capital, January 1, 2023	$ 0	$ 0	$ 0	$ 0
Add: Investments by partners	20,000	15,000	40,000	75,000
Net income	64,000	13,000	13,000	90,000
Subtotals	$84,000	$28,000	$53,000	$165,000
Less: Withdrawals by partners	5,000	5,000	5,000	15,000
Capital, December 31, 2023	$79,000	$23,000	$48,000	$150,000

Figure 13.5: Statement of Changes in Equity for a Partnership



An exploration is available on the Lyryx site. Log into your Lyryx course to run Allocating Income – Remainder to be Allocated.

In the equity section on the balance sheet there will be more than one owner's capital account as shown in Figure 13.6.

WBB Consulting
Balance Sheet
December 31, 2023

Assets		
Cash		$ 35,000
Other assets		143,000
Total assets		$ 178,000
Liabilities		$ 28,000
Equity		
Wharton, capital	$79,000	
Bartwiz, capital	23,000	
Butti, capital	48,000	150,000
Total liabilities and equity		$ 178,000

Figure 13.6: Balance Sheet for a Partnership

Summary of Chapter 13 Learning Objectives

LO1 – Describe the characteristics of a proprietorship, including how its financial statements are different from those of a corporation.

A proprietorship is a business owned by one person. It is not a separate legal entity, which means that the business and the owner are considered to be the same entity. The profits of a proprietorship are taxed as part of the owner's personal income tax return. Unlimited liability is another characteristic of a proprietorship meaning that if the business could not pay its debts, the owner would be responsible even if the business's debts were greater than the owner's personal resources. Owner investments, owner withdrawals, and net incomes/losses are closed to one permanent account: the Owner's Capital account.

LO2 – Describe the characteristics of a partnership, including how its financial statements are different from those of a corporation.

A partnership is a business owned by more than one person. Partners should have a partnership contract that details their agreement on things such as each partner's rights and duties, the sharing of incomes/losses and withdrawals, as well as dispute and termination procedures. A partnership is not a separate legal entity, which means that the business and the partners are considered to be the same entity. Each partner's share of the profits is taxed as part of that partner's personal income tax return. Unlimited liability is another characteristic of a partnership meaning that if the business could not pay its debts, the partners would be responsible even if the business's debts were greater than the partners' personal resources. The exception to this would be the formation of a limited liability partnership (LLP) that is permitted for professionals such as lawyers and accountants. In an LLP, the general partner(s) is/are responsible for the management of the partnership and assume(s) unlimited liability while the limited partners have limited liability but also limited roles in the partnership as specified in the partnership agreement. Partnerships also have a limited life and are subject to *mutual agency*. Mutual agency means that a partner can commit the partnership to any contract because each partner is an authorized agent of the partnership. The closing entries for a partnership are the same as those for a proprietorship except there is more than one capital account and more than one withdrawals account. The closing of the income summary to each partner's capital account is based on the allocation details in the partnership agreement.

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