Predictive Books Algorithms

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0.1 Preface

This is an accounting math book. Technically, it is interconnected GAAP formulas forming algorithms that generate journal entries.

First, accounting concepts are defined into a vocabulary. Then the relationships between the accounting concepts are mathematically expressed. By expressing concepts in math form instead of in essay form, clarity and precision are gained. Moreover, the math formulas are labeled, and subsequent uses of a particular formula carry the formula's label for backward reference. This labeling and backward referencing provides interconnection. Also, the formulas are sequenced to form algorithms. By expressing accounting algorithmically, the mechanics of accounting become intuitive.

Two companion books comprise this set: *The Accountancy Model* and *The Accountancy Model Examples*. Additional copies of *The Accountancy Model* and *The Accountancy Model Examples* may be downloaded from AccountancyModel.com. Moreover, this is a work in progress. Empty sections are placeholders for future work. Complaints, corrections, suggestions, and requests are encouraged. Please email timriley@appahost.com.

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Chapter 1

Revenues and Receivables

1.1 Revenue Terms and Accounts

1.1.1 Revenue

A Revenue is the increase in equity as a result of the firm providing goods and services.

1.1.2 Revenue Recognition Principle

The Revenue Recognition Principle states that Revenue (1.1.1) can be recognized when they are (1) realized or realizable and (2) earned.

Further FASB clarification has specifically specified that revenue can be recongized only when:

1. A contract exists for both performance and payment.
2. The firm's performance is at least nearly completed, meaning the seller does not have any further significant obligations. For firms that manufacture products, revenue is recognized upon ready-for-shipment or ready-for-pickup. An exception to the performance requirement exists for long-term construction projects (1.20).
3. The collection of Cash (1.1.9), or items or services of equivalent value, is reasonably assured.
4. If the term is Free-On-Board (FOB) Destination, then the delivery is completed.
5. The selling price is substantially fixed.
6. The sale is not contingent upon resale.
7. Product theft or destruction does not void the contract.
8. The buyer has economic substance apart from the seller.
9. The anticipated returns are reasonably estimated, or the right of return privilege has expired.
10. The anticipated returns are not excessive – anticipated returns are $< 25\%$, or the right of return privilege has expired.
11. Time has passed if the contract is interest for using money, rent for using fixed assets, or royalties for using intangible assets.
12. The costs of long-term construction projects are reasonably estimated.

1.1.3 Asset

Informally, an Asset is an item of value used to generate Revenue. (1.1.1).

1.1.4 Expense

An Expense is the consumption of an Asset (1.1.3) in the process of generating Revenue (1.1.1).

1.1.5 Matching Principle

The Matching Principle states that Expenses (1.1.4) for the period should be matched with the Revenues (1.1.1) that these Expenses generate, if possible.

1.1.6 Sinking Fund

A Sinking Fund is Cash or Investments set aside for the payment of a debt.

1.1.7 Compensating Balance

A Compensentating Balance is Cash set aside as a requirement for a loan or line of credit. The result of a Compensating Balance is an increase in the interest rate of the loan:

$$\text{Effective Interest Rate} = \frac{\text{Loan Amount} \times \text{Stated Interest Rate}}{\text{Loan Amount} - \text{Compensating Balance}}$$

1.1.8 Restricted Cash

Restricted Cash = Sinking Fund (17.2.1) + Compensentating Balance (1.1.7)

1.1.9 Cash or Cash Equivalent

Cash or Cash Equivalent is a Current Asset reported on the Balance Sheet. Cash consists of:

1. Coins
2. Currency
3. Bank deposits free from contractual restrictions
4. Checks (personal, cashier's, certified, money orders, and bank drafts)

Cash Equivalents are investments with original maturities less than three months. They consist of:

1. Money Market accounts
2. Treasury Bills
3. Commercial Paper

Note: Restricted Cash (1.1.8) is not considered Cash or Cash Equivalent; instead, they are reported as Investments.

1.1.10 Inventory

Inventory is a Current Asset (1.1.3) account.

1.1.11 Accounts Receivable

Accounts Receivable is a Current Asset (1.1.3) account. Note: it is often reported on the Balance Sheet as Trade Accounts Receivable.

1.1.12 Other Revenues and Gains

Other Revenues and Gains is the gaining of Cash (1.1.9) in response to the abnormal activities of the firm.

1.1.13 Unearned Revenue

Unearnted Revenue is a Liability account. It is used to store deposits (1.9) received for work yet to be performed.

1.1.14 Cost of Goods Sold

Cost of Goods Sold is an Expense (1.1.4) account. It represents the amount the firm paid for its Inventory (1.1.10). Cost of Goods Sold is subtracted from Revenue (1.1.1) to yield Gross Margin (1.1.16).

1.1.15 Cost of Goods Sold Amount

Cost of Goods Sold Amount = Sales Amount (1.1.22) ×
[1 – Gross Profit Percentage (1.1.25)]
–OR–
Cost of Goods Sold Amount = Cost Amount (1.1.23)

1.1.16 Gross Margin

Gross Margin is a calculated value (1.1.21) reported on the Income Statement. Gross Margin is also called Gross Profit.

Gross Margin = Revenue (1.1.1) – Cost of Goods Sold (1.1.14)

1.1.17 Bad Debt Expense

Bad Debt Expense is an Expense (1.1.4) account. It is an estimate of how much of the year's credit sales will become uncollectable.

1.1.18 Allowance for Doubtful Accounts

Allowance for Doubtful Accounts is a Contra-Accounts Receivable (1.1.11) account. It is subtracted from Accounts Receivable (1.1.11) to yield the net realizable amount of the firm's Trusted Business' (1.3.1) debt to be collected.

1.1.19 Deferred Gross Profit

Deferred Gross Profit is a Contra-Accounts Receivable (1.1.11) account. It is also called Deferred Gross Margin.

1.1.20 Net Accounts Receivable

Net Accounts Receivable = Installment Accounts Receivable (1.21.1) Debit Balance –
Deferred Gross Profit (1.1.19) Credit Balance

1.1.21 Realized Gross Profit

Realized Gross Profit is a Gross Profit (1.1.16) account. The Income Statement presentation looks like:

	Sales Revenue
(less)	Cost of Goods Sold (1.1.14)
	Gross Profit on Sales
(add)	Realized Gross Profit
	Gross Profit (1.1.16)

1.1.22 Sales Amount

The Selling Price Per Item is the amount the customer paid for each item purchased.
Let n = The number of distinct items sold.

Sales Amount = $\sum_{i=1}^{n}$ Item Quantity$_i$ × Selling Price Per Item$_i$

1.1.23 Cost Amount

The Cost Per Item is the amount the firm paid for each item sold.
Let n = The number of distinct items sold.

Cost Amount = $\sum_{i=1}^{n}$ Item Quantity$_i$ × Cost Per Item$_i$
–OR–
Cost Amount = Cost of Goods Sold Amount (1.1.15)

1.1.24 Gross Profit Per Item

Gross Profit Per Item = Selling Price Per Item – Cost Per Item

1.1.25 Gross Profit Percentage

Gross Profit Percentage is also called Markup Percent On Selling Price.

$$\text{Gross Profit Percentage} = \frac{\text{Gross Profit Per Item (1.1.24)}}{\text{Selling Price Per Item}}$$

$$\text{Markup Percent On Selling Price} = \frac{\text{Markup Percent On Cost (1.1.26)}}{1 + \text{Markup Percent On Cost}}$$

1.1.26 Markup Percent On Cost

$$\text{Markup Percent On Cost} = \frac{\text{Gross Profit Per Item (1.1.24)}}{\text{Cost Per Item}}$$

–OR–

$$\text{Markup Percent On Cost} = \frac{\text{Markup Percent On Selling Price (1.1.25)}}{1 - \text{Markup Percent On Selling Price}}$$

1.1.27 Sales Tax Payable

Sales Tax Payable is a Liability account. Sales taxes are only collected on products sold to within-state end-users. So inventory, raw materials, and components sold to businesses are not taxed; however, products sold to businesses as equipment are taxed in some states.

1.1.28 Sales Tax Receivable

Sales Tax Receivable is an Asset account. Trusted Businesses (1.3.1) owing sales taxes to you are recorded here.

1.1.29 Sales Tax Amount

Sales Tax Amount = Sales Amount (1.1.22) × State Tax Rate

1.1.30 Invoice Amount

Invoice Amount = Sales Amount (1.1.22) + Sales Tax Amount (1.1.29)

1.2 Consumer Sales

1.2.1 Credit Card Discount

Credit Card Discount is a Contra-Revenue account. Firms obtain merchant accounts from banks or merchant brokers to gain the ability to accept credit card payments from consumers. Merchant accounts work by taking the Invoice Amount (1.1.30) from the consumer's credit card and depositing that amount, less a fee, into the firm's checking account. The fee for this service is typically 3% of the Invoice Amount.

1.2.2 Credit Card Discount Amount

Credit Card Discount Amount = Invoice Amount (1.1.30) × Merchant Fee Percent

1.2.3 Consumer Sales: Net Sales

Consumer Sales: Net Sales = Invoice Amount (1.1.30) – Credit Card Discount Amount (1.2.2)

1.2.4 Consumer Cash Sales Journal Entry

		Debit	Credit
XX/XX/XX	Cash (1.1.9)	Invoice Amount (1.1.30)	
	Cost of Goods Sold (1.1.14)	Cost Amount (1.1.23)	
	Sales Revenue (1.1.1)		Sales Amount (1.1.22)
	Sales Tax Payable (1.1.27)		Sales Tax Amount (1.1.29)
	Inventory (1.1.10)		Cost Amount (1.1.23)

1.2.5 Consumer Credit Sales Journal Entry

		Debit	Credit
XX/XX/XX	Cash (1.1.9)	Consumer Sales: Net Sales (1.2.3)	
	Cost of Goods Sold (1.1.14)	Cost Amount (1.1.23)	
	Credit Card Discount (1.2.1)	Credit Card Discount Amount (1.2.2)	
	Sales Revenue (1.1.1)		Sales Amount (1.1.22)
	Sales Tax Payable (1.1.27)		Sales Tax Amount (1.1.29)
	Inventory (1.1.10)		Cost Amount (1.1.23)

1.3 Business Sales

1.3.1 Trusted Business

A Trusted Business is granted credit by the firm and is typically allowed up to a month to pay for products and services it receives.

1.3.2 Sales Discount Percent

Firms can encourage Trusted Businesses (1.3.1) to pay their Accounts Receivable (1.1.11) balance early by providing a discount. Typically, the discount is 2% of the Sales Amount (1.1.22).

1.3.3 Trade Discount

A Trade Discount is an incentive for the customer to purchase multiple quantites of an item. If at least this minimum quantity is purchased, then the Price Per Item is lowered. Use this new Price Per Item in calculating the Sales Amount (1.1.22).

1.3.4 Sales Discount Amount

Sales Discount Amount = Sales Amount (1.1.22) × Sales Discount Percent (1.3.2)

1.3.5 Discount Period

The Discount Period are the days within that if a check for the Invoice Amount (1.1.30) is mailed (postmarked), the Sales Discount Amount (1.3.4) can be deducted. Typically, the Discount Period is 10 days.

1.3.6 Business Sales: Net Sales

Business Sales: Net Sales = + Sales Amount (1.1.22)
- Sales Discount Amount (1.3.4)
- Estimated Future Sales Discounts on Current-Year Sales
- Returns on Current-Year Sales
- Estimated Future Returns on Current-Year Sales

1.3.7 Discounts Forfeited

Discounts Forfeited is an Other Revenues and Gains (1.1.12) account. If the firm's customer does not pay withing the Discount Period (1.3.5), then add the Sales Discount Amount (1.3.4) here. Note (1): if Discounts Forfeited is used, then Sales Discounts (1.3.8) is not used. Note (2): sometimes the account Interest Revenue is used instead.

1.3.8 Sales Discounts

Sales Discounts is a Contra-Revenue account. If the firm's customer does pay withing the Discount Period (1.3.5), then add the Sales Discount Amount (1.3.4) here. Note: if Sales Discounts is used, then Discounts Forfeited (1.3.7) is not used.

1.3.9 Business Cash Sales Journal Entry

		Debit	Credit
XX/XX/XX	Cash (1.1.9)	Invoice Amount (1.1.30)	
	Cost of Goods Sold (1.1.14)	Cost Amount (1.1.23)	
	Sales Revenue (1.1.1)		Sales Amount (1.1.22)
	Sales Tax Payable (1.1.27)		Sales Tax Amount (1.1.29)
	Inventory (1.1.10)		Cost Amount (1.1.23)

1.3.10 Business Credit Sales Journal Entry (Net Method)

If the firm chooses to use the Net Method, then the firm anticipates that the customer will take advantage of the Sales Discount Amount (1.3.4). The Net Method will use the account Discounts Forfeited (1.3.7), not Sales Discounts (1.3.8), to help with the bookkeeping.

		Debit	Credit
XX/XX/XX	Accounts Receivable (1.1.11)	Business Sales: Net Sales (1.3.6)	
	Cost of Goods Sold (1.1.14)	Cost Amount (1.1.23)	
	Sales Tax Receivable (1.1.28)	Sales Tax Amount (1.1.29)	
	Sales Revenue (1.1.1)		Business Sales: Net Sales (1.3.6)
	Sales Tax Payable (1.1.27)		Sales Tax Amount (1.1.29)
	Inventory (1.1.10)		Cost Amount (1.1.23)

1.3.11 Cash Receipt Within Discount Period (1.3.5) Journal Entry (Net Method)

		Debit	Credit
XX/XX/XX	Cash (1.1.9)	(1.1.30) – (1.3.4)	
	Accounts Receivable (1.1.11)		Business Sales: Net Sales (1.3.6)
	Sales Tax Receivable (1.1.28)		Sales Tax Amount (1.1.29)

1.3.12 Cash Receipt Beyond Discount Period (1.3.5) Journal Entry (Net Method)

		Debit	Credit
XX/XX/XX	Cash (1.1.9)	Invoice Amount (1.1.30)	
	Accounts Receivable (1.1.11)		Business Sales: Net Sales (1.3.6)
	Discounts Forfeited (1.3.7)		Sales Discount Amount (1.3.4)
	Sales Tax Receivable (1.1.28)		Sales Tax Amount (1.1.29)

1.3.13 Business Credit Sales Journal Entry (Gross Method)

If the firm chooses to use the Gross Method, then the firm anticipates that the customer will not take advantage of the Sales Discount Amount (1.3.4). The Gross Method will use the account Sales Discounts (1.3.8), not Discounts Forfeited (1.3.7), to help with the bookkeeping.

		Debit	Credit
XX/XX/XX	Accounts Receivable (1.1.11)	Sales Amount (1.1.22)	
	Cost of Goods Sold (1.1.14)	Cost Amount (1.1.23)	
	Sales Tax Receivable (1.1.28)	Sales Tax Amount (1.1.29)	
	Sales Revenue (1.1.1)		Sales Amount (1.1.22)
	Sales Tax Payable (1.1.27)		Sales Tax Amount (1.1.29)
	Inventory (1.1.10)		Cost Amount (1.1.23)

1.3.14 Cash Receipt Within Discount Period (1.3.5) Journal Entry (Gross Method)

		Debit	Credit
XX/XX/XX	Cash (1.1.9)	(1.1.30) – (1.3.4)	
	Sales Discounts (1.3.8)	Sales Discount Amount (1.3.4)	
	Accounts Receivable (1.1.11)		Sales Amount (1.1.22)
	Sales Tax Receivable (1.1.28)		Sales Tax Amount (1.1.29)

1.3.15 Cash Receipt Beyond Discount Period (1.3.5) Journal Entry (Gross Method)

		Debit	Credit
XX/XX/XX	Cash (1.1.9)	Invoice Amount (1.1.30)	
	Accounts Receivable (1.1.11)		Sales Amount (1.1.22)
	Sales Tax Receivable (1.1.28)		Sales Tax Amount (1.1.29)

1.4 Estimating Bad Debt Expense: Credit Sales Method

1.4.1 Doubtful Credit Sales Percent

Doubtful Credit Sales Percent is an estimate of the percentage of credit sales for the year that is not likely to be collected.

1.4.2 Bad Debt Expense Amount

Bad Debt Expense Amount = Credit Sales for Year × Doubtful Credit Sales Percent (1.4.1)

1.5 Estimating Bad Debt Expense: Aging Accounts Receivable Method

1.5.1 Allowance for Doubtful Accounts Ending Balance

Allowance for Doubtful Accounts Ending Balance =

+ Accounts Receivable Not Yet Due	× Not Yet Due Estimated Percent
+ Accounts Receivable Past Due 1-30 days	× Past Due 1-30 days Estimated Percent
+ Accounts Receivable Past Due 31-60 days	× Past Due 31-60 days Estimated Percent
+ Accounts Receivable Past Due 61-90 days	× Past Due 61-90 days Estimated Percent
+ Accounts Receivable Past Due over 90 days	× Past Due over 90 days Estimated Percent

1.5.2 Allowance for Doubtful Accounts Table

Build the following table to assist in calculating the Allowance for Doubtful Accounts Ending Balance (1.5.1):

	A/R Amount (1)	Uncollectible Percent (2)	Product (1) × (2)
Not Yet Due			
Past Due 1-30 days			
Past Due 31-60 days			
Past Due 61-90 days			
Past Due over 90 days			
	$\sum$ = A/R Debit Balance		$\sum$ = (1.5.1)

1.5.3 Doubtful Aging Accounts Receivable Percent Suggestion

Here is a sample for the percents to use for Aging Accounts Recievable:

Not Yet Due	0.01
Past Due 1-30 days	0.03
Past Due 31-60 days	0.06
Past Due 61-90 days	0.10
Past Due over 90 days	0.25

1.5.4 Bad Debt Expense Amount

If Allowance for Doubtful Accounts (1.1.18) has a credit balance:
Bad Debt Expense Amount = Allowance for Doubtful Accounts Ending Balance (1.5.1) − Allowance For Doubtful Accounts (1.1.18) Credit Balance

If Allowance for Doubtful Accounts (1.1.18) has a debit balance:
Bad Debt Expense Amount = Allowance for Doubtful Accounts Ending Balance (1.5.1) + Allowance For Doubtful Accounts (1.1.18) Debit Balance

Note: If Allowance for Doubtful Accounts Adjustment < 0 then:
Record a Prior Period Adjustment.

1.6 Bad Debt Expense Journal Entry

		Debit	Credit
12/31/XX	Bad Debt Expense (1.1.17)	(1.4.2) or (1.5.4)	
	Allowance for Doubtful Accounts (1.1.18)		(1.4.2) or (1.5.4)

1.7 Writing Off a Bad Debt

		Debit	Credit
XX/XX/XX	Allowance for Doubtful Accounts (1.1.18)	Bad Debt Never Collect	
	Accounts Receivable (1.1.11)		Bad Debt Never Collect

1.8 Sales Returns and Allowances

Sales Returns and Allowances is a Contra-Revenue account.

1.8.1 Sales Returns

Sales Returns are the normal returns customers frequently make.
Journal Entry

		Debit	Credit
XX/XX/XX	Sales Returns and Allowances (1.8)	Price of Returned Item	
	Inventory (1.1.10)	Cost of Returned Item	
	Cash or Accounts Receivable (1.1.11)		Price of Returned Item
	Cost of Goods Sold (1.1.14)		Cost of Returned Item

1.8.2 Sales Allowances

Sales Allowances are credits given to customers for less-than-perfect performance by the firm. Instead of returning the defective merchandise, the customer may receive a Sales Allowance instead.
Journal Entry

		Debit	Credit
XX/XX/XX	Sales Returns and Allowances (1.8)	Sales Allowance	
	Cash or Accounts Receivable (1.1.11)		Sales Allowance

1.9 Revenue Deposits

A Deposit received for work yet to be performed is recorded as a Liability. After the firm's performance is at least nearly completed, then the liability is transfered to Revenues.

1.9.1 Receipt of Deposit

		Debit	Credit
XX/XX/XX	Cash (1.1.9)	Amount	
	Unearned Revenue (1.1.13)		Amount

1.9.2 Work Performance

		Debit	Credit
XX/XX/XX	Unearned Revenue (1.1.13)	Amount	
	Sales Revenue (1.1.1)		Amount

1.10 Right of Return Exists: No Estimate

Right of Return Exists: No Estimate is the accounting model to apply on sales when the right of return exists but returns cannot be reasonably estimated.

1.10.1 Sales Journal Entry

		Debit	Credit
XX/XX/XX	Accounts Receivable (1.1.11)	Sales Amount (1.1.22)	
	Cost of Goods Sold (1.1.14)	Cost Amount (1.1.23) or (1.1.15)	
	Sales Revenue (1.1.1)		Sales Amount (1.1.22)
	Inventory (1.1.10)		Cost Amount (1.1.23) or (1.1.15)

1.10.2 Cash Collected Journal Entry

		Debit	Credit
XX/XX/XX	Cash (1.1.9)	Cash Amount	
	Accounts Receivable (1.1.11)		Cash Amount

1.10.3 Sales Return Amount

Sales Return Amount = Quantity Returned ×
Selling Price Per Item

1.10.4 Actual Returns: Current Year Sale

Inventory Adjustment Amount = Quantity Returned ×
Cost Per Item

–OR–

Inventory Adjustment Amount = Sales Return Amount (1.10.3) ×
[1 – Gross Profit Percentage (1.1.25)]

Journal Entry

		Debit	Credit
XX/XX/XX	Sales Returns and Allowances (1.8)	Sales Return Amount (1.10.3)	
	Inventory (1.1.10)	Inventory Adjustment Amount	
	Cash or Accounts Receivable		Sales Return Amount (1.10.3)
	Cost of Goods Sold (1.1.14)		Inventory Adjustment Amount

1.10.5 Adjusting Journal Entry

Deferred Gross Profit Adjustment = Sales: Unexpired Return Privilege ×
Gross Profit Percentage (1.1.25)

Cost of Goods Sold Adjustment = Sales: Unexpired Return Privilege ×
[1 – Gross Profit Percentage (1.1.25)]

Journal Entry

		Debit	Credit
12/31/XX	Sales Revenue (1.1.1)	Sales: Unexpired Return Privilege	
	Cost of Goods Sold (1.1.14)		Cost of Goods Sold Adjustment
	Deferred Gross Profit (1.1.19)		Deferred Gross Profit Adjustment

1.10.6 Actual Returns: Previous Year Sale

Inventory Adjustment Amount = Quantity Returned ×
Cost Per Item

–OR–

Inventory Adjustment Amount = Sales Return Amount (1.10.3) ×
[1 – Gross Profit Percentage (1.1.25)]

Deferred Gross Profit Adjustment = Sales Return Amount (1.10.3) ×
Gross Profit Percentage (1.1.25)

Journal Entry

		Debit	Credit
XX/XX/XX	Inventory (1.1.10)	Inventory Adjustment Amount	
	Deferred Gross Profit (1.1.19)	Deferred Gross Profit Adjustment	
	Accounts Receivable (1.1.11)		Sales Return Amount (1.10.3)

1.11 Right of Return Exists: With Estimate

Right of Return Exists: With Estimate is the accounting model to apply on sales when the right of return exists and returns can be reasonably estimated.

1.11.1 Sales Journal Entry

		Debit	Credit
XX/XX/XX	Accounts Receivable (1.1.11)	Sales Amount (1.1.22)	
	Cost of Goods Sold (1.1.14)	Cost Amount (1.1.23) or (1.1.15)	
	Sales Revenue (1.1.1)		Sales Amount (1.1.22)
	Inventory (1.1.10)		Cost Amount (1.1.23) or (1.1.15)

1.11.2 Cash Collected Journal Entry

		Debit	Credit
XX/XX/XX	Cash (1.1.9)	Cash Amount	
	Accounts Receivable (1.1.11)		Cash Amount

1.11.3 Sales Return Amount

Sales Return Amount = Quantity Returned ×
Selling Price Per Item

1.11.4 Actual Returns: Current Year Sale

Inventory Adjustment Amount = Quantity Returned ×
Cost Per Item

–OR–

Inventory Adjustment Amount = Sales Return Amount (1.11.3) ×
[1 – Gross Profit Percentage (1.1.25)]

Journal Entry

		Debit	Credit
XX/XX/XX	Sales Returns and Allowances (1.8)	Sales Return Amount (1.11.3)	
	Inventory (1.1.10)	Inventory Adjustment Amount	
	Accounts Receivable (1.1.11)		Sales Return Amount (1.11.3)
	Cost of Goods Sold (1.1.14)		Inventory Adjustment Amount

1.11.5 Adjusting Journal Entry

Estimated Returns = Sales Amount (1.1.22) ×
Estimate Returns Percent

Estimated Additional Returns = Estimated Returns –
Sales Return Amount (1.11.3)

Deferred Gross Profit Adjustment = Estimated Additional Returns ×
Gross Profit Percentage (1.1.25)

Cost of Goods Sold Adjustment = Estimated Additional Returns ×
[1 – Gross Profit Percentage (1.1.25)]

Journal Entry

		Debit	Credit
12/31/XX	Sales Returns and Allowances (1.8)	Estimated Additional Returns	
	Cost of Goods Sold (1.1.14)		Cost of Goods Sold Adjustment
	Deferred Gross Profit (1.1.19)		Deferred Gross Profit Adjustment

1.11.6 Actual Returns: Previous Year Sale

Inventory Adjustment Amount = Quantity Returned × Cost Per Item

–OR–

Inventory Adjustment Amount = Sales Return Amount (1.11.3) × [1 – Gross Profit Percentage (1.1.25)]

Deferred Gross Profit Adjustment = Sales Return Amount (1.11.3) × Gross Profit Percentage (1.1.25)

Journal Entry

		Debit	Credit
XX/XX/XX	Inventory (1.1.10)	Inventory Adjustment Amount	
	Deferred Gross Profit (1.1.19)	Deferred Gross Profit Adjustment	
	Cash or Accounts Receivable		Sales Return Amount (1.11.3)

1.12 Assigning Accounts Receivable

Assigning Accounts Receivable is borrowing money from a finance company and using Accounts Receivable as collateral.

1.12.1 Finance Charge Amount

The finance company may charge a finance fee on the amount borrowed.

Finance Charge Amount = Amount Lent/Borrowed × Finance Charge Percent

1.12.2 Interest Expense Amount

The borrower usually pays interest on the outstanding balance.

Interest Expense Amount = Notes Payable Credit Balance × Interest Rate

Note: Interest Expense Amount = Interest Revenue Amount (1.12.3)

1.12.3 Interest Revenue Amount

The finance company usually receives interest on the outstanding balance.

Interest Revenue Amount = Notes Receivable Debit Balance × Interest Rate

Note: Interest Revenue Amount = Interest Expense Amount (1.12.2)

1.13 Assigning Accounts Receivable: Borrower's Perspective

1.13.1 Cash Receive Amount

Cash Receive Amount = Amount Lent/Borrowed – Finance Charge Amount (1.12.1)

1.13.2 Borrow Money Using A/R as Collateral

		Debit	Credit
XX/XX/XX	Cash (1.1.9)	Cash Receive Amount (1.13.1)	
	Finance Charge Expense	Finance Charge Amount (1.12.1)	
	Notes Payable		Amount Lent/Borrowed

1.13.3 Collect Cash from Customers

		Debit	Credit
XX/XX/XX	Cash (1.1.9)	Cash Receive Amount	
	Accounts Receivable		Cash Receive Amount

1.13.4 Make Monthly Payments to Finance Company

If Cash Receive Amount (1.13.3) < Notes Payable Credit Balance then:
Cash Payment Amount = Cash Receive Amount (1.13.3) +
Interest Expense Amount (1.12.2)
Note Payable Amount = Cash Receive Amount (1.13.3)
If Cash Receive Amount (1.13.3) >= Notes Payable Credit Balance then:
Cash Payment Amount = Note Payable Credit Balance +
Interest Expense Amount (1.12.2)
Note Payable Amount = Note Payable Credit Balance

		Debit	Credit
XX/31/XX	Interest Expense	Interest Expense Amount (1.12.2)	
	Notes Payable	Note Payable Amount	
	Cash		Cash Payment Amount

1.14 Assigning Accounts Receivable: Lender's Perspective

1.14.1 Cash Lend Amount

Cash Lend Amount = Amount Lent/Borrowed –
Finance Charge Amount (1.12.1)

1.14.2 Lend Money Using A/R as Collateral

		Debit	Credit
XX/XX/XX	Notes Receivable	Amount Lent/Borrowed	
	Finance Revenue		Finance Charge Amount (1.12.1)
	Cash (1.1.9)		Cash Lend Amount (1.14.1)

1.14.3 Receive Monthly Payments From Borrower

Note Receivable Amount = Cash Receive Amount –
Interest Revenue Amount (1.12.3)

		Debit	Credit
XX/31/XX	Cash	Cash Receive Amount	
	Interest Revenue		Interest Revenue Amount (1.12.3)
	Notes Receivable		Note Receivable Amount

1.15 Sale of Accounts Receivable

Sale of Accounts Receivable (1.1.11) is a firm's collecting of money early by selling Accounts Receivable to a finance company. The firm's customer is made aware of this arrangement and is instructed to make payments to the finance company instead of the firm. Sale of Accounts Receivable is also called Factoring, and the finance company is also called the Factor. Without Recourse means the firm is no longer responsible for collections of Bad Debt. With Recourse means the firm is still responsible for collections of Bad Debt.

1.15.1 Retain Rate

The Retain Rate is the percentage of estimated sales expected to be Returned (1.11.3).

1.15.2 Due From Factor

Due From Factor is an asset account in the firm's General Ledger used to store the estimated sales expected to be Returned (1.11.3) that has not yet been returned.

1.15.3 Due To *Customer*

Due To *Customer* is a liability account in the finance company's General Ledger used to store the estimated sales expected to be Returned (1.11.3) that has not yet been returned.

1.15.4 Due From Factor Amount

Due From Factor Amount = Accounts Receivable Book Amount × Retain Rate (1.15.1)

1.15.5 Due To *Customer* Amount

Due To *Customer* Amount = Accounts Receivable Book Amount × Retain Rate (1.15.1)

1.15.6 Finance Charge Amount

The finance company will charge a finance fee on the Account Receivable Book Value.

Finance Charge Amount = Accounts Receivable Book Amount × Finance Charge Percent

1.15.7 Cash Amount

Cash Amount = Accounts Receivable Book Amount – [Factor Amount (1.15.4) or (1.15.5) + Finance Charge Amount (1.15.6)]

1.15.8 Recourse Liability Amount

If the With Recourse Sale of A/R Method (1.18) or (1.19) is used, then Recourse Liability Amount is the expected amount of Bad Debt Never Collected.

Recourse Liability Amount = Bad Debt Expense Amount (1.4.2) or (1.5.4)

1.16 Sale of A/R: Without Recourse — Firm's Perspective

1.16.1 Sale of Accounts Receivable Journal Entry

		Debit	Credit
XX/XX/XX	Cash (1.1.9)	Cash Amount (1.15.7)	
	Due from Factor (1.15.2)	Factor Amount (1.15.4)	
	Loss on Sale of A/R	Finance Charge Amount (1.12.1)	
	Accounts Receivable (1.1.11)		Accounts Receivable Book Amount

1.16.2 Actual Returns: Current Year Sale

Inventory Adjustment Amount = Quantity Returned × Cost Per Item

–OR–

Inventory Adjustment Amount = Sales Return Amount (1.11.3) × [1 – Gross Profit Percentage (1.1.25)]

Journal Entry

		Debit	Credit
XX/XX/XX	Sales Returns and Allowances (1.8)	Sales Return Amount (1.11.3)	
	Inventory (1.1.10)	Inventory Adjustment Amount	
	Due from Factor (1.15.2)		Sales Return Amount (1.11.3)
	Cost of Goods Sold (1.1.14)		Inventory Adjustment Amount

1.17 Sale of A/R: Without Recourse — Factor's Perspective

1.17.1 Purchase of Accounts Receivable Journal Entry

		Debit	Credit
XX/XX/XX	Accounts Receivable (1.1.11)	Accounts Receivable Book Amount	
	Due to *Customer* (1.15.3)		Factor Amount (1.15.5)
	Financing Revenue		Finance Charge Amount (1.12.1)
	Cash		Cash Amount (1.15.7)

1.17.2 Actual Returns

		Debit	Credit
XX/XX/XX	Due to *Customer* (1.15.3)	Sales Return Amount (1.11.3)	
	Accounts Receivable (1.1.11)		Sales Return Amount (1.11.3)

1.17.3 Writing Off a Bad Debt

		Debit	Credit
XX/XX/XX	Bad Debt Expense	Bad Debt Never Collect	
	Accounts Receivable (1.1.11)		Bad Debt Never Collect

1.18 Sale of A/R: With Recourse — Firm's Perspective

1.18.1 Loss Amount

Loss Amount = Finance Charge Amount (1.12.1) +
Recourse Liability Amount (1.15.8)

1.18.2 Sale of Accounts Receivable Journal Entry

		Debit	Credit
XX/XX/XX	Cash (1.1.9)	Cash Amount (1.15.7)	
	Due from Factor (1.15.2)	Factor Amount (1.15.4)	
	Loss on Sale of A/R	Loss Amount (1.18.1)	
	Accounts Receivable (1.1.11)		Accounts Receivable Book Amount
	Recourse Liability		Recourse Liability Amount (1.15.8)

1.18.3 Actual Returns: Current Year Sale

Inventory Adjustment Amount = Quantity Returned ×
Cost Per Item

–OR–

Inventory Adjustment Amount = Sales Return Amount (1.11.3) ×
[1 – Gross Profit Percentage (1.1.25)]

Journal Entry

		Debit	Credit
XX/XX/XX	Sales Returns and Allowances (1.8)	Sales Return Amount (1.11.3)	
	Inventory (1.1.10)	Inventory Adjustment Amount	
	Due from Factor (1.15.2)		Sales Return Amount (1.11.3)
	Cost of Goods Sold (1.1.14)		Inventory Adjustment Amount

1.18.4 Writing Off a Bad Debt

		Debit	Credit
XX/XX/XX	Recourse Liability	Bad Debt Never Collect	
	Cash		Bad Debt Never Collect

1.19 Sale of A/R: With Recourse — Factor's Perspective

1.19.1 Purchase of Accounts Receivable Journal Entry

		Debit	Credit
XX/XX/XX	Accounts Receivable (1.1.11)	Accounts Receivable Book Amount	
	Due to *Customer* (1.15.3)		Factor Amount (1.15.5)
	Financing Revenue		Finance Charge Amount (1.12.1)
	Cash		Cash Amount (1.15.7)

1.19.2 Actual Returns

		Debit	Credit
XX/XX/XX	Due to *Customer* (1.15.3)	Sales Return Amount (1.11.3)	
	Accounts Receivable (1.1.11)		Sales Return Amount (1.11.3)

1.19.3 Writing Off a Bad Debt

		Debit	Credit
XX/XX/XX	Cash	Bad Debt Never Collect	
	Accounts Receivable (1.1.11)		Bad Debt Never Collect

1.20 Long-Term Construction Projects

1.20.1 Construction In Process

Construction In Process is an Inventory (1.1.10) account.

1.20.2 Construction Expenses

Construction Expenses is a Cost of Goods Sold (1.1.14) account.

1.20.3 Billings On Construction

Billings On Construction is a Contra-Construction In Process (1.20.1) account; therefore, it is is subtracted from Construction In Process. If the difference is positive, then it is reported as a Balance Sheet Current Asset called "Cost and recognized profit in excess of billings." If the difference is negative, then it is reported as a Balance Sheet Current Liability called "Estimated liability from long-term contracts."

1.20.4 Long-Term Construction: Journal Entry for Purchases

		Debit	Credit
XX/XX/XX	Construction In Process (1.20.1)	Cost	
	Cash (1.1.9) and/or A/P		Cost

1.20.5 Long-Term Construction: Journal Entry for Billings

		Debit	Credit
XX/XX/XX	Accounts Receivable (1.1.11)	Invoice Amount	
	Billings On Construction (1.20.3)		Invoice Amount

1.20.6 Long-Term Construction: Journal Entry Cash Receipt

		Debit	Credit
XX/XX/XX	Cash (1.1.9)	Cash Received	
	Accounts Receivable (1.1.11)		Cash Received

1.20.7 Construction Revenues

Construction Revenues is a Revenues (1.1.1) account.

1.20.8 Separable Units

Separable Units are a subdivision of a construction project into equally identifiable parts. Equally identifiable parts include:

1. miles of road.
2. floors of a building.
3. homes in a development.

If separable units can be identified, then use the Completed-Contract Method (1.20.9) upon completion of each separable unit. However, care must be taken when front-end loading occurs. Front-end loading must be mitigated by capitalizing early stage costs like uninstalled materials and subcontracting fees not yet performed.

1.20.9 Completed-Contract Method

The Completed-Contract Method applies if costs are indeterminate or construction typically is completed withing one accounting period. Also, the Completed-Contract Method applies if Separable Units (1.20.8) can be determined.

1.20.10 Completed Contract: Journal Entry Upon Construction Completion

		Debit	Credit
XX/XX/XX	Construction Expenses (1.20.2)	(1.20.1) Balance	
	Construction In Process (1.20.1)		(1.20.1) Balance

		Debit	Credit
XX/XX/XX	Billings On Construction (1.20.3)	(1.20.3) Balance	
	Construction Revenues (1.20.7)		(1.20.3) Balance

1.20.11 Percent-of-Completion Method

The Percent-of-Completion Method applies if costs are determinable and construction typically is completed beyond an accounting period. Moreover, Separable Units (1.20.8) can not be not identified.

1.20.12 Prior Costs

Let f = The construction project first year.
Let p = The construction project previous year.

Prior Costs = $\sum_{i=f}^{p}$ Period Cost$_i$

1.20.13 Current Period Costs

Current Period Costs = Construction In Process (1.20.1) Ending Balance –
Construction In Process (1.20.1) Beginning Balance

Note: The Percent-of-Completion: Revenues Journal Entry (1.20.23) adds Period Gross Profit (1.20.20) to the Construction In Process account. Therefore, this calculation is only valid before that closing entry.

1.20.14 Costs So Far

Costs So Far = Prior Costs (1.20.12) + Current Period Costs (1.20.13)

1.20.15 Total Costs Estimate

Total Costs Estimate = Costs So Far (1.20.14) +
Remaining Costs Estimate

1.20.16 Total Gross Profit Estimate

Total Gross Profit Estimate = Total Construction Revenues –
Total Costs Estimate (1.20.15)

1.20.17 Percent Complete

$$\text{Percent Complete} = \frac{\text{Costs So Far (1.20.14)}}{\text{Total Costs Estimate (1.20.15)}}$$

1.20.18 Construction Period Revenues

Construction Period Revenues = [Total Construction Revenues ×
Percent Complete (1.20.17)] –
Total Prior Revenue Table (1.20.19)

Add this period's revenue to the Prior Revenue Table (1.20.19).

1.20.19 Prior Revenue Table

Future revenues are dependent upon prior revenues. Therefore, revenues must be recorded in a table.

Year	Revenues	Total

1.20.20 Period Gross Profit

If Total Gross Profit Estimate (1.20.16) > 0 then:

Period Gross Profit = [Total Gross Profit Estimate (1.20.16) × Percent Complete (1.20.17)] – Total Prior Gross Profit (1.20.21)

If Total Gross Profit Estimate (1.20.16) < 0 then:

If a loss is expected on the entire project, then all of the previously recognized Gross Profit needs to be undone.

Period Gross Profit = Total Gross Profit Estimate (1.20.16) – Total Prior Gross Profit (1.20.21)

Add this period's gross profit to the Prior Gross Profit Table (1.20.21).

1.20.21 Prior Gross Profit Table

Future gross profits are dependent upon prior gross profits. Therefore, gross profits must be recorded in a table.

Year	Gross Profit	Total

1.20.22 Construction Period Expenses

Construction Period Expenses = Construction Period Revenues (1.20.18) – Period Gross Profit (1.20.20)

1.20.23 Percent-of-Completion: Revenues Journal Entry

If Period Gross Profit (1.20.20) > 0 then:

		Debit	Credit
12/31/XX	Construction In Process (1.20.1)	(1.20.20)	
	Construction Expenses (1.20.2)	(1.20.22)	
	Construction Revenues (1.20.7)		(1.20.18)

If Period Gross Profit (1.20.20) < 0 then:

		Debit	Credit
12/31/XX	Construction Expenses (1.20.2)	(1.20.22)	
	Construction In Process (1.20.1)		(1.20.20)
	Construction Revenues (1.20.7)		(1.20.18)

1.20.24 Percent-of-Completion: Journal Entry Upon Construction Completion

		Debit	Credit
12/31/XX	Billings On Construction (1.20.3)	Total Construction Revenues	
	Construction In Process (1.20.1)		Total Construction Revenues

1.21 Installment Sales Method

Revenue recognition might need to be deferred because collection of cash is not reasonably assured. Moreover, the amount of uncollectibility can not be estimated. Therefore, the process of the Installment Sales Method is to omit from the Income Statement the Sales Revenues and the Cost of Goods Sold, but include on the Income Statement the Realized Gross Profit (1.1.21) for those cash payments received for the year.

1.21.1 Installment Accounts Receivable

Installment Accounts Receivable is an Accounts Receivable (1.1.11) account.

1.21.2 Installment Sales

Installment Sales is a Revenue account.

Journal Entry for Installment Sales

		Debit	Credit
XX/XX/XX	Installment Accounts Receivable (1.21.1)	Price of Items Sold	
	Installment Sales		Price of Items Sold

1.21.3 Cost of Installment Sales

Cost of Installment Sales is a Cost of Goods Sold (1.1.14) account.

Journal Entry for Cost of Goods Sold

		Debit	Credit
XX/XX/XX	Cost of Installment Sales	Book Value of Items Sold	
	Inventory		Book Value of Items Sold

1.21.4 Installment Cash Collection

		Debit	Credit
XX/XX/XX	Cash (1.1.9)	Cash Collected	
	Installment Accounts Receivable (1.21.1)		Cash Collected

Add this cash collection to the Cash Collection Table (1.21.5).

1.21.5 Cash Collection Table

For the year of sale that cash was collected, add this cash receipt amount to the running total.

Year	Running Total Cash Collection

Note: After the Installment Sales Closing Entry (1.21.10), erase this table for a clean slate next year.

1.21.6 Installment Gross Profit

$$\text{Installment Gross Profit} = \text{Installment Sales (1.21.2) Balance} - \text{Cost of Installment Sales (1.21.3) Balance}$$

Closing Journal Entry

		Debit	Credit
12/31/XX	Installment Sales (1.21.2)	(1.21.2) Balance	
	Cost of Installment Sales (1.21.3)		(1.21.3) Balance
	Deferred Gross Profit (1.1.19)		(1.21.6)

1.21.7 Installment Gross Profit Margin Percentage

$$\text{Installment Gross Profit Margin Percentage} = \frac{\text{Installment Gross Profit (1.21.6)}}{\text{Installment Sales (1.21.2)}}$$

Add this year's Installment Gross Profit Margin Percentage to the Gross Profit Margin Table Percentage (1.21.8).

1.21.8 Gross Profit Margin Percentage Table

Future cash collections affect future Realized Gross Profit (1.1.21); therefore, each year's Installment Gross Profit Margin Percentage must be recorded in a table.

Year	Installment Gross Profit Margin Percentage

1.21.9 Realized Each Year's Gross Profit

For each year y such that cash was collected this year for a sale made in year y:

$$\text{Realized Gross Profit Amount} = \text{Cash Collection for Sale Made In Year y (1.21.5)} \times \text{Installment Gross Profit Margin Percentage for Year y (1.21.8)}$$

Journal Entry

		Debit	Credit
12/31/XX	Deferred Gross Profit (1.1.19)	(1.21.9)	
	Realized Gross Profit (1.1.21)		(1.21.9)

1.21.10 Installment Sales Closing Entry

After printing the financial statements, then:

		Debit	Credit
12/31/XX	Realized Gross Profit (1.1.21)	(1.1.21) Balance	
	Income Summary		(1.1.21) Balance

1.21.11 Closing Cash Collection Table

Note: After the Installment Sales Closing Entry (1.21.10), erase the Cash Collection Table for a clean slate next year.

Year	Running Total Cash Collection

1.22 Installment Sales Repossession

1.22.1 Repossession: Year Repossed Item Was Purchased

Let y = Year repossessed item was purchased.

1.22.2 Repossession: Realize Year's Gross Profit

Realized Gross Profit Amount for Year y = Cash Collected for Repossessed Item In Current Year ×
Installment Gross Profit Margin Percentage for Year y (1.21.8)

Journal Entry

		Debit	Credit
XX/XX/XX	Deferred Gross Profit (1.1.19)	(1.22.2)	
	Realized Gross Profit (1.1.21)		(1.22.2)

Remove the Cash Collected for Repossessed Item In Current Year from the Cash Collection Table (1.22.3).

1.22.3 Removal From Cash Collection Table

Old Cash Value = Cash Collection For Sale Made in Year y
New Cash Value = Old Cash Value – Cash Collected for Repossessed Item In Current Year

Year	Running Total Cash Collection
~~y~~	~~Old Cash Value~~
y	New Cash Value

1.22.4 Repossession: Accounts Receivable Balance

Repossession: Accounts Receivable Balance = Sale Price – Total Cash Paid

1.22.5 Repossession: Deferred Gross Profit

Repossession: Deferred Gross Profit = (Sale Price – Cost of Goods Sold) –
[Total Cash Collected × Installment Gross Profit Margin Percentage for Year y (1.21.8)]

1.22.6 Repossession Loss/(Gain)

Repossession Loss/(Gain) = Repossession: Accounts Receivable Balance (1.22.4) –
Repossession: Deferred Gross Profit (1.22.5) –
Fair Value of Repossessed Item

Journal Entry, If (Gain)

		Debit	Credit
XX/XX/XX	Deferred Gross Profit (1.1.19)	(1.22.5)	
	Inventory	Fair Value of Repossessed Item	
	Gain on Repossession		(1.22.6)
	Accounts Receivable (1.21.1)		(1.22.4)

Journal Entry, If Loss

		Debit	Credit
XX/XX/XX	Deferred Gross Profit (1.1.19)	(1.22.5)	
	Inventory	Fair Value of Repossessed Item	
	Loss on Repossession	(1.22.6)	
	Accounts Receivable (1.21.1)		(1.22.4)

1.23 Cost Recovery Method

Revenue recognition might need to be deferred because collection of cash is not reasonably assured. Moreover, the amount of uncollectibility can not be estimated. Therefore, like the Installment Sales Method, the process of the Cost Recovery Method is to omit from the Income Statement the Sales Revenues and the Cost of Goods Sold, but include on the Income Statement the Realized Gross Profit (1.1.21) for those cash payments that exceed the Cost of Goods Sold.

1.23.1 Gross Profit Amount

Gross Profit Amount = Sales Price – Cost

1.23.2 Cost Recovery Sales Transaction

		Debit	Credit
XX/XX/XX	Accounts Receivable (1.1.11)	Sales Price	
	Inventory		Cost
	Deferred Gross Profit (1.1.19)		Gross Profit Amount (1.23.1)

Add this transaction to the Cost Recovery Table (1.23.3) with the Cost entered in the Unrecovered Cost column.

1.23.3 Cost Recovery Table

Date	Cash Received	Unrecovered Cost	Realized Gross Profit
XX/XX/XX	0	Cost	0

1.23.4 Cost Recovery Cash Receipt

		Debit	Credit
XX/XX/XX	Cash (1.1.9)	Cash Received	
	Accounts Receivable (1.1.11)		Cash Received

1.23.5 Cost Recovery Cash Receipt: Cost Recovery Table

If Cash Received < Unrecovered Cost then:

1. New Unrecovered Cost = Unrecovered Cost – Cash Received
2. New Realized Gross Profit = 0

If Cash Received >= Unrecovered Cost then:

1. New Unrecovered Cost = 0
2. New Realized Gross Profit = Cash Received – Unrecovered Cost

Cost Recovery Table

Date	Cash Received	Unrecovered Cost	Realized Gross Profit
XX/XX/XX	0	Gross Profit Amount (1.23.1)	0
XX/XX/XX	Cash Received	New Unrecovered Cost	New Realized Gross Profit

1.23.6 Cost Recovery Cash Receipt: Realize Gross Profit Journal Entry

If New Realized Gross Profit > 0 then:

		Debit	Credit
XX/XX/XX	Deferred Gross Profit (1.1.19)	New Realized Gross Profit	
	Realized Gross Profit (1.1.21)		New Realized Gross Profit

1.23.7 Cost Recovery Closing Entry

After printing the financial statements, then:

		Debit	Credit
12/31/XX	Realized Gross Profit (1.1.21)	(1.1.21) Balance	
	Income Summary		(1.1.21) Balance

Chapter 2

Inventory

2.1 Inventory Accounting for Merchandising Firms

Goods Available for Sale	=	+ Beginning Inventory
		+ Purchases
		+ Freight-in
		– Purchase Returns and Allowances for Defects
		– Slippage
Cost of Goods Sold	=	+ Goods Available for Sale
		– Ending Inventory

2.2 First In First Out: Periodic

2.2.1 Ending Inventory Quantity$_{item}$

At year end, take a physical inventory count of this inventory item.

2.2.2 Periodic FIFO Purchases Journal Table

Build the following Purchases Journal table for each inventory item. As purchases are made, add a table row (a.k.a. layer).

Purchases Journal$_{item}$			
Date	Quantity Purchased	Cost Per Item	Quantity Remaining

Quantity Remaining is the quantity remaining at this layer. When inventory is purchased, and throughout the year, Quantity Remaining equals Quantity Purchased. At year end, an Ending Inventory Quantity (2.2.1) count is taken, and an algorithm (2.2.5) is executed to systematically reduce the Quantity Remaining at each layer.

2.2.3 Quantity Available For Sale$_{item}$

Let n = the number of layers.
Quantity Available For Sale = $\sum_{i=1}^{n}$ Quantity Remaining$_i$

2.2.4 Quantity Sold$_{item}$

Quantity Sold = Quantity Available For Sale (2.2.3) –
Ending Inventory Quantity (2.2.1)

2.2.5 Quantity Remaining Reduction Algorithm

1 Total Quantity Remaining = Quantity Sold (2.2.4)
2 For L in each layer from top to bottom:
    If Quantity Remaining$_L$ = 0 then:
        Do nothing
    If Quantity Remaining$_L$ < Total Quantity Remaining then:
        Total Quantity Remaining = Total Quantity Remaining – Quantity Remaining$_L$
        Quantity Remaining$_L$ = 0
    If Quantity Remaining$_L$ >= Total Quantity Remaining then:
        Quantity Remaining$_L$ = Quantity Remaining$_L$ – Total Quantity Remaining
        Goto Ending Inventory Value (2.2.6)

2.2.6 Ending Inventory Value$_{item}$

Ending Inventory Value$_{item}$ is the value reported for this item in the Inventory account on the Balance Sheet.
Let n = the number of layers.
Ending Inventory Value = $\sum_{i=1}^{n}$ Cost Per Item$_i$ × Quantity Remaining$_i$

2.3 Last In First Out: Periodic

2.3.1 Ending Inventory Quantity$_{item}$

At year end, take a physical inventory count of this inventory item.

2.3.2 Periodic LIFO Purchases Journal Table

Build the following Purchases Journal table for each inventory item. As purchases are made, add a table row (a.k.a. layer).

Purchases Journal$_{item}$			
Date	Quantity Purchased	Cost Per Item	Quantity Remaining

Quantity Remaining is the quantity remaining at this layer. When inventory is purchased, and throughout the year, Quantity Remaining equals Quantity Purchased. At year end, an Ending Inventory Quantity (2.3.1) count is taken, and an algorithm (2.3.5) is executed to systematically reduce the Quantity Remaining at each layer.

2.3.3 Quantity Available For Sale$_{item}$

Let n = the number of layers.
Quantity Available For Sale = $\sum_{i=1}^{n}$ Quantity Remaining$_i$

2.3.4 Quantity Sold$_{item}$

Quantity Sold = Quantity Available For Sale (2.3.3) –
Ending Inventory Quantity (2.3.1)

2.3.5 Quantity Remaining Reduction Algorithm

1 Total Quantity Remaining = Quantity Sold (2.3.4)
2 For L in each layer from bottom to top:
    If Quantity Remaining$_L$ = 0 then:
        Do nothing
    If Quantity Remaining$_L$ < Total Quantity Remaining then:
        Total Quantity Remaining = Total Quantity Remaining – Quantity Remaining$_L$
        Quantity Remaining$_L$ = 0
    If Quantity Remaining$_L$ >= Total Quantity Remaining then:
        Quantity Remaining$_L$ = Quantity Remaining$_L$ – Total Quantity Remaining
        Goto Ending Inventory Value (2.3.6)

2.3.6 Ending Inventory Value$_{item}$

Ending Inventory Value$_{item}$ is the value reported for this item in the Inventory account on the Balance Sheet.
Let n = the number of layers.
Ending Inventory Value = $\sum_{i=1}^{n}$ Cost Per Item$_i$ × Quantity Remaining$_i$

2.4 Moving Average: Perpetual

2.4.1 Perpetual Average Balance Table

Build the following Balance table for each inventory item. As purchases and sales are made, add a table row.

Balance$_{item}$				
Date	Operation	Quantity On Hand	Average Unit Cost	Total Cost Balance

Operation is either 'purchase' or 'sale'.

2.4.2 Perpetual Average Purchases Journal Table

Build the following Purchases Journal table for each inventory item. As purchases are made, add a table row. Then execute an algorithm (2.4.3) to calculate the Average Unit Cost in the Perpetual Average Balance Table (2.4.1).

Purchases Journal$_{item}$		
Date	Quantity Purchased	Cost Per Item

2.4.3 Moving Average Purchase Algorithm

1 Add a row in the Perpetual Average Balance Table (2.4.1) setting Operation = 'purchase'
2 Let R = row number
4 If R = 1 then:
  Quantity On Hand$_1$ = Quantity Purchased
  Average Unit Cost$_1$ = Cost Per Item
  Total Cost Balance$_1$ = Quantity Purchased × Cost Per Item
5 If R > 1 then:
  Quantity On Hand$_R$ = Quantity On Hand$_{R-1}$ + Quantity Purchased
  Total Cost Balance$_R$ = Total Cost Balance$_{R-1}$ + (Quantity Purchased × Cost Per item)
  Average Unit Cost$_R$ = Total Cost Balance$_R$ ÷ Quantity On Hand$_R$

2.4.4 Perpetual Average Sales Journal Table

Build the following Sales Journal table for each inventory item. As sales are made, add a table row with the Cost of Goods Sold left empty. Then execute an algorithm (2.4.5) to calculate the Cost of Goods Sold.

Sales Journal$_{item}$		
Date	Quantity Sold	Cost of Goods Sold

2.4.5 Cost of Goods Sold Algorithm

1 Add a row in Perpetual Average Balance Table (2.4.1) setting Operation = 'sale'
2 Let R = row number
3 Quantity On Hand$_R$ = Quantity On Hand$_{R-1}$ − Quantity Sold
4 Average Unit Cost$_R$ = Average Unit Cost$_{R-1}$
5 Total Cost Balance$_R$ = Quantity On Hand$_R$ × Average Unit Cost$_R$
6 Cost of Goods Sold = Quantity Sold × Average Unit Cost$_R$

2.4.6 Perpetual Average Journal Entry

		Debit	Credit
XX/XX/XX	Cash or A/R	Sales Amount	
	Cost of Goods Sold	Cost of Goods Sold Amount (2.4.5)	
	Sales Revenue		Sales Amount
	Inventory$_{item}$		Cost of Goods Sold Amount (2.4.5)

2.5 First In First Out: Perpetual

2.5.1 Perpetual FIFO Purchases Journal Table

Build the following Purchases Journal table for each inventory item. As purchases are made, add a table row (a.k.a. layer).

Purchases Journal$_{item}$			
Date	Quantity Purchased	Cost Per Item	Quantity Remaining

Quantity Remaining is the quantity remaining at this layer. When inventory is sold, an algorithm (2.5.3) is executed to systematically reduce the Quantity Remaining at each layer.

2.5.2 Perpetual FIFO Sales Journal Table

Build the following Sales Journal table for each inventory item. As sales are made, add a table row with the Cost of Goods Sold left empty. Then execute an algorithm (2.5.3) to calculate the Cost of Goods Sold.

Sales Journal$_{item}$		
Date	Quantity Sold	Cost of Goods Sold

2.5.3 Cost of Goods Sold Algorithm

1 Cost of Goods Sold = 0
2 Total Quantity Remaining = Quantity Sold
3 For L in each layer in the Purchases Journal (2.5.1) from top to bottom:
    If Quantity Remaining$_L$ = 0 then:
        Do nothing
    If Quantity Remaining$_L$ < Total Quantity Remaining then:
        Cost of Goods Sold = Cost of Goods Sold + (Cost Per Item$_L$ × Quantity Remaining$_L$)
        Total Quantity Remaining = Total Quantity Remaining – Quantity Remaining$_L$
        Quantity Remaining$_L$ = 0
    If Quantity Remaining$_L$ >= Total Quantity Remaining then:
        Cost of Goods Sold = Cost of Goods Sold + (Cost Per Item$_L$ × Total Quantity Remaining)
        Quantity Remaining$_L$ = Quantity Remaining$_L$ – Total Quantity Remaining
        Goto Step 4
4 Set Cost of Goods Sold in Sales Journal (2.5.2)

2.5.4 Perpetual FIFO Journal Entry

		Debit	Credit
XX/XX/XX	Cash or A/R	Sales Amount	
	Cost of Goods Sold	Cost of Goods Sold Amount (2.5.3)	
	Sales Revenue		Sales Amount
	Inventory$_{item}$		Cost of Goods Sold Amount (2.5.3)

2.6 Last In First Out: Perpetual

2.6.1 Perpetual LIFO Purchases Journal Table

Build the following Purchases Journal table for each inventory item. As purchases are made, add a table row (a.k.a. layer).

Purchases Journal$_{item}$			
Date	Quantity Purchased	Cost Per Item	Quantity Remaining

Quantity Remaining is the quantity remaining at this layer. When inventory is sold, an algorithm (2.6.3) is executed to systematically reduce the Quantity Remaining at each layer.

2.6.2 Perpetual LIFO Sales Journal Table

Build the following Sales Journal table for each inventory item. As sales are made, add a table row with the Cost of Goods Sold left empty. Then execute an algorithm (2.6.3) to calculate the Cost of Goods Sold.

Sales Journal$_{item}$		
Date	Quantity Sold	Cost of Goods Sold

2.6.3 Cost of Goods Sold Algorithm

1 Cost of Goods Sold = 0
2 Total Quantity Remaining = Quantity Sold
3 For L in each layer in the Purchases Journal (2.6.1) from bottom to top:
    If Quantity Remaining$_L$ = 0 then:
        Do nothing
    If Quantity Remaining$_L$ < Total Quantity Remaining then:
        Cost of Goods Sold = Cost of Goods Sold + (Cost Per Item$_L$ × Quantity Remaining$_L$)
        Total Quantity Remaining = Total Quantity Remaining – Quantity Remaining$_L$
        Quantity Remaining$_L$ = 0
    If Quantity Remaining$_L$ >= Total Quantity Remaining then:
        Cost of Goods Sold = Cost of Goods Sold + (Cost Per Item$_L$ × Total Quantity Remaining)
        Quantity Remaining$_L$ = Quantity Remaining$_L$ – Total Quantity Remaining
        Goto Step 4
4 Set Cost of Goods Sold in Sales Journal (2.6.2)

2.6.4 Perpetual LIFO Journal Entry

		Debit	Credit
XX/XX/XX	Cash or A/R	Sales Amount	
	Cost of Goods Sold	Cost of Goods Sold Amount (2.6.3)	
	Sales Revenue		Sales Amount
	Inventory$_{item}$		Cost of Goods Sold Amount (2.6.3)

2.7 Lower of Cost or Market

Inventory may need to be written down if:

1. its replacement cost decreases.
2. it becomes damaged.
3. its demand decreases.

2.7.1 Replacement Cost

Replacement Cost is the cost to purchase or make an identical Inventory item.

2.7.2 Net Realizable Value

Net Realizable Value is an Inventory item's estimated proceeds. Inventory cannot be recorded above this value.

Net Realizable Value = Selling Price –
Completion or Disposal Costs

2.7.3 Normal Profit Margin

Normal Profit Margin is the normal markup on sales for an Inventory item.
Normal Profit Margin = Selling Price ×
Normal Profit Margin Percentage

2.7.4 Net Realizable Value Less Normal Profit Margin

Inventory cannot be recorded below this value.

Net Realizable Value Less Normal Profit Margin = Net Realizable Value (2.7.2) –
Normal Profit Margin (2.7.3)

2.7.5 Designated Market Value

The Designated Market Value is the middle value of:

1. Net Realizable Value (2.7.2)
2. Replacement Cost (2.7.1)
3. Net Realizable Value Less Normal Profit Margin (2.7.4)

2.7.6 Current Cost

Current Cost is an Inventory item's current book value.

2.7.7 Final Inventory Value

If Designated Market Value (2.7.5) < Current Cost (2.7.6) then:
Final Inventory Value = Designated Market Value (2.7.5)
Loss Amount = Final Inventory Value – Current Cost (2.7.6)
Journal Entry

		Debit	Credit
XX/XX/XX	Inventory Loss	Loss Amount	
	Allowance to Reduce Inventory (←Contra-Inventory)		Loss Amount

–Or–

		Debit	Credit
XX/XX/XX	Cost of Goods Sold	Loss Amount	
	Inventory		Loss Amount

2.8 Dollar Value LIFO

Dollar Value LIFO is a technique used to convert ending inventory at current costs to LIFO costs.

2.8.1 Ending Inventory at Current Costs

Let n = the number of inventory items.
Ending Inventory at Current Costs = $\sum_{i=1}^{n}$ Inventory Quantity$_i$ × Current Cost Per Item$_i$

2.8.2 Ending Inventory at DV LIFO Cost

Ending Inventory at DV LIFO Cost is the amount debited to the Inventory account in the Periodic Method journal entry.

2.8.3 Dollar Value LIFO Table

Build the following table to assist in calculating Ending Inventory at DV LIFO Cost (2.8.2).

Year	$Current	Index	$Base	ΔBase	ΔCurrent	$DVLIFO Cost

Year is each year of operations. The Base Year is the firm's first year of operations.
$Current is the Ending Inventory at Current Costs (2.8.1).
Index is 1.00 for the Base Year. Each subsequent year, Index is increased by the inflation rate.
$Base is the value of ending inventory at the price level of the Base Year.
ΔBase is the change in inventory value from the previous year at the price level of the Base Year.
ΔCurrent is the change in inventory value from the previous year at the price level of the current year.
$DVLIFO Cost is the Ending Inventory at DV LIFO Cost (2.8.2).

2.8.4 Dollar Value LIFO Alogrithm

1 $\text{Year}_{CurrentYear}$ = The current year
2 $\$\text{Current}_{CurrentYear}$ = Ending Inventory at Current Costs (2.8.1)
3 If CurrentYear = Base Year then:
$\text{Index}_{CurrentYear} = 1.00$
$\$\text{Base}_{CurrentYear} = \$\text{Current}_{CurrentYear}$
$\Delta\text{Base}_{CurrentYear} = 0$
$\Delta\text{Current}_{CurrentYear} = 0$
$\$\text{DVLIFO Cost}_{CurrentYear} = \$\text{Current}_{CurrentYear}$
4 If CurrentYear > Base Year then:
$\text{Index}_{CurrentYear} = \text{Index}_{CurrentYear-1}$ + Inflation Rate
$\$\text{Base}_{CurrentYear} = \$\text{Current}_{CurrentYear} \div \text{Index}_{CurrentYear}$
$\Delta\text{Base} = \$\text{Base}_{CurrentYear} - \$\text{Base}_{CurrentYear-1}$
If $\Delta\text{Base} >= 0$ then:
$\Delta\text{Base}_{CurrentYear} = \Delta\text{Base}$
If $\Delta\text{Base} < 0$ then:
Peel Off = $\mid \Delta Base \mid$
For L in each layer from the previous year up to the second year:
If $\Delta\text{Base}_L = 0$ then:
Do nothing
If ΔBase_L = Peel Off then:
$\Delta\text{Base}_L = 0$
$\Delta\text{Current}_L = 0$
Goto 4.2
If $\Delta\text{Base}_L >$ Peel Off then:
$\Delta\text{Base}_L = \Delta\text{Base}_L$ – Peel Off
$\Delta\text{Current}_L = \Delta\text{Base}_L \times \text{Index}_L$
Goto 4.2
If $\Delta\text{Base}_L <$ Peel Off then:
Peel Off = Peel Off – ΔBase_L
$\Delta\text{Base}_L = 0$
$\Delta\text{Current}_L = 0$
4.1 $\Delta\text{Current}_{CurrentYear} = \Delta\text{Base}_{CurrentYear} \times \text{Index}_{CurrentYear}$
4.2 For L in each layer from second year down to the current year:
$\$\text{DVLIFO Cost}_L = \$\text{DVLIFO Cost}_{L-1} + \Delta\text{Current}_L$
5 Use $\$\text{DVLIFO Cost}_{CurrentYear}$ as the Ending Inventory at DV LIFO Cost (2.8.2).

2.9 Retail Inventory Valuation Method

The Retail Inventory Valuation Method is a method of estimating ending inventory when large quantities of merchandise are bought and sold.

2.9.1 Additional Markup

Additional Markup is an additional markup of the retail price over the original retail price. This is not to be confused with the markup of cost to achieve the original selling price.

2.9.2 Additional Markup Cancellation

An Additional Markup Cancellation is the undoing of some or all of an Additional Markup (2.9.1).

2.9.3 Net Additional Markup

Net Additional Markup = Additional Markup (2.9.1) –
Additional Markup Cancellation (2.9.2)

2.9.4 Markdown

A Markdown is a discounting of the retail price below the original retail price.

2.9.5 Markdown Cancellation

A Markdown Cancellation is the undoing of some or all of a Markdown (2.9.4).

2.9.6 Net Markdown

Net Markdown = Markdown (2.9.4) –
Markdown Cancellation (2.9.5)

2.9.7 Goods Available for Sale at Cost

Goods Available for Sale at Cost =
+ Beginning Inventory at Cost
+ Purchases at Cost
– Purchase Returns at Cost
+ Freight-in
– Abnormal Shortage at Cost

2.9.8 Goods Available for Sale at Retail

Goods Available for Sale at Retail =
+ Beginning Inventory at Retail
+ Purchases at Retail
– Purchase Returns at Retail
+ Net Markup (2.9.3)
– Abnormal Shortage at Retail

2.9.9 Cost to Retail Ratio

$$\text{Cost to Retail Ratio} = \frac{\text{Goods Available for Sale at Cost (2.9.7)}}{\text{Goods Available for Sale at Retail (2.9.8)}}$$

2.9.10 Net Sales at Retail

Net Sales at Retail =
+ Gross Sales
– Sales Returns
+ Net Markdown (2.9.6)
+ Employee Discounts
+ Normal Shortage at Retail

2.9.11 Ending Inventory At Retail

Ending Inventory At Retail = Goods Available for Sale at Retail (2.9.8) –
Net Sales at Retail (2.9.10)

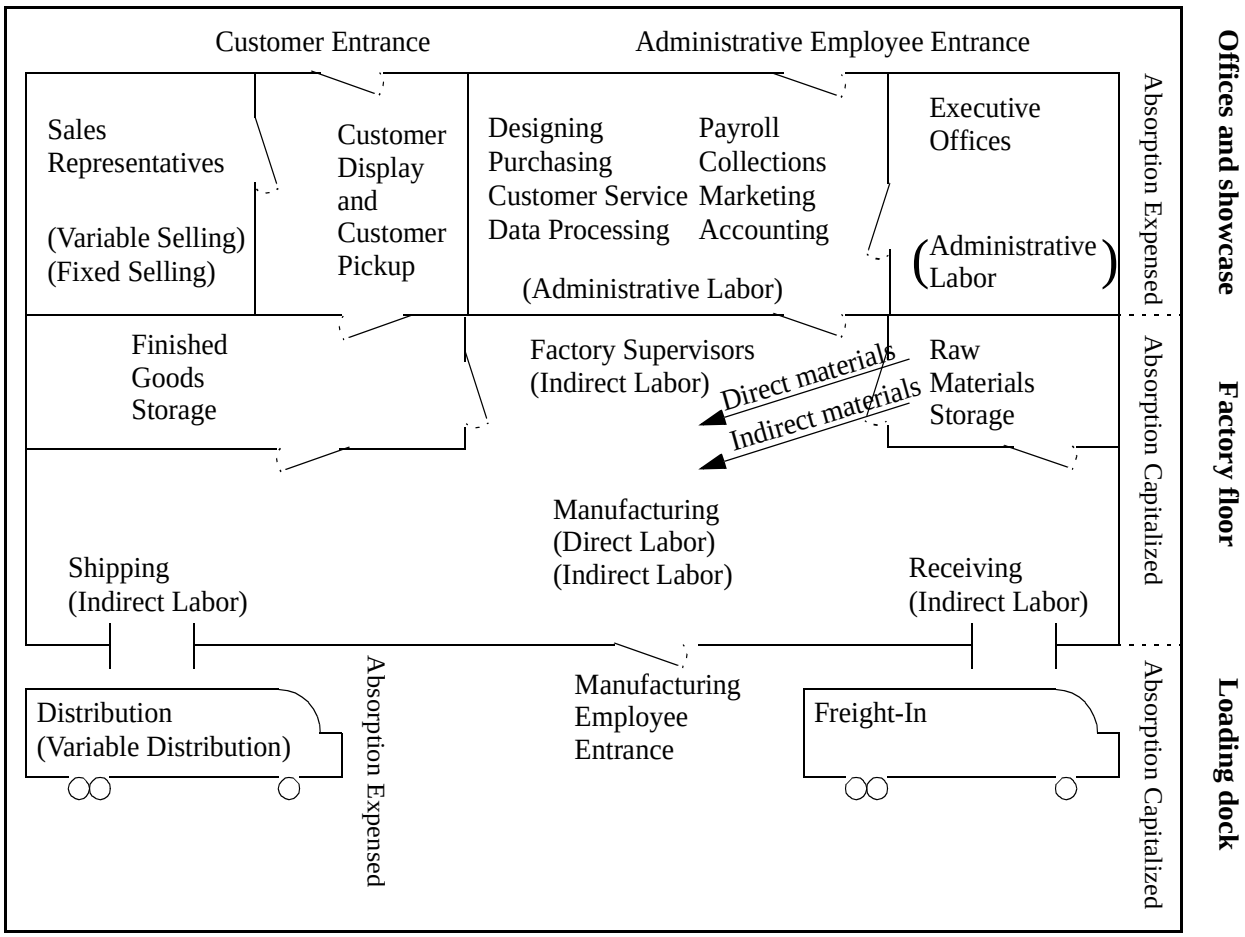
2.9.12 Ending Inventory At Cost

Ending Inventory At Cost = Ending Inventory at Retail (2.9.11) ×
Cost to Retail Ratio (2.9.9)

2.10 Inventory Accounting for Manufacturing Firms

Inventory Accounting for Manufacturing Firms can be accomplished by using several methods. Four methods are represented here: Absorption Costing: Process (2.11), Variable Costing: Process (2.14), Absorption Costing: Job (2.15), and Variable Costing: Job (2.17). One alternative costing method is Activity Based Costing which will be included soon. Only the two Absorption Costing methods satisfy U.S. GAAP.

2.10.1 Factory Blueprint



2.10.2 Raw Materials

Raw Materials are the components used to make a product. They may either be mined or harvested, or they may be already manufactured and ready for further integration.

2.10.3 Raw Materials Inventory

Raw Materials Inventory is an Inventory (1.1.10) account used to store Raw Materials (2.10.2).

2.10.4 Direct Materials

Direct Materials are Raw Materials (2.10.2) that are integral to the production of a Finished Good (2.10.8). Their costs can be economically traced to the product.

2.10.5 Indirect Materials

Indirect Materials are Raw Materials (2.10.2) that are supplies used for manufacturing. Examples include masking tape used while painting, lubricants for equipment, and rags. Indirect Materials are the variable portion of Manufacturing Overhead (2.15.4) and (2.15.8).

2.10.6 Direct Labor

Direct Labor are the wages and salary of manufacturing factory workers. Manufacturing factory workers are workers who touch the Raw Materials (2.10.2).

2.10.7 Indirect Labor

Indirect Labor are the wages and salary of non-manufacturing factory workers. Non-manufacturing factory workers are workers who do not normally touch the Raw Materials (2.10.2). Examples include factory supervisors, forklift operators, rework labor, and factory janitors. Indirect Labor is also manufacturing workers' labor hours for general maintenance and idle time.

2.10.8 Finished Goods

Finished Goods are products ready for sale.

2.10.9 Direct Labor Inventory

Direct Labor Inventory is an Inventory (1.1.10) account.

2.10.10 Plant Expenses

Plant Expenses are those expenses that are integral to the manufacturing of goods. For the two Absorption Costing methods, these expense accounts are not reported directly; instead, they are closed to Work In Process Inventory (2.11.3) and subsequently expensed to to Cost of Goods Sold (1.1.14). For the Variable Costing Method (2.17), these are closed (2.18.6) to Manufacturing Overhead Inventory$_{firm}$ (2.17.22) and subsequently accumulated to Fixed Manufacturing Overhead (2.17.20).

		Debit	Credit
XX/XX/XX	Direct Labor (2.10.9)	Payroll Amount	
	Cash		Payroll Amount

		Debit	Credit
XX/XX/XX	Plant Utilities (← heat, water, and power)	Cost Amount	
	Cash		Cost Amount

		Debit	Credit
XX/XX/XX	Plant Insurance	Cost Amount	
	Cash		Cost Amount

		Debit	Credit
XX/XX/XX	Plant Taxes	Cost Amount	
	Cash		Cost Amount

		Debit	Credit
XX/XX/XX	Plant Building Lease	Cost Amount	
	Cash		Cost Amount

		Debit	Credit
XX/XX/XX	Plant Machine Rental	Cost Amount	
	Cash		Cost Amount

		Debit	Credit
XX/XX/XX	Plant Building Depreciation	Depreciation Amount	
	Accumulated Depreciation		Depreciation Amount

		Debit	Credit
XX/XX/XX	Plant Machine Depreciation	Depreciation Amount	
	Accumulated Depreciation		Depreciation Amount

		Debit	Credit
XX/XX/XX	Plant Repairs and Maintenance	Cost Amount	
	Cash		Cost Amount

		Debit	Credit
XX/XX/XX	Plant Miscellaneous Expense	Cost Amount	
	Cash		Cost Amount

2.10.11 Non-Plant Expenses

Non-Plant Expenses are those expenses that are tangent to the manufacturing of goods. These expense accounts are reported on the Income Statement.

Pay Executive, Administrative, and Selling Salaries:

		Debit	Credit
XX/XX/XX	Salaries Expense	Payroll Amount	
	Cash/Payable		Payroll Amount

Pay Research and Development Expenses:

		Debit	Credit
XX/XX/XX	Research and Development Expense	Cost Amount	
	Cash		Cost Amount

Pay Administrative Expenses:

		Debit	Credit
XX/XX/XX	Administrative Expense	Cost Amount	
	Cash		Cost Amount

Pay Marketing Expenses:

		Debit	Credit
XX/XX/XX	Marketing Expense	Cost Amount	
	Cash		Cost Amount

Accumulate Office Depreciation:

		Debit	Credit
XX/XX/XX	Depreciation Expense	Depreciation Amount	
	Accumulated Depreciation		Depreciation Amount

2.11 Absorption Costing Method: Process Costing

Process Costing is the costing method manufacturing firms use when they continuously consume Raw Materials (2.10.2) and continuously produce Finished Goods (2.10.8). The alternative method, Job Order Costing (2.15), is the costing method manufacturing firms use to produce Finished Goods to order. The Absorption Costing Method is used to calculate Cost of Goods Sold (1.1.14) for the Income Statement as required by U.S. GAAP.

+ Revenue (1.1.1)
– Cost of Goods Sold (1.1.14)
= Gross Margin
– Selling, Distribution, and Administrative Expenses
= Operating Income

2.11.1 Direct Materials Inventory

Direct Materials Inventory is an Inventory (1.1.10) account used to store Direct Materials (2.10.4).

2.11.2 Indirect Materials Inventory

Indirect Materials Inventory is an Inventory (1.1.10) account used to store Indirect Materials (2.10.5).

2.11.3 Work In Process Inventory

Work In Process Inventory is an Inventory (1.1.10) account used to store the value of unfinished goods currently being manufactured.

2.11.4 Finished Goods Inventory

Finished Goods Inventory is an Inventory (1.1.10) account that stores the value of Finished Goods (2.10.8). It is reported on the Balance Sheet.

2.11.5 Manufacturing Overhead Cost

Manufacturing Overhead Cost = + Direct Labor Inventory (2.10.9) Debit Balance
+ Plant Utilities Debit Balance
+ Plant Insurance Debit Balance
+ Plant Taxes Debit Balance
+ Plant Building Lease Debit Balance
+ Plant Machine Rental Debit Balance
+ Plant Building Depreciation Debit Balance
+ Plant Machine Depreciation Debit Balance
+ Plant Repairs and Maintenance Debit Balance
+ Plant Miscellaneous Expense Debit Balance
+ Freight-in Debit Balance

2.11.6 Direct Materials Period Cost

Sum all the credit amounts made on this journal entry: Direct Materials Requisition: FIFO Perpetual Journal Entry (2.13.4).

Let a = period begin date
Let b = period end date
Direct Materials Period Cost = $\sum_{i=a}^{b}$ Direct Materials Inventory (2.11.1) Credit Amount$_i$

2.11.7 Indirect Materials Period Cost

Sum all the credit amounts made on this journal entry: Indirect Materials Requisition: FIFO Perpetual Journal Entry (2.13.8).

Let a = period begin date
Let b = period end date
Indirect Materials Period Cost = $\sum_{i=a}^{b}$ Indirect Materials Inventory (2.11.2) Credit Amount$_i$

2.11.8 Conversion Period Cost

Conversion Period Cost is the sum of all inventory costs excluding Direct Materials Period Cost (2.11.6).

Conversion Period Cost = Manufacturing Overhead Cost (2.11.5) +
Indirect Materials Period Cost (2.11.7)

2.11.9 Completion Degree

Completion Degree is an estimate of how complete the current production line is at the end of the period. If the production line is evenly completed, then choose 0.50. If it is skewed towards the beginning, then choose 0.40, 0.30, etc. If it is skewed towards the end, then choose 0.60, 0.70, etc.

2.11.10 Units Started Quantity

Units Started Quantity is the number of finished product units started during the current period.

2.11.11 Units Completed Quantity

Units Completed Quantity is the number of finished product units completed during the current period.

2.11.12 Physical Count Table

To calculate Work In Process Inventory (2.11.3) Ending Balance, keep track of the number of units started and the number of units completed. Whether the inventory costing method is Moving Average (2.12) or FIFO (2.13), apply the Physical

Count Balance Algorithm (2.11.13).

Physical Count Table					
Period	Completion Degree	Started Quantity	Completed Quantity	Quantity Balance	Started and Completed Balance
	(2.11.9)	(2.11.10)	(2.11.11)		

2.11.13 Physical Count Balance Algorithm

1 Add a row in Physical Count Table (2.11.12)
2 Let R = row number
3 If R = 1 then:
$\text{Quantity Balance}_1 = \text{Started Quantity}_1 - \text{Completed Quantity}_1$
$\text{Started and Completed Balance}_1 = \text{Completed Quantity}_1$
4 If R > 1 then:
$\text{Quantity Balance}_R = (\text{Quantity Balance}_{R-1} + \text{Started Quantity}_R) - \text{Completed Quantity}_R$
$\text{Started and Completed Balance}_R = \text{Completed Quantity}_R - \text{Quantity Balance}_{R-1}$

2.11.14 Equivalent Units

Equivalent Units are Finished Good (2.10.8) Units scaled down because they are incomplete.

2.11.15 Manufacturing Overhead Cost Close

Whether the inventory costing method is Moving Average (2.12) or FIFO (2.13), close all the absorption expenses to Work In Process Inventory (2.11.3).

		Debit	Credit
12/31/XX	Work In Process Inventory (2.11.3)	Manufacturing Overhead Cost (2.11.5)	
	Direct Labor		Debit Balance
	Plant Utilities		Debit Balance
	Plant Insurance		Debit Balance
	Plant Taxes		Debit Balance
	Plant Building Lease		Debit Balance
	Plant Machine Rental		Debit Balance
	Plant Building Depreciation		Debit Balance
	Plant Machine Depreciation		Debit Balance
	Plant Repairs and Maintenance		Debit Balance
	Plant Miscellaneous Expense		Debit Balance
	Freight-in		Debit Balance

2.12 Absorption Costing Method: Process Costing Moving Average

2.12.1 Direct Materials Balance: Moving Average

Build the following Balance table for each Direct Material (2.10.4) item. As purchases and requisitions are made, add a table row.

Balance_{item}				
Date	Operation	Quantity On Hand	Average Unit Cost	Total Cost Balance

Operation is either 'purchase' or 'requisition'.

2.12.2 Direct Materials Purchase: Moving Average

Build the following Purchases Journal table for each Direct Material (2.10.4) item. As purchases are made, add a table row. Then execute an algorithm (2.12.3) to calculate the Average Unit Cost in the Direct Materials Balance: Moving Average (2.12.1) table.

$\text{Purchases Journal}_{item}$		
Date	Quantity Purchased	Cost Per Item

2.12.3 Moving Average Direct Purchase Algorithm

1 Add a row in the Direct Materials Balance: Moving Average (2.12.1) table setting Operation = 'purchase'
2 Let R = row number
4 If R = 1 then:
Quantity On Hand$_1$ = Quantity Purchased
Average Unit Cost$_1$ = Cost Per Item
Total Cost Balance$_1$ = Quantity Purchased × Cost Per Item
5 If R > 1 then:
Quantity On Hand$_R$ = Quantity On Hand$_{R-1}$ + Quantity Purchased
Total Cost Balance$_R$ = Total Cost Balance$_{R-1}$ + (Quantity Purchased × Cost Per item)
Average Unit Cost$_R$ = Total Cost Balance$_R$ ÷ Quantity On Hand$_R$

2.12.4 Direct Materials Requisition: Moving Average

Build the following Direct Materials Requisition table for each inventory item. As items are requested, add a table row with the Cost of Goods Manufactured left empty. Then execute an algorithm (2.12.5) to calculate the Cost of Goods Manufactured.

Direct Materials Requisition$_{item}$		
Date	Quantity Requested	Cost of Goods Manufactured

2.12.5 Direct Materials: Cost of Goods Manufactured Algorithm

1 Add a row in Direct Materials Balance: Moving Average (2.12.1) setting Operation = 'requisition'
2 Let R = row number
3 Quantity On Hand$_R$ = Quantity On Hand$_{R-1}$ − Quantity Requested
4 Average Unit Cost$_R$ = Average Unit Cost$_{R-1}$
5 Total Cost Balance$_R$ = Quantity On Hand$_R$ × Average Unit Cost$_R$
6 Cost of Goods Manufactured = Quantity Requested × Average Unit Cost$_R$

2.12.6 Direct Materials Requisition: Moving Average Journal Entry

		Debit	Credit
XX/XX/XX	Work In Process Inventory	Cost of Goods Manufactured (2.12.5)	
	Direct Materials Inventory		(2.12.5)

2.12.7 Indirect Materials Balance: Moving Average

Build the following Balance table for each Indirect Material (2.10.5) item. As purchases and requisitions are made, add a table row.

Balance$_{item}$				
Date	Operation	Quantity On Hand	Average Unit Cost	Total Cost Balance

Operation is either 'purchase' or 'requisition'.

2.12.8 Indirect Materials Purchase: Moving Average

Build the following Purchases Journal table for each Indirect Material (2.10.5) item. As purchases are made, add a table row. Then execute an algorithm (2.12.9) to calculate the Average Unit Cost in the Indirect Materials Balance: Moving Average (2.12.7) table.

Purchases Journal$_{item}$		
Date	Quantity Purchased	Cost Per Item

2.12.9 Moving Average Indirect Purchase Algorithm

1 Add a row in the Indirect Materials Balance: Moving Average (2.12.7) table setting Operation = 'purchase'
2 Let R = row number
4 If R = 1 then:
    Quantity On Hand$_1$ = Quantity Purchased
    Average Unit Cost$_1$ = Cost Per Item
    Total Cost Balance$_1$ = Quantity Purchased $\times$ Cost Per Item
5 If R $>$ 1 then:
    Quantity On Hand$_R$ = Quantity On Hand$_{R-1}$ + Quantity Purchased
    Total Cost Balance$_R$ = Total Cost Balance$_{R-1}$ + (Quantity Purchased $\times$ Cost Per item)
    Average Unit Cost$_R$ = Total Cost Balance$_R$ $\div$ Quantity On Hand$_R$

2.12.10 Indirect Materials Requisition: Moving Average

Build the following Indirect Materials Requisition table for each inventory item. As items are requested, add a table row with the Cost of Goods Manufactured left empty. Then execute an algorithm (2.12.11) to calculate the Cost of Goods Manufactured.

Indirect Materials Requisition$_{item}$		
Date	Quantity Requested	Cost of Goods Manufactured

2.12.11 Indirect Materials: Cost of Goods Manufactured Algorithm

1 Add a row in Direct Materials Balance: Moving Average (2.12.1) setting Operation = 'requisition'
2 Let R = row number
3 Quantity On Hand$_R$ = Quantity On Hand$_{R-1}$ $-$ Quantity Requested
4 Average Unit Cost$_R$ = Average Unit Cost$_{R-1}$
5 Total Cost Balance$_R$ = Quantity On Hand$_R$ $\times$ Average Unit Cost$_R$
6 Cost of Goods Manufactured = Quantity Requested $\times$ Average Unit Cost$_R$

2.12.12 Indirect Materials Requisition: Moving Average Journal Entry

		Debit	Credit
XX/XX/XX	Work In Process Inventory	Cost of Goods Manufactured (2.12.11)	
	Indirect Materials Inventory		(2.12.11)

2.12.13 Work In Process Close Balance Table: Moving Average

To calculate Work In Process Inventory (2.11.3) Ending Balance, calculate the cost per Equivalent Unit (2.11.14) and then multiply it by the quantity of Equivalent Units. Populate this table by executing the Work In Process Algorithm (2.12.14).

Work In Process Close Balance Table: Moving Average					
Period	Direct Materials Period	Conversion Period	Direct Ending Balance	Conversion Ending Balance	Work In Process Ending Balance

2.12.14 Work In Process Algorithm

1 Add a row in the Work In Process Close Balance Table: Moving Average (2.12.13)
2 Let R = row number
3 Direct Materials Period$_R$ = Direct Materials Period Cost (2.11.6)
4 Conversion Period$_R$ = Conversion Period Cost (2.11.8)
5 If R = 1 then:
$$\text{Direct Ending Balance}_1 = \text{Direct Materials Period}_1$$
$$\text{Conversion Ending Balance}_1 = \text{Conversion Period}_1$$
6 If R > 1 then:
$$\text{Direct Ending Balance}_R = \frac{\text{Direct Ending Balance}_{R-1} + \text{Direct Materials Period}_R}{\text{Completed Quantity}_{R(2.11.12)} + \text{Quantity Balance}_{R(2.11.12)}} \times \text{Quantity Balance}_R \text{ (2.11.12)}$$
$$\text{Conversion Ending Balance}_R = \frac{\text{Conversion Ending Balance}_{R-1} + \text{Conversion Period}_R}{\text{Completed Quantity}_R + (\text{Quantity Balance}_R \times \text{Completion Degree}_R)} \times (\text{Quantity Balance}_R \times \text{Completion Degree}_R)$$
7 Work In Process Ending Balance$_R$ = Direct Ending Balance$_R$ + Conversion Ending Balance$_R$

2.12.15 Work In Process Adjustment

Work In Process Adjustment = Work In Process Inventory (2.11.15) Debit Balance − Work In Process Ending Balance (2.12.13)

2.12.16 Work In Process Moving Average Journal Entry

		Debit	Credit
XX/XX/XX	Finished Goods Inventory (2.11.4)	Work In Process Adjustment (2.12.15)	
	Work In Process Inventory (2.11.3)		(2.12.15)

2.13 Absorption Costing Method: Process Costing FIFO

2.13.1 Direct Materials Purchase: FIFO Perpetual

Build the following Direct Materials Purchase Table for each Direct Material (2.10.4) item. As purchases are made, add a table row (a.k.a. layer).

Direct Materials Purchase$_{item}$			
Date	Quantity Purchased	Cost Per Item	Quantity Remaining

Quantity Remaining is the quantity remaining at this layer. When inventory is requested, an algorithm (2.13.3) is executed to systematically reduce the Quantity Remaining at each layer.

2.13.2 Direct Materials Requisition: FIFO Perpetual

Build the following Requisition Table for each Direct Material (2.10.4) item. As items are requested, add a table row with the Cost of Goods Manufactured left empty. Then execute an algorithm (2.13.3) to calculate the Cost of Goods Manufactured.

Direct Materials Requisition$_{item}$		
Date	Quantity Requested	Cost of Goods Manufactured

2.13.3 Cost of Goods Manufactured Algorithm: Direct FIFO

1 Cost of Goods Manufactured = 0
2 Total Quantity Remaining = Quantity Requested
3 For L in each layer in the Purchase Table (2.13.1) from top to bottom:
    If Quantity Remaining$_L$ = 0 then:
        Do nothing
    If Quantity Remaining$_L$ < Total Quantity Remaining then:
        Cost of Goods Manufactured =
            Cost of Goods Manufactured + (Cost Per Item$_L$ × Quantity Remaining$_L$)
        Total Quantity Remaining = Total Quantity Remaining – Quantity Remaining$_L$
        Quantity Remaining$_L$ = 0
    If Quantity Remaining$_L$ >= Total Quantity Remaining then:
        Cost of Goods Manufactured =
            Cost of Goods Manufactured + (Cost Per Item$_L$ × Total Quantity Remaining)
        Quantity Remaining$_L$ = Quantity Remaining$_L$ – Total Quantity Remaining
        Goto Step 4
4 Set Cost of Goods Manufactured in Direct Materials Requisition (2.13.2)

2.13.4 Direct Materials Requisition: FIFO Perpetual Journal Entry

		Debit	Credit
XX/XX/XX	Work In Process Inventory (2.11.3)	Cost of Goods Manufactured (2.13.3)	
	Direct Materials Inventory (2.11.1)		(2.13.3)

2.13.5 Indirect Materials Purchase: FIFO Perpetual

Build the following Indirect Materials Purchase Table for each Indirect Material (2.10.5) item. As purchases are made, add a table row (a.k.a. layer).

Indirect Materials Purchase$_{item}$			
Date	Quantity Purchased	Cost Per Item	Quantity Remaining

Quantity Remaining is the quantity remaining at this layer. When inventory is requested, an algorithm (2.13.7) is executed to systematically reduce the Quantity Remaining at each layer.

2.13.6 Indirect Materials Requisition: FIFO Perpetual

Build the following Requisition Table for each Indirect Material (2.10.5) item. As items are requested, add a table row with the Cost of Goods Manufactured left empty. Then execute an algorithm (2.13.7) to calculate the Cost of Goods Manufactured.

Indirect Materials Requisition$_{item}$		
Date	Quantity Requested	Cost of Goods Manufactured

2.13.7 Cost of Goods Manufactured Algorithm: Indirect FIFO

1 Cost of Goods Manufactured = 0
2 Total Quantity Remaining = Quantity Requested
3 For L in each layer in the Purchase Table (2.13.5) from top to bottom:
    If Quantity Remaining$_L$ = 0 then:
        Do nothing
    If Quantity Remaining$_L$ < Total Quantity Remaining then:
        Cost of Goods Manufactured =
            Cost of Goods Manufactured + (Cost Per Item$_L$ × Quantity Remaining$_L$)
        Total Quantity Remaining = Total Quantity Remaining – Quantity Remaining$_L$
        Quantity Remaining$_L$ = 0
    If Quantity Remaining$_L$ >= Total Quantity Remaining then:
        Cost of Goods Manufactured =
            Cost of Goods Manufactured + (Cost Per Item$_L$ × Total Quantity Remaining)
        Quantity Remaining$_L$ = Quantity Remaining$_L$ – Total Quantity Remaining
        Goto Step 4
4 Set Cost of Goods Manufactured in Indirect Materials Requisition (2.13.6)

2.13.8 Indirect Materials Requisition: FIFO Perpetual Journal Entry

		Debit	Credit
XX/XX/XX	Work In Process Inventory (2.11.3)	Cost of Goods Manufactured (2.13.7)	
	Indirect Materials Inventory (2.11.2)		(2.13.7)

2.13.9 Work In Process Close Equivalent Units Table: FIFO

To calculate Work In Process Inventory (2.11.3) Ending Balance, scale down the Physical Count (2.11.12) currently in production into Equivalent Units (2.11.14). To calculate the cost per Equivalent Unit, scale down Manufacturing Overhead Costs (2.11.5). However, Direct Material (2.10.4) costs are not scaled down. Populate this table by executing the Equivalent Units Algorithm (2.13.10).

Equivalent Units Table: FIFO							
Period	Conversion Equivalent Beginning	Direct Equivalent Started and Completed	Conversion Equivalent Started and Completed	Direct Equivalent Balance	Conversion Equivalent Balance	Direct Equivalent Completed Period	Conversion Equivalent Completed Period

2.13.10 Equivalent Units Algorithm

1 Add a row in the Equivalent Units Table: FIFO (2.13.9)
2 Let R = row number
3 If R = 1 then:
  Conversion Equivalent Beginning$_1$ = 0
4 If R > 1 then:
  Conversion Equivalent Beginning$_R$ =
    Quantity Balance$_{R-1}$ (2.11.12) × (1.0 − Completion Degree$_{R-1}$) (2.11.12)
5 Direct Equivalent Started and Completed$_R$ = Started and Completed Balance$_R$ (2.11.12)
6 Conversion Equivalent Started and Completed$_R$ = Started and Completed Balance$_R$ (2.11.12)
7 Direct Equivalent Balance$_R$ = Quantity Balance$_R$ (2.11.12)
8 Conversion Equivalent Balance$_R$ = Quantity Balance$_R$ × Completion Degree$_R$ (2.11.12)
9 Direct Equivalent Completed Period$_R$ =
  Direct Equivalent Started and Completed$_R$ +
  Direct Equivalent Balance$_R$
10 Conversion Equivalent Completed Period$_R$ =
  Conversion Equivalent Beginning$_R$ +
  Conversion Equivalent Started and Completed$_R$ +
  Conversion Equivalent Balance$_R$

2.13.11 Work In Process Balance Table: FIFO

To calculate Work In Process Inventory (2.11.3) Ending Balance, calculate the cost per Equivalent Unit (2.11.14) and then multiply it by the quantity of Equivalent Units. Populate this table by executing the Work In Process Algorithm (2.13.12).

Work In Process Balance Table: FIFO							
Period	Direct Materials Period	Conversion Period	Direct Per Equivalent Unit	Conversion Per Equivalent Unit	Direct Ending Balance	Conversion Ending Balance	Work In Process Ending Balance

2.13.12 Work In Process Algorithm

1 Add a row in the Work In Process Balance Table: FIFO (2.13.11)
2 Let R = row number
3 Direct Materials Period$_R$ = Direct Materials Period Cost (2.11.6)
4 Conversion Period$_R$ = Conversion Period Cost (2.11.8)
5 Direct Per Equivalent Unit$_R$ = $\frac{\text{Direct Materials Period}_R}{\text{Direct Equivalent Completed Period}_{R(2.13.9)}}$
6 Conversion Per Equivalent Unit$_R$ = $\frac{\text{Conversion Period}_R}{\text{Conversion Equivalent Completed Period}_{R(2.13.9)}}$
7 Direct Ending Balance$_R$ = Direct Equivalent Balance$_R$ (2.13.9) × Direct Per Equivalent Unit$_R$
8 Conversion Ending Balance$_R$ = Conversion Equivalent Balance$_R$ (2.13.9) × Conversion Per Equivalent Unit$_R$
9 Work In Process Ending Balance$_R$ = Direct Ending Balance$_R$ + Conversion Ending Balance$_R$

2.13.13 Work In Process Adjustment

Work In Process Adjustment = Work In Process Inventory (2.11.15) Debit Balance −
Work In Process Ending Balance (2.13.11)

2.13.14 Work In Process FIFO Journal Entry

		Debit	Credit
XX/XX/XX	Finished Goods Inventory (2.11.4)	Work In Process Adjustment (2.13.13)	
	Work In Process Inventory (2.11.3)		(2.13.13)

2.14 Variable Costing Method: Process Costing

The Variable Costing Method is used to calculate Operating Income by first subtracting all of the variable costs from revenue. This yields Contribution Margin Revenue – the amount of revenue that varies with production. Contribution Margin Revenue contributes to fixed costs and subsequently to profits. This section describes how to perform the Variable Costing Method using process costing.

2.14.1 Raw Materials Purchase

The purchase of both Direct Materials (2.10.4) and Indirect Materials (2.10.5) are recorded to Raw Materials Inventory (2.10.3).

		Debit	Credit
XX/XX/XX	Raw Materials Inventory (2.10.3)	Cost Amount	
	Accounts Payable		Cost Amount

2.14.2 Direct Labor Inventory

Direct Labor Inventory is a Contribution Income Statement (2.14.11) account used to store the wages and salary of manufacturing workers. Manufacturing workers are those who actually touch the Raw Materials (2.10.2). Paying direct labor workers results in the following journal entry:

		Debit	Credit
XX/XX/XX	Direct Labor Inventory	Payroll Amount	
	Cash		Payroll Amount

2.14.3 Direct Materials Inventory

Direct Materials Inventory is a Contribution Income Statement (2.14.11) account used to store the Direct Materials (2.10.4) consumed. The requisition of Direct Materials results in the following journal entry:

		Debit	Credit
XX/XX/XX	Direct Materials Inventory	Cost Amount	
	Raw Materials Inventory (2.10.3)		Cost Amount

2.14.4 Indirect Labor Inventory

Indirect Labor Inventory is a Contribution Income Statement (2.14.11) account. For the Variable Costing: Process Costing method, this account stores the wages of factory workers for setup time.

Pay Indirect Labor Payroll:

		Debit	Credit
XX/XX/XX	Indirect Labor Inventory	Payroll Amount	
	Cash		Payroll Amount

2.14.5 Indirect Materials Inventory

Indirect Materials Inventory is an Contribution Income Statement (2.14.11) account used to store the Indirect Materials (2.10.5) used by factory workers.

Requisition of Indirect Materials:

		Debit	Credit
XX/XX/XX	Indirect Materials Inventory	Cost Amount	
	Raw Materials Inventory (2.10.3)		Cost Amount

2.14.6 Plant Power Inventory

Plant Power Inventory is a Contribution Income Statement (2.14.11) account used to store the power bills for the plant.

		Debit	Credit
XX/XX/XX	Plant Power Inventory	Cost Amount	
	Cash		Cost Amount

2.14.7 Variable Selling Costs

Variable Selling Costs is a Contribution Income Statement (2.14.11) account used to store the commissions paid to sales representatives as a percentage of the revenue generated for a sale.

		Debit	Credit
XX/XX/XX	Variable Selling Costs	Commission Amount	
	Cash		Commission Amount

2.14.8 Variable Costs

Variable Costs = + Direct Labor (2.14.2) Debit Balance
+ Direct Materials (2.14.3) Debit Balance
+ Indirect Labor (2.14.4) Debit Balance
+ Indirect Materials (2.14.5) Debit Balance
+ Plant Power Inventory (2.14.6)
+ Variable Selling Costs (2.14.7)

2.14.9 Administrative and Fixed Selling Expenses

Administrative and Fixed Selling Expenses are those expenses that are tangent to the manufacturing of goods.

Pay Administrative and Fixed Selling Salaries:

		Debit	Credit
XX/XX/XX	Salaries Expense	Payroll Amount	
	Cash		Payroll Amount

Pay Research and Development Expenses:

		Debit	Credit
XX/XX/XX	Research and Development Expense	Cost Amount	
	Cash		Cost Amount

Pay Administrative Expenses:

		Debit	Credit
XX/XX/XX	Administrative Expense	Cost Amount	
	Cash		Cost Amount

Pay Advertising Expenses:

		Debit	Credit
XX/XX/XX	Advertising Expense	Cost Amount	
	Cash		Cost Amount

Accumulate Office Depreciation:

		Debit	Credit
XX/XX/XX	Depreciation Expense	Depreciation Amount	
	Accumulated Depreciation		Depreciation Amount

2.14.10 Plant Fixed Costs

Plant Fixed Costs = + Plant Utilities Debit Balance
+ Plant Insurance Debit Balance
+ Plant Taxes Debit Balance
+ Plant Building Lease Debit Balance
+ Plant Machine Rental Debit Balance
+ Plant Building Depreciation Debit Balance
+ Plant Machine Depreciation Debit Balance
+ Plant Repairs and Maintenance Debit Balance
+ Plant Miscellaneous Expense Debit Balance

2.14.11 Contribution Income Statement

+ Revenue
– Variable Costs (2.14.8)
= Contribution Margin
– Plant Fixed Costs (2.14.10)
– Administrative and Fixed Selling (2.14.9)
= Operating Income

2.15 Absorption Costing Method: Job Order Costing

The Absorption Costing Method: Job Order Costing is used to calculate Operating Income of job order costing for the Income Statement as required by U.S. GAAP.

+ Revenue (1.1.1)
– Cost of Goods Sold (1.1.14)
= Gross Margin
– Selling, Distribution, and Administrative Expenses
= Operating Income

2.15.1 Raw Materials Purchase

The purchase of both Direct Materials (2.10.4) and Indirect Materials (2.10.5) are recorded to Raw Materials Inventory (2.10.3).

		Debit	Credit
XX/XX/XX	Raw Materials Inventory (2.10.3)	Cost Amount	
	Accounts Payable		Cost Amount

2.15.2 Direct Materials Inventory$_{job}$

Direct Materials Inventory$_{job}$ is a Work In Process Inventory (2.15.7) account used to store the Direct Materials (2.10.4) currently being manufactured for an open job. Direct Materials Inventory$_{job}$ is not reported on the Balance Sheet; instead, it is accumulated to Work In Process Inventory. The requisition of Direct Materials results in the following journal entry:

		Debit	Credit
XX/XX/XX	Direct Materials Inventory$_{job}$	Cost Amount	
	Raw Materials Inventory (2.10.3)		Cost Amount

2.15.3 Direct Labor Inventory$_{job}$

Direct Labor Inventory$_{job}$ is a Work In Process Inventory (2.15.7) account used to store the wages and salary of manufacturing workers. Manufacturing workers are those who actually touch the Raw Materials (2.10.2). Direct Labor Inventory$_{job}$ is not reported on the Balance Sheet; instead, it is accumulated to Work In Process Inventory. Paying direct labor workers results in the following journal entry:

		Debit	Credit
XX/XX/XX	Direct Labor Inventory$_{job}$	Payroll Amount	
	Cash		Payroll Amount

2.15.4 Manufacturing Overhead Inventory$_{job}$

Manufacturing Overhead Inventory$_{job}$ is a Work In Process Inventory (2.15.7) account. For the Absorption Costing method, this account is used to store the Indirect Materials (2.10.5), Indirect Labor (2.15.10), and Plant Expenses (2.10.10) allocated (2.15.6) to a job. Manufacturing Overhead Inventory$_{job}$ is not reported on the Balance Sheet; instead, it is accumulated to Work In Process Inventory (2.15.7).

2.15.5 Predetermined Overhead Rate

The Driving Unit is the unit of production that drives the variable costs. Examples include: machine hours, labor hours, units producted, beds occupied, computer time, miles driven, pounds of laundry, calls received, and flight hours.

$$\text{Predeterminded Overhead Rate} = \frac{\text{Estimated Total Annual Overhead Costs}}{\text{Estimated Total Annual Driving Units}}$$

2.15.6 Manufacturing Overhead Allocation$_{job}$

Periodically, at year-end, and at job completion, allocate manufacturing overhead to each job.

$$\text{Overhead Applied} = \text{Predetermined Overhead Rate (2.15.5)} \times [\text{Driving Units Consumed So Far}_{job} - \text{Driving Units Previously Allocated}_{job}]$$

		Debit	Credit
XX/XX/XX	Manufacturing Overhead Inventory$_{job}$ (2.15.4)	Overhead Applied	
	Manufacturing Overhead Inventory$_{firm}$ (2.15.8)		Overhead Applied

2.15.7 Work In Process Inventory

Work In Process Inventory is an Inventory (1.1.10) account used to store the unfinished goods currently being manufactured for an open job. The account Work In Process Inventory is reported on the Balance Sheet and calculated as follows:

Let n = the number of open jobs.

$$\begin{aligned}\text{Work In Process Inventory} = &+ \textstyle\sum_{j=1}^{n} \text{Direct Materials Inventory}_j \text{ (2.15.2)} \\ &+ \textstyle\sum_{j=1}^{n} \text{Direct Labor Inventory}_j \text{ (2.15.3)} \\ &+ \textstyle\sum_{j=1}^{n} \text{Manufacturing Overhead Inventory}_j \text{ (2.15.4)}\end{aligned}$$

2.15.8 Manufacturing Overhead Inventory$_{firm}$

Manufacturing Overhead Inventory$_{firm}$ is an Inventory (1.1.10) account. For the Absorption Costing method, this account is used to store the Indirect Materials (2.10.5), Indirect Labor (2.15.10), and Plant Expenses (2.10.10) not yet allocated (2.15.6) to a job. Manufacturing Overhead Inventory$_{firm}$ is not reported on the Balance Sheet; instead, it is closed beforehand (2.16.7).

2.15.9 Indirect Materials Inventory

Indirect Materials Inventory is a Work In Process Inventory (2.15.7) account used to store the Indirect Materials (2.10.5) used by factory workers. This account is not reported directly; instead, it is closed (2.16.6) to Manufacturing Overhead Inventory$_{firm}$ (2.15.8) and subsequently expensed to Cost of Goods Sold (1.1.14).

Requisition of Indirect Materials:

		Debit	Credit
XX/XX/XX	Indirect Materials Inventory	Cost Amount	
	Raw Materials Inventory (2.10.3)		Cost Amount

2.15.10 Indirect Labor Inventory

Indirect Labor Inventory is a Work In Process Inventory (2.15.7) account. This account stores the wages and salary of non-manufacturing factory workers. Non-Manufacturing factory workers are factory workers who do not normally touch the Raw Materials (2.10.2). Examples include factory supervisors, forklift operators, rework labor, and factory janitors. The account is also used to store manufacturing workers' labor hours for general maintenance and idle time. This account is not reported directly; instead, it is closed (2.16.6) to Manufacturing Overhead Inventory$_{firm}$ (2.15.8) and subsequently expensed to Cost of Goods Sold (1.1.14).

		Debit	Credit
XX/XX/XX	Indirect Labor Inventory	Payroll Amount	
	Cash		Payroll Amount

2.16 Absorption Costing Job Completion

2.16.1 Cost of Goods Manufactured$_{job}$

At job completion, perform a final Manufacturing Overhead Allocation$_{job}$ (2.15.6). Then calculate the following:

Cost of Goods Manufactured$_{job}$ = + Direct Materials Inventory$_{job}$ (2.15.2) Debit Balance
+ Direct Labor Inventory$_{job}$ (2.15.3) Debit Balance
+ Manufacturing Overhead Inventory$_{job}$ (2.15.4) Debit Balance

2.16.2 Job Completion Journal Entry$_{job}$

At job completion, perform a final Manufacturing Overhead Allocation$_{job}$ (2.15.6). Then perform the following:

		Debit	Credit
XX/XX/XX	Finished Goods Inventory$_{job}$ (2.16.4)	Cost of Goods Manufactured (2.16.1)	
	Direct Materials Inventory$_{job}$ (2.15.2)		Debit Balance
	Direct Labor Inventory$_{job}$ (2.15.3)		Debit Balance
	Manufacturing Overhead Inventory$_{job}$ (2.15.4)		Debit Balance

2.16.3 Cost Per Unit$_{job}$

$$\text{Cost Per Unit}_{job} = \frac{\text{Cost of Goods Manufactured (2.16.1)}}{\text{Number of Units Produced}}$$

2.16.4 Finished Goods Inventory$_{job}$

Finished Goods Inventory$_{job}$ is a set of Inventory (1.1.10) accounts. Finished Goods Inventory is reported on the Balance Sheet and is accumulated as follows:

Finished Goods Inventory = $\sum_{i=1}$ Finished Goods Inventory$_i$

2.16.5 Job Fulfillment Journal Entry$_{job}$

After the sale is complete, perform following:

Revenue Amount = Units Shipped × Selling Price Per Unit
Cost Amount = Units Shipped × Cost Per Unit (2.16.3)

		Debit	Credit
XX/XX/XX	Accounts Receivable (1.1.11)	Revenue Amount	
	Cost of Goods Sold (1.1.14)	Cost Amount	
	Distribution Expense	Freight-out	
	Sales Revenue (1.1.1)		Revenue Amount
	Shipping Payable		Freight-out
	Finished Goods Inventory$_{job}$ (2.16.4)		Cost Amount

2.16.6 End-Of-Year Close To Manufacturing Overhead Inventory

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$ (2.15.8)	Indirect Materials Debit Balance	
	Indirect Materials Inventory (2.15.9)		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Indirect Labor Debit Balance	
	Indirect Labor Inventory (2.15.10)		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Plant Utilities Debit Balance	
	Plant Utilities		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Plant Insurance Debit Balance	
	Plant Insurance		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Plant Taxes Debit Balance	
	Plant Taxes		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Plant Building Lease Debit Balance	
	Plant Building Lease		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Plant Machine Rental Debit Balance	
	Plant Machine Rental		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Building Depreciation Debit Balance	
	Plant Building Depreciation		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Plant Depreciation Debit Balance	
	Plant Machine Depreciation		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Plant Repairs Debit Balance	
	Plant Repairs and Maintenance		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Plant Miscellaneous Debit Balance	
	Plant Miscellaneous Expense		Debit Balance

2.16.7 End-Of-Year Close Of Manufacturing Overhead Inventory

If Manufacturing Overhead Inventory$_{firm}$ has a Debit Balance then:

		Debit	Credit
12/31/XX	Cost of Goods Sold (1.1.14)	Debit Balance	
	Manufacturing Overhead Inventory$_{firm}$		Debit Balance

If Manufacturing Overhead Inventory$_{firm}$ has a Credit Balance then:

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Credit Balance	
	Cost of Goods Sold (1.1.14)		Credit Balance

2.17 Variable Costing Method: Job Costing

The Variable Costing Method is used to calculate Operating Income by first subtracting all of the variable costs from revenue. This yields Contribution Margin – the amount of revenue that each job contributes to fixed costs and subsequently to profits. This section describes how to perform the Variable Costing Method using job order costing.

2.17.1 Variable Costs

Variable Costs = + Direct Labor (2.17.6)
+ Direct Materials (2.17.9)
+ Variable Manufacturing Overhead (2.17.15)
+ Variable Selling Costs (2.17.17)

2.17.2 Contribution Income Statement

+ Revenue (2.17.4)
– Variable Costs (2.17.1)
= Contribution Margin
– Fixed Manufacturing Overhead (2.17.20)
– Administrative and Fixed Selling (2.17.24)
= Operating Income

2.17.3 Revenue$_{job}$

Revenue$_{job}$ is a Contribution Income Statement (2.17.2) account used to store the revenue received for fulfilling a job.

2.17.4 Revenue

Revenue = $\sum$ Revenue Job$_i$ (2.17.3)

2.17.5 Direct Labor Inventory$_{job}$

Direct Labor Inventory$_{job}$ is a Contribution Income Statement (2.17.2) account used to store the wages and salary of manufacturing workers. Manufacturing workers are those who actually touch the Raw Materials (2.10.2). Paying direct labor workers results in the following journal entry:

		Debit	Credit
XX/XX/XX	Direct Labor$_{job}$	Payroll Amount	
	Cash		Payroll Amount

2.17.6 Direct Labor

Direct Labor = $\sum$ Direct Labor Job$_i$ (2.17.5)

2.17.7 Raw Materials Purchase

The purchase of both Direct Materials (2.10.4) and Indirect Materials (2.10.5) are recorded to Raw Materials Inventory (2.10.3).

		Debit	Credit
XX/XX/XX	Raw Materials Inventory (2.10.3)	Cost Amount	
	Accounts Payable		Cost Amount

2.17.8 Direct Materials Inventory$_{job}$

Direct Materials Inventory$_{job}$ is a Contribution Income Statement (2.17.2) account used to store the Direct Materials (2.10.4) consumed for a job. The requisition of Direct Materials results in the following journal entry:

		Debit	Credit
XX/XX/XX	Direct Materials Inventory$_{job}$	Cost Amount	
	Raw Materials Inventory (2.10.3)		Cost Amount

2.17.9 Direct Materials

Direct Materials = $\sum$ Direct Materials Job$_i$ (2.17.8)

2.17.10 Indirect Materials Inventory

Indirect Materials Inventory is an Inventory (1.1.10) account used to store the Indirect Materials (2.10.5) used by factory workers.

Requisition of Indirect Materials:

		Debit	Credit
XX/XX/XX	Indirect Materials Inventory	Cost Amount	
	Raw Materials Inventory (2.10.3)		Cost Amount

2.17.11 Predetermined Indirect Materials Rate

The Driving Unit is the unit of production that drives the variable costs. Examples include: machine hours, labor hours, units producted, beds occupied, computer time, miles driven, pounds of laundry, calls received, and flight hours.

$$\text{Predeterminded Indirect Materials Rate} = \frac{\text{Estimated Total Indirect Materials Costs}}{\text{Estimated Total Annual Indirect Materials Driving Units}}$$

2.17.12 Plant Power Inventory

Plant Power Inventory is an Inventory (1.1.10) account used to store the power bills for the plant.

		Debit	Credit
XX/XX/XX	Plant Power Inventory	Cost Amount	
	Cash		Cost Amount

2.17.13 Predetermined Plant Power Rate

The Driving Unit is the unit of production that drives the variable costs. Examples include: machine hours, labor hours, units producted, beds occupied, computer time, miles driven, pounds of laundry, calls received, and flight hours. The Plant Power Driving Unit is machine hours.

$$\text{Predeterminded Plant Power Rate} = \frac{\text{Estimated Total Plant Power Costs}}{\text{Estimated Total Annual Plant Machine Hours}}$$

2.17.14 Variable Manufacturing Overhead$_{job}$

Variable Manufacturing Overhead$_{job}$ is a Contribution Income Statement (2.17.2) account. This account stores Indirect Materials (2.10.5), Variable Distribution Charges (shipping charges), and Plant Power allocated to a job.

Indirect Materials Applied = Predetermined Indirect Materials Rate (2.17.11) ×
[Indirect Materials Driving Units Consumed So Far$_{job}$ −
Indirect Materials Driving Units Previously Allocated$_{job}$]

		Debit	Credit
XX/XX/XX	Variable Manufacturing Overhead$_{job}$	Indirect Materials Applied	
	Indirect Materials Inventory (2.17.10)		Indirect Materials Applied

Plant Power Applied = Predetermined Plant Power Rate (2.17.13) ×
[Plant Machine Hours Consumed So Far$_{job}$ −
Plant Machine Hours Previously Allocated$_{job}$]

		Debit	Credit
XX/XX/XX	Variable Manufacturing Overhead$_{job}$	Plant Power Applied	
	Plant Power Inventory (2.17.12)		Plant Power Applied

		Debit	Credit
XX/XX/XX	Variable Manufacturing Overhead$_{job}$	Shipping Charges	
	Cash		Shipping Charges

2.17.15 Variable Manufacturing Overhead

Variable Manufacturing Overhead = $\sum$ Variable Manufacturing Overhead$_i$ (2.17.14)

2.17.16 Variable Selling Costs$_{job}$

Variable Selling Costs$_{job}$ is a Contribution Income Statement (2.17.2) account used to store the commissions paid to sales representatives as a percentage of the revenue generated for this job.

		Debit	Credit
XX/XX/XX	Variable Selling Costs$_{job}$	Commission Amount	
	Cash		Commission Amount

2.17.17 Variable Selling Costs

Variable Selling Costs = $\sum$ Variable Selling Costs Job$_i$ (2.17.16)

2.17.18 Predetermined Fixed Overhead Rate

The Driving Unit is the unit of production that drives the variable costs. Examples include: machine hours, labor hours, units producted, beds occupied, computer time, miles driven, pounds of laundry, calls received, and flight hours.

$$\text{Predeterminded Overhead Rate} = \frac{\text{Estimated Total Annual Overhead Costs}}{\text{Estimated Total Annual Driving Units}}$$

2.17.19 Manufacturing Overhead Allocation$_{job}$

Periodically, at year-end, and at job completion, allocate manufacturing overhead to each job.

Overhead Applied = Predetermined Fixed Overhead Rate (2.17.18) ×
[Driving Units Consumed So Far$_{job}$ – Driving Units Previously Allocated$_{job}$]

		Debit	Credit
XX/XX/XX	Manufacturing Overhead Inventory$_{job}$ (2.17.21)	Overhead Applied	
	Manufacturing Overhead Inventory$_{firm}$ (2.17.22)		Overhead Applied

2.17.20 Fixed Manufacturing Overhead

Fixed Manufacturing Overhead = $\sum$ Manufacturing Overhead Allocation$_i$ (2.17.19)

2.17.21 Manufacturing Overhead Inventory$_{job}$

Manufacturing Overhead Inventory$_{job}$ is an Inventory (1.1.10) account. For the Variable Costing method, this account is used to store the Indirect Materials (2.10.5) and Plant Expenses (2.10.10) allocated (2.17.19) to a job.

2.17.22 Manufacturing Overhead Inventory$_{firm}$

Manufacturing Overhead Inventory$_{firm}$ is an Inventory (1.1.10) account. For the Variable Costing method, this account is used to store the Indirect Materials (2.10.5) and Plant Expenses (2.10.10) not yet allocated (2.17.19) to a job.

2.17.23 Indirect Labor Inventory

Indirect Labor Inventory is an Inventory (1.1.10) account. This account stores the wages and salary of non-manufacturing factory workers. Non-Manufacturing factory workers are factory workers who do not normally touch the Raw Materials (2.10.2). Examples include factory supervisors, forklift operators, rework labor, and factory janitors. This account is also used to store manufacturing workers' labor hours for general maintenance and idle time.

Pay Indirect Labor Payroll:

		Debit	Credit
XX/XX/XX	Indirect Labor Inventory	Payroll Amount	
	Cash		Payroll Amount

2.17.24 Administrative and Fixed Selling Expenses

Administrative and Fixed Selling Expenses are those expenses that are tangent to the manufacturing of goods.

Pay Administrative and Fixed Selling Salaries:

		Debit	Credit
XX/XX/XX	Salaries Expense	Payroll Amount	
	Cash		Payroll Amount

Pay Research and Development Expenses:

		Debit	Credit
XX/XX/XX	Research and Development Expense	Cost Amount	
	Cash		Cost Amount

Pay Administrative Expenses:

		Debit	Credit
XX/XX/XX	Administrative Expense	Cost Amount	
	Cash		Cost Amount

Pay Advertising Expenses:

		Debit	Credit
XX/XX/XX	Advertising Expense	Cost Amount	
	Cash		Cost Amount

Accumulate Office Depreciation:

		Debit	Credit
XX/XX/XX	Depreciation Expense	Depreciation Amount	
	Accumulated Depreciation		Depreciation Amount

2.18 Variable Costing Job Completion

2.18.1 Cost of Goods Manufactured$_{job}$

At job completion, perform a final Manufacturing Overhead Allocation$_{job}$ (2.15.6). Then calculate the following:

Cost of Goods Manufactured$_{job}$ = + Direct Materials Inventory$_{job}$ (2.17.8) Debit Balance
+ Direct Labor Inventory$_{job}$ (2.17.5) Debit Balance
+ Manufacturing Overhead Inventory$_{job}$ (2.15.4) Debit Balance

2.18.2 Job Completion Journal Entry$_{job}$

At job completion, perform a final Manufacturing Overhead Allocation$_{job}$ (2.15.6). Then perform the following:

		Debit	Credit
XX/XX/XX	Finished Goods Inventory$_{job}$ (2.18.4)	Cost of Goods Manufactured (2.18.1)	
	Direct Materials Inventory$_{job}$ (2.17.8)		Debit Balance
	Direct Labor Inventory$_{job}$ (2.17.5)		Debit Balance
	Manufacturing Overhead Inventory$_{job}$ (2.17.21)		Debit Balance

2.18.3 Cost Per Unit$_{job}$

$$\text{Cost Per Unit}_{job} = \frac{\text{Cost of Goods Manufactured (2.18.1)}}{\text{Number of Units Produced}}$$

2.18.4 Finished Goods Inventory$_{job}$

Finished Goods Inventory$_{job}$ is a set of Inventory (1.1.10) accounts.

2.18.5 Job Fulfillment Journal Entry$_{job}$

After the sale is complete, perform following:
Revenue Amount = Units Shipped × Selling Price Per Unit
Cost Amount = Units Shipped × Cost Per Unit (2.16.3)

		Debit	Credit
XX/XX/XX	Accounts Receivable (1.1.11)	Revenue Amount	
	Cost of Goods Sold (1.1.14)	Cost Amount	
	Distribution Expense	Freight-out	
	Revenue$_{job}$ (2.17.3)		Revenue Amount
	Shipping Payable		Freight-out
	Finished Goods Inventory$_{job}$ (2.18.4)		Cost Amount

2.18.6 End-Of-Year Close To Manufacturing Overhead Inventory

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Indirect Materials Debit Balance	
	Indirect Materials Inventory (2.15.9)		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Indirect Labor Debit Balance	
	Indirect Labor Inventory (2.15.10)		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Plant Utilities Debit Balance	
	Plant Utilities		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Plant Insurance Debit Balance	
	Plant Insurance		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Plant Taxes Debit Balance	
	Plant Taxes		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Plant Building Lease Debit Balance	
	Plant Building Lease		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Plant Machine Rental Debit Balance	
	Plant Machine Rental		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Building Depreciation Debit Balance	
	Plant Building Depreciation		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Plant Depreciation Debit Balance	
	Plant Machine Depreciation		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Plant Repairs Debit Balance	
	Plant Repairs and Maintenance		Debit Balance

		Debit	Credit
12/31/XX	Manufacturing Overhead Inventory$_{firm}$	Plant Miscellaneous Debit Balance	
	Plant Miscellaneous Expense		Debit Balance

2.19 Inventory Management

2.19.1 Purchasing Costs

Purchasing Costs are the cost of goods, including the actual cost, plus freight-in, minus quantity discounts.

2.19.2 Annual Carrying Costs Per Unit

Carrying Costs are storage costs, including floor space rent, insurance, obsolescence, and spoilage.

$$\begin{aligned}\text{Annual Carrying Costs Per Unit} = &+ \text{Annual Storage Rent Per Unit} \\ &+ \text{Annual Insurance Per Unit} \\ &+ \text{Annual Obsolescence/Spoilage Per Unit}\end{aligned}$$

2.19.3 Ordering Costs Per Order

Ordering Costs are the back-office costs of making the purchase, including the time to research prices, produce purchase orders, match invoices, and make payments.

$$\begin{aligned}\text{Ordering Costs Per Order} = &+ \text{Purchase Order Cost Per Order} \\ &+ \text{Management Approval Cost Per Order} \\ &+ \text{Receiving Cost Per Order} \\ &+ \text{Payment Cost Per Order}\end{aligned}$$

2.19.4 Stockout Costs

Stockout Costs are both abstract costs and concrete costs. Abstract costs are the opportunity cost for not making the sale and the opportunity cost for upsetting the customer.

2.19.5 Stockout Cost Per Unit

The Stockout Cost Per Unit is the concrete Stockout Cost (2.19.4) comprising of a surcharge per unit from the supplier to rush an order.

2.19.6 Shrinkage Costs

Shrinkage Costs include embezzlement (by employees), theft (by outsiders), misclassifications, and clerical errors.

2.19.7 Required Return Percentage

The Required Return Percentage a number between 0.00 and 1.00 that represents the return to investors necessary to keep their money in the firm.

2.19.8 Required Return Per Unit

$$\begin{aligned}\text{Required Return Per Unit} = &\ \text{Required Return Percentage (2.19.7)} \times \\ &\ \text{Cost Per Unit}\end{aligned}$$

2.19.9 Estimated Annual Demand

The Estimated Annual Demand is the estimated quantity demanded for the upcoming year.

2.19.10 Optimal Units Quantity Per Order (Economic Order Quantity)

The Optimal Units Quantity Per Order is the ideal quantity per order that minimizes costs. It is also called the Economic Order Quantity (EOQ).

$$\text{Optimal Units Quantity Per Order} = \sqrt{\frac{2 \times \text{Annual Demand (2.19.9)} \times \text{Ordering Costs Per Order (2.19.3)}}{\text{Carrying Costs Per Unit (2.19.2)} + \text{Required Return Per Unit (2.19.8)}}}$$

2.19.11 Orders Per Year

$$\text{Orders Per Year} = \frac{\text{Estimated Annual Demand (2.19.9)}}{\text{Optimal Units Quantity Per Order (2.19.10)}}$$

2.19.12 Latency

Latency is the number of days or hours delay between the order of inventory and its receipt.

2.19.13 Reorder Period Unit

If Orders Per Year (2.19.11) ≈ 12 then:
Reorder Period Unit = Monthly
If Orders Per Year (2.19.11) ≈ 52 then:
Reorder Period Unit = Weekly
If Orders Per Year (2.19.11) ≈ 365 then:
Reorder Period Unit = Daily

2.19.14 Purchase Order Lead Time

If Reorder Period Unit (2.19.13) = Monthly then:

$$\text{Purchase Order Lead Time} = \frac{\text{Latency (2.19.12) Days}}{30}$$

If Reorder Period Unit (2.19.13) = Weekly then:

$$\text{Purchase Order Lead Time} = \frac{\text{Latency (2.19.12) Days}}{7}$$

If Reorder Period Unit (2.19.13) = Daily then:

$$\text{Purchase Order Lead Time} = \frac{\text{Latency (2.19.12) Hours}}{24}$$

2.19.15 Demand Per Period Unit

If Reorder Period Unit (2.19.13) = Monthly then:

$$\text{Demand Per Period Unit} = \frac{\text{Estimated Annual Demand (2.19.9)}}{12}$$

If Reorder Period Unit (2.19.13) = Weekly then:

$$\text{Demand Per Period Unit} = \frac{\text{Estimated Annual Demand (2.19.9)}}{52}$$

If Reorder Period Unit (2.19.13) = Daily then:

$$\text{Demand Per Period Unit} = \frac{\text{Estimated Annual Demand (2.19.9)}}{8{,}760}$$

2.19.16 Consumption During Lead Time

$$\text{Consumption During Lead Time} = \text{Demand Per Period Unit(2.19.15)} \times \text{Purchase Order Lead Time (2.19.14)}$$

2.19.17 Safety Stock

Safety Stock is the minimum inventory to keep on hand to prevent Stockout Costs (2.19.4).

2.19.18 Reorder Point

$$\text{Reorder Point} = \text{Consumption During Lead Time (2.19.16)} + \text{Safety Stock (2.19.17)}$$

Chapter 3

Property Plant and Equipment

Property, Plant, and Equipment have the following properties:

1. They are used in the regular operations of the firm, not for investment or resale.
2. They do not become components of inventory.

3.1 Property

Property is a Long Term Asset that is not depreciated.

3.1.1 Cost of Land

Cost of Land =
+ purchase price
+ closing costs
+ title insurance
+ title search
+ attorney's fees
+ recording fees

3.1.2 Cost of Conditioning

Cost of Conditioning =
+ old building removal
+ draining
+ clearing
+ filling
+ grading
+ landscaping

3.1.3 Encumbrances

Encumbrances =
+ liens
+ mortgages

3.1.4 Special Assessments

Special assessments are charged by the goverment as a condition for development.

Special Assessments =
+ feeder streets
+ public street lights
+ public sidewalks
+ water pipes
+ water drains

3.1.5 Proceeds from Land Resources

Proceeds from Land Resources =
+ minerals
+ trees
+ peat
+ salvaged parts

3.1.6 Cost of Property

Cost of Property =
+ Cost of Land (3.1.1)
+ Cost of Conditioning (3.1.2)
+ Encumbrances (15.4.2)
+ Special Assessments (3.1.4)
– Proceeds from Land Resources (3.1.5)

Property Journal Entry

		Debit	Credit
XX/XX/XX	Property_{item} (3.1)	(3.1.6)	
	Cash and/or Liability		(3.1.6)

3.1.7 Land Improvements

Land Improvements are Long Term Assets that are not included in Cost of Property (3.1.6); instead, they are each depreciated over their individual estimated lives.

Land Improvements = { private driveways,
private sidewalks,
fences,
parking lots}

Land Improvements Journal Entry

		Debit	Credit
XX/XX/XX	$\text{Land Improvement}_{item}$	(3.1.7)	
	Cash and/or Liability		(3.1.7)

3.2 Plant

Plant includes all the buildings owned by the firm.

3.2.1 Cost of Building

A Building is depreciated over its useful life. Also, if the firm is constructing its own building, Cost of Building cannot exceed what an outside contractor would charge. If there is an excess, then the excess is a Loss.

Cost of Building =
+ foundation
+ purchase price
+ materials
+ labor
+ overhead
+ professional fees
+ building permits

If Cost of Building > Cost If Outsourced then:
Loss = Cost of Building – Cost If Outsourced
Cost of Building = Cost If Outsourced

Building Journal Entry

		Debit	Credit
XX/XX/XX	Building_{item}	(3.2.1)	
	Cash and/or Liability		(3.2.1)

3.2.2 Building Demolition Loss Amount

Building Demolition Loss Amount = Cost of Building (3.2.1) –
Accumulated Depreciation$_{item}$ (3.4.2) +
Teardown Costs

3.2.3 Building Demolition Journal Entry

		Debit	Credit
XX/XX/XX	Loss on Building Demolition	(3.2.2)	
	Accumulated Depreciation$_{item}$ (3.4.2)	Balance	
	Building$_{item}$		(3.2.1)

3.3 Equipment

Equipment provide future economic output by using them.

Equipment = { machines,
delivery equipment (cars, trucks, trains, planes, etc.),
office equipment,
furniture and fixtures}

3.3.1 Cost of Equipment

Generally, the Cost of Equipment includes all of the costs necessary to get the equipment located and ready for its intended use.

Cost of Equipment = + purchase price
+ transportation
+ transportation insurance
+ special foundations
+ assembly and installation
+ trial runs

Equipment Journal Entry

		Debit	Credit
XX/XX/XX	Equipment$_{item}$	(3.3.1)	
	Cash and/or Liability		(3.3.1)

Note 1: each piece of equipment is depreciated over its useful life. Note 2: initial training costs are not capitalized because the increased utility belongs to the employees, not the equipment.

3.4 Plant and Equipment Depreciation

3.4.1 Depreciation Expense

Depreciation Expense is the implicit cost of using Buildings (3.2) and Equipment (3.3). Periodically, this expense is realized to distribute the operation asset's cost (3.3.1), over time, in a systematic and rational manner.

3.4.2 Accumulated Depreciation

Accumulated Depreciation$_{item}$ is a contra-Plant (3.2) or contra-Equipment (3.3) account, used to accumulate the Depreciation Expense (6.3.11) of each Plant$_{item}$ and Equipment$_{item}$.

3.4.3 Depreciable Base

Depreciable Base = Cost of Equipment (3.3.1) – Estimated Residual Value

3.4.4 Fraction of the Year

$$\text{Fraction of the Year} = \frac{\text{Depreciable Months in Year}}{12}$$

3.4.5 Straight-line Depreciation

$$\text{Annual Depreciation Expense} = \frac{\text{Depreciable Base (3.4.3)}}{\text{Estimated Useful Life}}$$

Depreciation Expense = Annual Depreciation Expense × Fraction of the Year (3.4.4)

3.4.6 Units of Production

$$\text{Depreciation Rate Per Unit} = \frac{\text{Depreciable Base (3.4.3)}}{\text{Estimated Total Units}}$$

Depreciation Expense = Depreciation Rate Per Unit × Units Produced

3.4.7 Double Declining Balance

Book Value = Cost of Equipment (3.3.1) – Accumulated Depreciation$_{item}$ (3.4.2)

$$\text{Annual Depreciation Expense} = \frac{\text{Book Value} \times 2}{\text{Estimated Useful Life}}$$

Depreciation Expense = Annual Depreciation Expense × Fraction of the Year (3.4.4)

Maximum Depreciation = Book Value – Residual Value

If Depreciation Expense > Maximum Depreciation then:

Depreciation Expense = Maximum Depreciation

3.4.8 N Declining Balance

N Declining Balance is a generalization of the Double Decling Balance (3.4.7) method.

Book Value = Cost of Equipment (3.3.1) – Accumulated Depreciation$_{item}$ (3.4.2)

$$\text{Annual Depreciation Expense} = \frac{\text{Book Value} \times \text{N}}{\text{Estimated Useful Life}}$$

Depreciation Expense = Annual Depreciation Expense × Fraction of the Year (3.4.4)

Maximum Depreciation = Book Value – Residual Value

If Depreciation Expense > Maximum Depreciation then:

Depreciation Expense = Maximum Depreciation

3.4.9 Sum of the Years Digits

$$\text{Sum of the Years Denominator} = \frac{\text{Useful Life} \times (\text{Useful Life} + 1)}{2}$$

$$\text{Depreciation Fraction} = \frac{\text{Remaining Life Years at Beginning}}{\text{Sum of the Years Denominator}}$$

Annual Depreciation Expense = Depreciable Base (3.4.3) × Depreciation Fraction

Depreciation Expense = Annual Depreciation Expense × Fraction of the Year (3.4.4)

3.4.10 Depreciation Journal Entry

		Debit	Credit
12/31/XX	Depreciation Expense (6.3.11)	(3.4.5)	
		(3.4.6)	
		(3.4.7)	
		(3.4.8)	
		(3.4.9)	
	Accumulated Depreciation$_{item}$ (3.4.2)		(3.4.5)
			(3.4.6)
			(3.4.7)
			(3.4.8)
			(3.4.9)

3.5 Real Estate Tax Depreciation

Taxpayers may deduct over time the cost of buildings and houses if they are purchased to produce income. The laws governing these deductions are called the Modified Accelerated Cost Recovery System (MACRS).

3.5.1 Cost Basis

Cost Basis is the purchase price.

3.5.2 Service Placement Date

The Service Placement Date is the date the property was placed into service. It is likely later than the purchase date.

3.5.3 Service Month

The month number (1-12) of the Service Placement Date (3.5.2).

3.5.4 Service Year

The year number of the Service Placement Date (3.5.2).

3.5.5 Mid-month Convention

Regardless of the Service Date's (3.5.2) day of month, the real estate is deemed to have been placed into service on the 15th.

3.5.6 Recovery Period Years

Real estate tax depreciation uses Straight-line Depreciation (3.4.5) over a legislated number of years.

Property Type	Recovery Period Years
Rental houses	27.5
Apartment buildings	27.5
Hotels and motels (Service placed before 5/13/1993)	31.5
Non-residential buildings (Service placed before 5/13/1993)	31.5
Hotels and motels (Service placed on or after 5/13/1993)	39.0
Non-residential buildings (Service placed on or after 5/13/1993)	39.0

3.5.7 Recovery Period Months

Recovery Period Months = Recovery Period Years (3.5.6) $\times$ 12

3.5.8 Recovery Period Semi-months

Recovery Period Semi-months = Recovery Period Months (3.5.7) $\times$ 2

3.5.9 Percent Per Year

$$\text{Percent Per Year} = \frac{1}{\text{Recovery Period Years (3.5.6)}}$$

3.5.10 Percent Per Semi-month

$$\text{Percent Per Semi-month} = \frac{1}{\text{Recovery Period Semi-months (3.5.8)}}$$

3.5.11 Recovery Months as of December

$$\begin{aligned}\text{Recovery Months as of December} = {} & [\text{Current year} \times 12 - \text{Service Year (3.5.4)} \times 12\ ] + \\ & \{[12 - \text{Service Month (3.5.3)}] + 1\}\end{aligned}$$

3.5.12 Recovery Months Last Full Year

Recovery Months Last Full Year = Recovery Period Months (3.5.7) $-$ 12

3.5.13 Applicable Rate Integer

If Recovery Months as of December (3.5.11) <= 12 then:
Applicable Rate = {[(12 − Service Month) × 2] + 1} ×
Percent Per Semi-month (3.5.10)

If Recovery Months as of December (3.5.11) > 12 and
If Recovery Months as of December <= Recovery Months Last Full Year (3.5.12) then:
Applicable Rate = Percent Per Year (3.5.9)

If Recovery Months as of December (3.5.11) > Recovery Months Last Full Year (3.5.12) and
If Recovery Months as of December <= Recovery Period Months (3.5.7) then:
Applicable Rate = {[(12 − Service Month) × 2] + 1} ×
Percent Per Semi-month (3.5.10)

If Sale year = Current year and
If Recovery Period Months as of December (3.5.7) <= Recovery Period Months (3.5.7) then:
Applicable Rate = {[(Sale month − 1) × 2] + 1} ×
Percent Per Semi-month (3.5.10)

3.5.14 Applicable Rate Float

If Recovery Months as of December (3.5.11) <= 12 then:
Applicable Rate = {[(12 − Service Month) × 2] + 1} ×
Percent Per Semi-month (3.5.10)

If Recovery Months as of December (3.5.11) > 12 and
If Recovery Months as of December <= Recovery Months Last Full Year (3.5.12) then:
Applicable Rate = Percent Per Year (3.5.9)

If Recovery Months as of December (3.5.11) > Recovery Months Last Full Year (3.5.12) and
If Recovery Months as of December <= Recovery Period Months (3.5.7) and
If Service Month (3.5.3) > 7 then:
Applicable Rate = {[(12 − Service Month) × 2] + 1} ×
Percent Per Semi-month (3.5.10)

If Sale year = Current year and
If Recovery Period Months as of December (3.5.7) <= Recovery Period Months (3.5.7) then:
Applicable Rate = {[(Sale month − 1) × 2] + 1} ×
Percent Per Semi-month (3.5.10)

3.5.15 Recovery Period Deduction

If Recovery Period Years (3.5.6) is an integer then:
Recovery Period Deduction = Cost Basis (3.5.1) × Applicable Rate of Integer Period (3.5.13)

If Recovery Period Years is a float then:
Recovery Period Deduction = Cost Basis (3.5.1) × Applicable Rate of Float Period (3.5.14)

3.6 Self-constructed Assets

If the firm is constructing its own asset, Asset Cost cannot exceed what an outside contractor would charge. Any excess is treated as a Loss.

3.6.1 Asset Cost

Asset Cost = Materials +
Labor +
Incremental Overhead +
Capitalized Interest (3.7)

3.6.2 Self-contructed Asset Journal Entry

If Asset Cost (3.6.1) <= Cost If Outsourced then:

		Debit	Credit
XX/XX/XX	Asset_{item}	Asset Cost (3.6.1)	
	Cash and/or Liability		Asset Cost (3.6.1)

If Asset Cost (3.6.1) > Cost If Outsourced then:

(Loss) Amount = Cost If Outsourced – Asset Cost (3.6.1)

		Debit	Credit
XX/XX/XX	Asset_{item}	Cost If Outsourced	
	Loss on Self-constructed Asset	(Loss) Amount	
	Cash and/or Liability		Asset Cost (3.6.1)

3.7 Capitalizing Interest Costs During Construction

If the firm is constructing a large, discrete asset, and if the firm is financing the construction with debt, then interest on the debt and interest on some of the firm's other debt can be capitalized into the asset being constructed. The alternative would be to expense the interest immediately. The rationale for captializing interest is: without the debt financing, the asset would never be constructed.

Two approaches for capitalizing interest are acceptable: 1) comingle the construction debt with the firm's other debt or 2) separate the construction debt from the firm's other debt. In either case, Avoidable Interest is calculated. Then Avoidable Interest is compared with the total of all the firm's interest, and the lessor of the two is capitalized into the asset being constructed. However, one major constraint exists: only the interest expensed during the time period of construction is capitalized.

These steps assume debt interest is expensed as incurred; therefore, an adjusting entry is required at the end of the accounting period to capitalize the qualifying interest and to reduce the corresponding interest expense.

3.7.1 Qualifying Assets

1. The asset must take significant time to build.

2. The asset must become plant or equipment, or inventory only if it is a large and discrete item, like a ship.

3.7.2 Capitalization Time Constrants

1. Construction begins.

2. Interest cost is incurring.

3. The asset is not yet ready for its intended use.

3.7.3 Capitalization Period for Expenditure_i

The Capitalization Period for Expenditure_i is the number of months remaining in the period after the i^{th} construction expenditure is made.

$$\text{Capitalization Period for Expenditure}_i = \frac{\text{Months Remaining In Period After Construction Expenditure}}{\text{Number of Project Months In Year}}$$

3.7.4 Weighted Average Accumulated Expenditure, If Discrete Payments

Only construction expenditures (not accrued expenses) may be used in the interest capitalization calculation. If construction expenditures were made discretely each month:

Let n = the number of expenditures for the construction project during the year.

$$\begin{aligned}\text{Weighted-Average Accumulated Expenditure} = {} & \text{Asset Under Construction}_{item} \text{ Beginning Balance} + \\ & \textstyle\sum_{i=1}^{n} \text{Expenditure Amount}_i \times \\ & \text{Capitalization Period for Expenditure}_i \end{aligned} \quad (3.7.3)$$

3.7.5 Weighted-Average Accumulated Expenditure Table

Use the following table to simplify the calculation of the Weighted-Average Accumulated Expenditure (WAAE):

Expenditure Date	Expenditure Amount (1)	Capitalization Period (2)	WAAE (1) × (2)
1/1/XX	Asset Under Construction$_{item}$	$\frac{\text{Number of Project Months In Year}}{\text{Number of Project Months In Year}}$	WAAE$_0$
Date$_1$	Amount$_1$	$\frac{\text{Months Remaining After Expenditure}_1}{\text{Number of Project Months In Year}}$	WAAE$_1$
...	...	...	...
Date$_n$	Amount$_n$	$\frac{\text{Months Remaining After Expenditure}_n}{\text{Number of Project Months In Year}}$	WAAE$_n$
			WAAE (3.7.4)

3.7.6 Weighted Average Accumulated Expenditure, If Continuous Payments

If construction expenditures were made continuously throughout the year:

$$\text{Weighted-Average Accumulated Expenditure} = \text{Asset Under Construction}_{item}\ \text{Beginning Balance} + \frac{\text{Total Construction Expenditures}}{2}$$

3.8 Calculate Avoidable Interest, If Comingled Debt

This method is used if:

1. no Specific Construction Debt is acquired; however, other debt is outstanding.[1]
2. no other debt is outstanding; only the Specific Construction Debt is acquired.
3. management decides the Specific Construction Debt should be comingled with the existing other debt.

3.8.1 Sum Comingled Actual Interest

$$\text{Sum Comingled Actual Interest} = \sum_{i=1}^{n} \text{Interest Expense For Debt Principal}_i$$

3.8.2 Sum Comingled Debt Principal

$$\text{Sum Comingled Debt Principal} = \sum_{i=1}^{n} \text{Debt Principal}_i$$

3.8.3 Comingled Weighted Average Interest Rate

$$\text{Comingled Weighted Average Interest Rate} = \frac{\text{Sum Comingled Actual Interest (3.8.1)}}{\text{Sum Comingled Debt Principal (3.8.2)}}$$

3.8.4 Comingled Avoidable Interest

$$\text{Combingled Avoidable Interest} = \text{Weighted-Average Accumulated Expenditure (3.7.4) or (3.7.6)} \times \text{Comingled Weighted-Average Interest Rate (3.8.3)}$$

3.9 Calculate Avoidable Interest, If Separated Debt

This method is used if other debt is outstanding, and the asset constructed is being financed with a Specific Construction Debt instrument that management decides should be separated from the other debt. This method is also called the Specific Method.

3.9.1 Excess Accumulated Principal

$$\text{Excess Accumulated Principal} = \text{Weighted-Average Accumulated Expenditure (3.7.4) or (3.7.6)} - \text{Specific Construction Debt Principal}$$

[1] *Intermediate Accounting*, Fourth edition; Spiceland, Sepe, Tomassini; page 473.

3.9.2 Specific Construction Avoidable Interest

If Excess Accumulated Principal (3.9.1) <= 0 then:
Specific Construction Avoidable Interest = Weighted-Average Accumulated Expenditure (3.7.4) or (3.7.6) ×
Specific Construction Debt Rate ×
Fraction of the Year
If Excess Accumulated Principal (3.9.1) > 0 then:
Specific Construction Avoidable Interest = Specific Construction Debt Principal ×
Specific Construction Debt Rate ×
Fraction of the Year

3.9.3 Specific Construction Interest Expense

Specific Construction Interest Expense = Specific Construction Debt Principal ×
Specific Construction Debt Rate ×
Fraction of the Year

3.9.4 Sum Other Debt Annual Interest

$$\text{Sum Other Debt Annual Interest} = \sum_{i=1}^{n} \text{Annual Interest For Other Debt Principal}_i$$

3.9.5 Sum Other Debt Principal

$$\text{Sum Other Debt Principal} = \sum_{i=1}^{n} \text{Other Debt Principal}_i$$

3.9.6 Other Debt Weighted Average Interest Rate

$$\text{Other Debt Weighted Average Interest Rate} = \frac{\text{Sum Other Debt Annual Interest (3.9.4)}}{\text{Sum Other Debt Principal (3.9.5)}}$$

3.9.7 Separated Avoidable Interest

If Excess Accumulated Principal (3.9.1) <= 0 then:
Separated Avoidable Interest = Specific Construction Avoidable Interest (3.9.2)
If Excess Accumulated Principal (3.9.1) > 0 then:
Separated Avoidable Interest = Specific Construction Avoidable Interest (3.9.2) +
[Excess Accumulated Principal (3.9.1) ×
Other Debt Weighted-Average Interest Rate (3.9.6) ×
Fraction of the Year]

3.10 Avoidable Interest

3.10.1 Avoidable Interest

Avoidable Interest = Comingled Avoidable Interest (3.8.4) or
Separated Avoidable Interest (3.9.7)

3.10.2 Actual Interest

Actual Interest = Sum Comingled Actual Interest (3.8.1) or
[Sum Other Debt Annual Interest (3.9.4) × Fraction of the Year] +
Specific Construction Interest Expense (3.9.3)

3.10.3 Interest Capitalization

If Avoidable Interest (3.10.1) < Actual Interest (3.10.2) then:
Interest Capitalization = Avoidable Interest (3.10.1)
If Avoidable Interest (3.10.1) ≥ Actual Interest (3.10.2) then:
Interest Capitalization = Actual Interest (3.10.2)

3.10.4 Interest Capitalization Journal Entry

		Debit	Credit
12/31/XX	Asset Under Construction$_{item}$	(3.10.3)	
	Interest Expense		(3.10.3)

3.10.5 Self-constructed Asset Completion

If Cost of Asset > Cost If Outsourced then:
Loss = Cost of Asset – Cost If Outsourced
Cost of Asset = Cost If Outsourced

Completion Journal Entry

		Debit	Credit
XX/XX/XX	PPE$_{item}$	Cost of Asset	
	Asset Under Construction$_{item}$		Cost of Asset

3.11 Exchanges

3.11.1 Overview

The accounting rules are specific when firms trade property, plant, and equipment. These rules use the following terms:

1. When firms trade items that change the expected future cash flow of the firms, then the transaction has commercial substance. For example, if a firm trades down from a semi truck to a pickup truck (and probably receives cash to compensate), then this transaction has commercial substance. As a corollary, if a firm trades up from a pickup truck to a semi truck (and probably pays cash to compensate), then this transaction also has commercial substance.

2. A deferred gain is a gain that is not realized at the time of the trade; instead, it is realized as a decrease in depreciation expense of the new asset.

3. A partial gain is when a portion of the gain is realized at the time of the trade, with the balance realized as a decrease in depreciation expense of the new asset.

3.11.2 Book Value$_{new}$, Given Fair Not Determinable

Book Value$_{new}$ = Book Value$_{old}$ + Cash Paid
or
Book Value$_{new}$ = Book Value$_{old}$ – Cash Received

3.11.3 Fair Value$_{old}$, Given Fair Value$_{new}$

Fair Value$_{old}$ = Fair Value$_{new}$ – Cash Paid
or
Fair Value$_{old}$ = Fair Value$_{new}$ + Cash Received

3.11.4 Book Value$_{new}$, Given Fair Value$_{old}$

Book Value$_{new}$ = Fair Value$_{old}$ + Cash Paid
or
Book Value$_{new}$ = Fair Value$_{old}$ – Cash Received

3.11.5 Gain or (Loss) on Exchange

Gain or (Loss) on Exchange = Fair Value$_{old}$ (3.11.3) – Book Value$_{old}$

3.11.6 Partial Gain

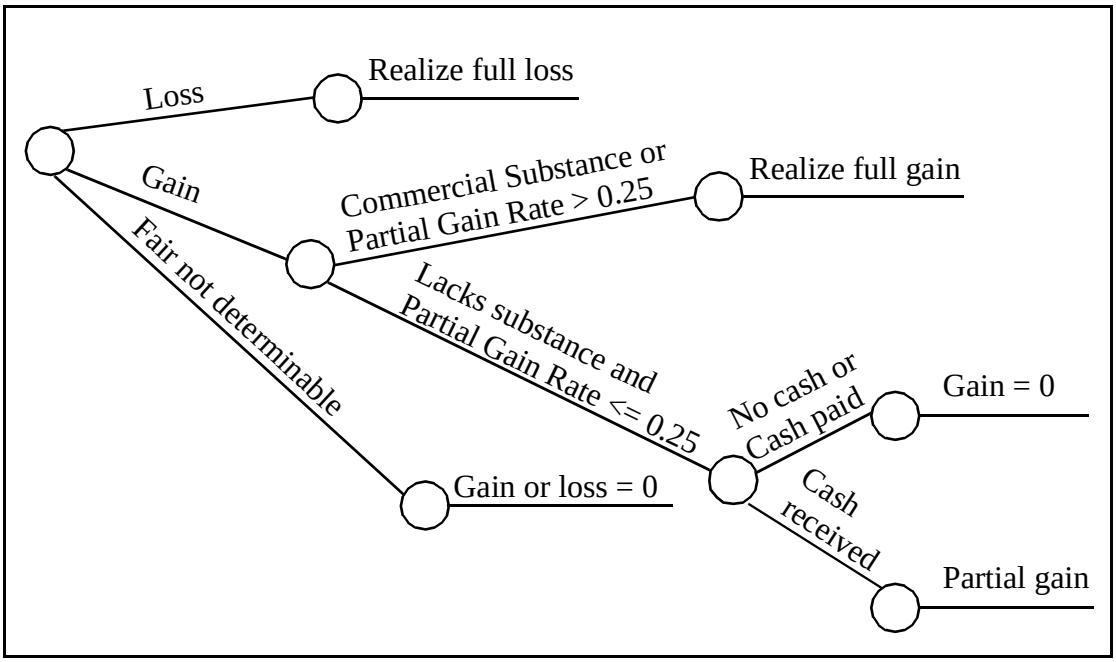
$$\text{Partial Gain} = \frac{\text{Cash Received}}{(\text{Cash Received} + \text{Fair Value}_{new})} \times \text{Gain (3.11.5)}$$

3.11.7 Partial Gain Rate

$$\text{Partial Gain Rate} = \frac{\text{Partial Gain (3.11.6)}}{\text{Fair Value}_{new}}$$

3.11.8 Reported Exchange Gain/(Loss)

Reported Exchange Gain/(Loss) =



3.11.9 Exchange Journal Entries

1. If fair not determinable and cash received:

		Debit	Credit
XX/XX/XX	Property, Plant, and Equipment	Book Value$_{new}$ (3.11.2)	
	Cash	Cash Received	
	Accumulated Depreciation	Accumulated Depreciation$_{old}$	
	Property, Plant, and Equipment		PP&E Item$_{old}$

2. If fair not determinable and cash paid:

		Debit	Credit
XX/XX/XX	Property, Plant, and Equipment	Book Value$_{new}$ (3.11.2)	
	Accumulated Depreciation	Accumulated Depreciation$_{old}$	
	Cash		Cash Paid
	Property, Plant, and Equipment		PP&E Item$_{old}$

3. If loss and cash received:

		Debit	Credit
XX/XX/XX	Property, Plant, and Equipment	Book Value$_{new}$ (3.11.4)	
	Cash	Cash Received	
	Accumulated Depreciation	Accumulated Depreciation$_{old}$	
	Loss	(3.11.8)	
	Property, Plant, and Equipment		PP&E Item$_{old}$

4. If loss and cash paid:

		Debit	Credit
XX/XX/XX	Property, Plant, and Equipment	Book Value$_{new}$ (3.11.4)	
	Accumulated Depreciation	Accumulated Depreciation$_{old}$	
	Loss	(3.11.8)	
	Cash		Cash Paid
	Property, Plant, and Equipment		PP&E Item$_{old}$

5. If gain and cash received:

		Debit	Credit
XX/XX/XX	Property, Plant, and Equipment	Book Value$_{new}$ (3.11.4)	
	Cash	Cash Received	
	Accumulated Depreciation	Accumulated Depreciation$_{old}$	
	Property, Plant, and Equipment		PP&E Item$_{old}$
	Gain		(3.11.8)

6. If gain and cash paid:

		Debit	Credit
XX/XX/XX	Property, Plant, and Equipment	Book Value$_{new}$ (3.11.4)	
	Accumulated Depreciation	Accumulated Depreciation$_{old}$	
	Property, Plant, and Equipment		PP&E Item$_{old}$
	Cash		Cash Paid
	Gain		(3.11.8)

3.12 Additions, Improvements, Replacements, and Repairs

Should an expenditure on an existing asset be capitalized or expensed? Generally, additions or improvements are capitalized, and replacements or repairs are expensed.

Capitalization general rule (one must apply):

1. The useful life is increased.
2. The output quantity is increased.
3. The output quality is increased.

Moreover, the materiality constraint should be considered when deciding to capitalize trivial additions or improvements.

3.12.1 Additions

An Addition is a discrete asset that is added to an existing asset. Examples: 1) new wing to a hospital, 2) new air conditioning to an un-air conditioned building. Additions are capitalized and then depreciated.

		Debit	Credit
XX/XX/XX	PP&E Item$_{new}$	Cost	
	Cash and/or A/P		Cost

3.12.2 Improvements

An Improvement is the replacement of a better asset for an inferior asset. Examples: 1) a new plumbing system replacing an old plumbing system, 2) a concrete floor replacing a wooden floor, 3) a new truck motor replacing a worn-out motor.

3.12.3 Substitution Approach

The substitution approach applies if the book value of the old asset is available.

3.12.4 Property, Plant, and Equipment Book Value

$$\text{Property, Plant, and Equipment Book Value} = \text{Balance}_{old} \text{ (} \leftarrow \text{ should be cost)} - \text{Accumulated Depreciation}_{old}$$

3.12.5 Gain (Loss) on Substitution of Plant Assets

Gain (Loss) on Substitution of Plant Assets = Salvage Value – Book Value (3.12.4)

3.12.6 Journal Entry if Gain

		Debit	Credit
XX/XX/XX	PP&E Item$_{new}$	Cost	
	Accumulated Depreciation$_{old}$	Balance	
	PP&E Item$_{old}$		Balance
	Cash and/or A/P		Cost
	Gain on Substitution of Plant Assets		(3.12.5)

3.12.7 Journal Entry if (Loss)

		Debit	Credit
XX/XX/XX	PP&E Item$_{new}$	Cost	
	Accumulated Depreciation$_{old}$	Balance	
	Loss on Substitution of Plant Assets	(3.12.5)	
	PP&E Item$_{old}$		Balance
	Cash and/or A/P		Cost

3.12.8 Capitalization Approach

Typically, components of assets are not recorded as separates assets. For example, the engine of a truck is not recorded separately from the truck itself. However, when a significant component of an asset wears out and replacing it increases the asset's useful life, then the replaced component is recorded as a separate asset and depreciated separately from the asset it attaches to. The justification is the main asset probably has sufficient depreciation that includes the worn-out component.

		Debit	Credit
XX/XX/XX	PP&E Item$_{new}$	Cost	
	Cash and/or A/P		Cost

Note: when the new component wears out and needs to be replaced (example, the truck needs a third engine), then the Substitution Approach is used.

3.12.9 Accumulated Depreciation Approach

When replacing a component of an asset, instead of using the Capitalization Approach and recording a new asset for the component, the Accumulated Depreciation of the main asset can be debited. The rationale for debiting Accumulated Depreciation is the new component erases some of the depreciation previously taken.

		Debit	Credit
XX/XX/XX	Accumulated Depreciation$_{old}$	Cost	
	Cash and/or A/P		Cost

Note: a new depreciation schedule needs to be setup.

3.12.10 Replacements

A Replacement of a worn-out component with a new component is expensed if the asset's output is neither improved (quality) nor increased (quantity), and if the asset's useful life remains the same.

Expensing general rule (all must apply):

1. The useful life remains the same.

2. The output quantity is not increased.

3. The output quality is not increased.

		Debit	Credit
XX/XX/XX	PP&E Replacement Expense	Cost	
	Cash and/or A/P		Cost

3.12.11 Repairs

Repairs (and periodic maintenance) are expensed as incurred.

		Debit	Credit
XX/XX/XX	PP&E Repair Expense	Cost	
	Cash and/or A/P		Cost

3.13 Disposal of Plant Assets

3.13.1 Gain (Loss) on Disposal of Plant Assets

Gain (Loss) on Disposal of Plant Assets = Proceeds – Book Value (3.12.4)

3.13.2 Journal Entry if Gain

		Debit	Credit
XX/XX/XX	Cash	Proceeds	
	Accumulated Depreciation$_{item}$	Balance	
	PP&E$_{item}$		Balance
	Gain on Disposal of Plant Assets		(3.13.1)

3.13.3 Journal Entry if (Loss)

		Debit	Credit
XX/XX/XX	Cash	Proceeds	
	Accumulated Depreciation$_{item}$	Balance	
	Loss on Disposal of Plant Assets	(3.13.1)	
	PP&E$_{item}$		Balance

3.14 Impairments

An impairment of equipment occurs when its book value cannot be recovered from the revenue it generates. Notice an impairment could occur when demand for the product produced lessens.

3.14.1 Equipment Recoverability

Equipment Recoverability = $\sum_{i=1}^{n}$ Undiscounted Expected Future Net Cash Inflow$_i$
–OR–
Equipment Recoverability = Remaining Useful Life Years ×
[Estimated Annual Cash Inflow –
Estimated Annual Maintenance Costs] +
Estimated Residual Value

3.14.2 Recoverability Test

If Equipment Recoverability (3.14.1) < Book Value (3.12.4) then:
impaired
If Equipment Recoverability (3.14.1) >= Book Value (3.12.4) then:
not impaired

3.14.3 (Loss) on Impairment, If Continued Use

(Loss) on Impairment If Continued Use = Fair Value (← if known) – Book Value (3.12.4)
or
Equipment Recoverability (3.14.1) – Book Value (3.12.4)

3.14.4 Impairment Loss (If Continued Use) Journal Entry

		Debit	Credit
XX/XX/XX	Loss on Impairment (← ordinary loss)	(3.14.3)	
	Accumulated Depreciation		(3.14.3)

Notes: 1) a new depreciation schedule needs to be setup, and 2) an impairment loss cannot later be restored.

3.14.5 (Loss) on Impairment, If Discontinued Use

(Loss) on Impairment If Discountinued Use =
+ Fair Value
– Book Value (3.12.4)
+ Cost To Sell

3.14.6 Impairment Loss (If Discontinued Use) Journal Entry

		Debit	Credit
XX/XX/XX	Loss on Impairment (← ordinary loss)	(3.14.5)	
	Accumulated Depreciation		(3.14.5)

Notes: 1) depreciation ceases, and 2) the impairment loss can later be restored.

3.15 Natural Resources

Natural resources include:

1. Timberland
2. Oil and gas
3. Mineral deposits (gold, silver, copper, coal, etc.)

3.15.1 Acquistion Costs

Acquisition Costs are the costs to purchase or lease land for the purpose of depleting its natural resouces.
If Purchased Property:

		Debit	Credit
XX/XX/XX	Property_{item} (3.1)	(3.1.6)	
	Cash and/or Liability		(3.1.6)

If Leased Property:
Present Value of Lease Payments = Lease Rent ×
pvad[$1, Lessee Interest Rate (9.3.4), Lease Term (9.3.2)]

		Debit	Credit
XX/XX/XX	$\text{Intangible Asset}_{item}$	Present Value of Lease Payments	
	Liability		Present Value of Lease Payments

3.15.2 Exploration Costs

Exploration Costs are those expenses to determine where (if any) of the natural resources are located. The two methods of allocating Exploration Costs are Successful Efforts (3.15.3) and Full Cost (3.15.4).

3.15.3 Exploration: Successful Efforts

If the Successful Efforts Exploration Costs (3.15.2) method is choosen, then only those costs resulting in successfully locating the presence of the natural resource (usually oil or gas) are capitalized. Costs resulting in empty holes are expensed immediately.
If Successful and Purchased Property then:

		Debit	Credit
XX/XX/XX	Property_{item} (3.1)	Cost Amount	
	Cash and/or Liability		Cost Amount

If Successful and Leased Property then:

		Debit	Credit
XX/XX/XX	Intangible Asset$_{item}$	Cost Amount	
	Cash and/or Liability		Cost Amount

If Not Successful then:

		Debit	Credit
XX/XX/XX	Exploration Expenses	Cost Amount	
	Cash and/or Liability		Cost Amount

3.15.4 Exploration: Full Cost

If the Full Cost Exploration Costs (3.15.2) method is choosen, then both the costs resulting in successfully locating the presence of the natural resource (usually oil or gas) and empty holes are capitalized.

Whether Successful or Not and Purchased Property:

		Debit	Credit
XX/XX/XX	Property$_{item}$ (3.1)	Cost Amount	
	Cash and/or Liability		Cost Amount

Whether Successful or Not and Leased Property:

		Debit	Credit
XX/XX/XX	Intangible Asset$_{item}$	Cost Amount	
	Cash and/or Liability		Cost Amount

3.15.5 Development Costs

Development Costs are to purchase the facilities for:

1. extracting
2. gathering (conveyer belts)
3. treating
4. storing

If Purchased Property then:

		Debit	Credit
XX/XX/XX	Property$_{item}$ (3.1)	Cost Amount	
	Cash and/or Liability		Cost Amount

If Leased Property then:

		Debit	Credit
XX/XX/XX	Intangible Asset$_{item}$	Cost Amount	
	Cash and/or Liability		Cost Amount

3.15.6 Production Costs

Production Costs are costs for extracting and processing the natural resource. They include:

1. wages for extraction
2. materials
3. refining
4. other processing

Production Costs are debited to an inventory account, not Property$_{item}$ (3.1) or Intangible Asset$_{item}$.

		Debit	Credit
XX/XX/XX	Inventory$_{item}$	Cost Amount	
	Cash and/or Liability		Cost Amount

3.15.7 Asset Retirement Liability

Asset Retirement Liability is a liability account used to store the anticipated Restoration Costs (3.15.8). It is populated at the beginning of the project with the present value of an estimate of the total Restoration Costs.

3.15.8 Restoration Costs

Restoration Costs are those costs incurred after Production (3.15.6) has terminated to restore the land back to a legally obligated condition.

Journal Entry

		Debit	Credit
XX/XX/XX	Asset Retirement Liability (3.15.7)	Cost Amount	
	Cash or Payable		Cost Amount

Note: if the Asset Retirement Liability balance reaches zero, then start debiting Asset Retirement Loss. If the restoration process completes with a credit balance in Asset Retirement Liability, then close the account to Asset Retirement Gain.

3.15.9 Asset Retirement Obligation

The Asset Retirement Obligation is an estimation of the total Restoration Costs (3.15.8). Many estimated costs are each given a probability of realization. The Asset Retirement Obligation is the probability-weighted expected cash outflow.

Let n = the number of estimated restoration costs.

$$\text{Asset Retirement Obligation} = \sum_{i=1}^{n} \text{Estimated Total Restoration Cost}_i \times \text{Probability of Realization}_i$$

Note: $\sum_{i=1}^{n} \text{Probability of Realization}_i = 1.0$

3.15.10 Asset Retirement Obligation Discount Rate

$$\text{Asset Retirement Obligation Discount Rate} = \text{Risk Free Interest Rate} + \text{Credit Adjusted Premium}$$

3.15.11 Present Value of Asset Retirement Obligation

Present Value of Asset Retirement Obligation =
pv[Asset Retirement Obligation (3.15.9), Discount Rate (3.15.10), Excavation Years]

If Purchased Property then:

		Debit	Credit
XX/XX/XX	Property_{item} (3.1)	(3.15.11)	
	Asset Retirement Liability (3.15.7)		(3.15.11)

If Leased Property then:

		Debit	Credit
XX/XX/XX	$\text{Intangible Asset}_{item}$	(3.15.11)	
	Asset Retirement Liability (3.15.7)		(3.15.11)

3.15.12 Accretion Expense

The Accretion Expense is the period increase of the discounted Asset Retirement Liability (3.15.7).

$$\text{Accretion Expense Amount} = \text{Asset Retirement Liability (3.15.7) Credit Balance} \times \text{Discount Rate (3.15.10)}$$

–OR–

$$\text{Accretion Expense Amount} = \frac{\text{Asset Retirement Obligation (3.15.9)} - \text{PV of Asset Retirement Obligation (3.15.11)}}{\text{Excavation Years}}$$

		Debit	Credit
XX/XX/XX	Accretion Expense	Accretion Expense Amount	
	Asset Retirement Liability (3.15.7)		Accretion Expense Amount

3.15.13 Capitalized Costs

Capitalized Costs =
+ Acquisition Costs (3.15.1)
+ Exploration Costs (3.15.2)
+ Development Costs (3.15.5)
+ Present Value of Asset Retirement Obligation (3.15.11)

3.15.14 Depletion Base

Depletion Base =
+ Capitalized Costs (3.15.13)
– Residual Value

3.15.15 Depletion Rate

$$\text{Depletion Rate} = \frac{\text{Depletion Base (3.15.14)}}{\text{Estimated Recoverable Units}}$$

3.15.16 Natural Resources Depletion

Depletion Amount = Depletion Rate (3.15.15) ×
Depleted Units

		Debit	Credit
XX/XX/XX	Inventory$_{item}$	Depletion Amount	
	Accumulated Depletion$_{item}$		Depletion Amount

3.15.17 Natural Resources Sale

Cost Amount = Depletion Rate (3.15.15) ×
Sold Units

		Debit	Credit
XX/XX/XX	Cash or A/R	Sales Amount	
	Cost of Goods Sold (1.1.14)	Cost Amount	
	Sales Revenue		Sales Amount
	Inventory$_{item}$		Cost Amount

Chapter 4

Liabilities

4.1 Payroll

4.1.1 Employee Gross Pay

If employee is hourly then:
Employee Gross Pay = Hourly Wage × Hours Worked
If employee is salary then:
Employee Gross Pay = Salary for the Period

4.1.2 Federal Income Tax

The Federal Income Tax is a tax levied by the Federal Government on the employee because of the transaction of receiving a salary or wage.

4.1.3 Federal Income Tax Withholding Amount

Federal Income Tax Withholding Amount = amount taken from tax table

4.1.4 State Income Tax

A State Income Tax is a tax levied on the employee because of the transaction of receiving a salary or wage. The tax is deposited to the General Fund (15.2.4) of the employee's state government. Note: not all states tax income.

4.1.5 State Income Tax Withholding Amount

State Income Tax Withholding Amount = amount taken from tax table

4.1.6 Payroll Withholding

A Payroll Withholding is the event of the firm deducting Income Taxes (4.1.2) (4.1.4), Union Dues (4.1.16), Health Insurance Premiums, etc. from Employee Gross Pay (4.1.1). The firm then pays the appropriate recipient these funds.

4.1.7 Payroll Tax

A Payroll Tax is a tax levied on either the firm [see Unemployment Tax (4.1.31) (4.1.35)] or both the firm and the employee [see Social Security Tax (4.1.8) and Medicare Tax (4.1.12)]. Payroll Taxes are levied by the federal government and many state governments because of the transaction of paying employees salaries or wages.

4.1.8 Social Security Tax

The Social Security Tax is a Payroll Tax (4.1.7) that is deposited into a Fund (15.2.1) that finances mainly retirement benefits. The Social Security Tax is also called the:

1. Federal Insurance Contributions Act (FICA) tax.
2. Old-Age, Suvivors, Disabilities, and Insurance (OASDI) tax.

3. Old-Age, Suvivors, Disabilities, and Hospital Insurance (OASDHI) tax.

4. Federal Hospital Insurance tax.

4.1.9 Social Security Tax Rate

The Social Security Tax Rate is 12.4% of the first $127,200 (in 2017) of Employee Gross Pay (4.1.1). The tax is equally levied on the firm and the employee with each paying 6.2%.

4.1.10 Social Security Employee Tax Rate

Social Security Employee Tax Rate = 6.2% of the first $127,200 (in 2017) of Employee Gross Pay (4.1.1).

4.1.11 Social Security Employee Tax Amount

Social Security Employee Tax Amount = Employee Gross Pay (4.1.1) ×
Social Security Employee Tax Rate (4.1.10)

4.1.12 Medicare Tax

The Medicare Tax is a Payroll Tax (4.1.7) that is deposited into a Fund (15.2.1) that finances national health insurance for retirees.

4.1.13 Medicare Tax Rate

The Medicare Tax Rate is 2.9% (in 2017) of an individual's salary or wage. The tax is equally levied on the firm and the employee with each paying 1.45% (in 2017) of Employee Gross Pay (4.1.1).

4.1.14 Medicare Employee Tax Rate

Medicare Employee Tax Rate = 1.45% (in 2017) of Employee Gross Pay (4.1.1).

4.1.15 Medicare Employee Tax Amount

Medicare Employee Tax Amount = Employee Gross Pay (4.1.1) ×
Medicare Employee Tax Rate (4.1.14)

4.1.16 Union Dues Withholding

A Union Dues Withholding is the event of deducting an employee's union dues from Employee Gross Pay (4.1.1). The firm then pays the union these funds.

4.1.17 Health Insurance Benefit

A Health Insurance Benefit is the event of paying some or all of an employee's health insurance premium.

4.1.18 Health Insurance Employee Benefit Amount

Health Insurance Employee Benefit Amount = Health Insurance Premium Amount ×
(1 – Percent Paid By Employee)

4.1.19 Health Insurance Employee Cost Amount

Health Insurance Employee Cost Amount = Health Insurance Premium Amount ×
Percent Paid By Employee

4.1.20 Retirement Plan Benefit

A Retirement Plan Benefit is the event of paying some or all of an employee's retirement benefit plan premium.

4.1.21 Retirement Employee Benefit Amount

Retirement Employee Benefit Amount = Retirement Benefit Amount ×
(1 – Percent Paid By Employee)

4.1.22 Retirement Employee Cost Amount

Retirement Employee Cost Amount = Retirement Benefit Amount ×
Percent Paid By Employee

4.1.23 Gross Benefit

Gross Benefit = Employee Gross Pay (4.1.1) +
Health Insurance Employee Benefit Amount (4.1.18) +
Retirement Plan Employee Benefit Amount (4.1.21)

4.1.24 Salary/Wage Expense

Salary/Wage Expense is an expense account used to record Gross Benefits (4.1.23).

4.1.25 Employee Net Pay

Employee Net Pay = + Employee Gross Pay (4.1.1)
– Federal Income Tax Withholding Amount (4.1.3)
– State Income Tax Withholding Amount (4.1.5)
– Social Security Employee Tax Amount (4.1.11)
– Medicare Employee Tax Amount (4.1.15)
– Union Dues Withholding (4.1.16)
– Health Insurance Employee Cost Amount (4.1.19)
– Retirement Employee Cost Amount (4.1.22)

4.1.26 Payroll Journal Entry: Salary/Wage Expense

		Debit	Credit
XX/XX/XX	Salary/Wage Expense (4.1.24)	Gross Benefit (4.1.23)	
	Federal Income Tax Withholding Payable		(4.1.3)
	State Income Tax Withholding Payable		(4.1.5)
	Social Security Tax Payable		(4.1.11)
	Medicare Tax Payable		(4.1.15)
	Union Dues Payable		(4.1.16)
	Health Insurance Payable		Health Insurance Premium Amount
	Retirement Plan Payable		Retirement Benefit Amount
	Payroll Payable		Employee Net Pay (4.1.25)

4.1.27 Social Security Employer Tax Rate

Social Security Employer Tax Rate = 6.2% of the first $127,200 (in 2017) of Employee Gross Pay (4.1.1).

4.1.28 Social Security Employer Tax Amount

Social Security Employer Tax Amount = Employee Gross Pay (4.1.1) ×
Social Security Employer Tax Rate (4.1.27)

4.1.29 Medicare Employer Tax Rate

Medicare Employer Tax Rate = 1.45% (in 2017) of Employee Gross Pay (4.1.1).

4.1.30 Medicare Employer Tax Amount

Medicare Employer Tax Amount = Employee Gross Pay (4.1.1) ×
Medicare Employer Tax Rate (4.1.29)

4.1.31 Federal Unemployment Tax

The Federal Unemployment Tax (FUTA) is a Payroll Tax (4.1.7) levied on the firm by the federal government. The tax is deposited into a Fund (15.2.1) that finances unemployment insurance for those employees who lose their job because of economic downturns.

4.1.32 Federal Unemployment Tax Rate

The Federal Unemployment Tax Rate is:

1. If the firm resides in a state that does not have a State Unemployment Tax (4.1.35), then the tax is 6.0% of the first $7,000 (as of 2017) of Employee Gross Pay (4.1.1).

2. If the firm resides in a state that does have a State Unemployment Tax (4.1.35), then the tax is normally 0.6% of the first $7,000 (as of 2017) of Employee Gross Pay (4.1.1).

4.1.33 Federal Unemployment Tax Apply Amount

If Employee Gross Pay (4.1.1) >= $7,000 then:
    Federal Unemployment Tax Apply Amount = 7,000
If Employee Gross Pay < $7,000 then:
    Federal Unemployment Tax Apply Amount = Employee Gross Pay

4.1.34 Federal Unemployment Tax Amount

If State Rate (4.1.36) >= 0.054 then:
    Federal Unemployment Tax Amount = Federal Unemployment Tax Apply Amount (4.1.33) × 0.006
If State Rate = 0.0 then:
    Federal Unemployment Tax Amount = Federal Unemployment Tax Apply Amount × 0.06
If 0.0 < State Rate < 0.054 then:
    Federal Unemployment Tax Amount = Federal Unemployment Tax Apply Amount × (0.06 - State Rate)

4.1.35 State Unemployment Tax

The State Unemployment Tax (SUTA) is a Payroll Tax (4.1.7) levied on the firm by many state goverments. (However, Alaska levies an unemployment tax on the employee.) The tax is deposited into a Fund (15.2.1) that finances unemployment insurance for those employees who lose their job because of economic downturns.

4.1.36 State Unemployment Tax Rate

The State Unemployment Tax Rate varies from state to state and from firm to firm.

4.1.37 State Unemployment Tax Amount

State Unemployment Tax Amount = Employee Gross Pay (4.1.1) ×
State Unemployment Tax Rate (4.1.36)

4.1.38 Payroll Tax Expense

Payroll Tax Expense is an expense account used to record the employer's portion of Payroll Taxes (4.1.7):

1. Social Security Tax (4.1.8)

2. Medicare Tax (4.1.12)

3. Federal Unemployment Tax (4.1.31)

4. State Unemployment Tax (4.1.35)

4.1.39 Payroll Tax Expense Amount

Payroll Tax Expense Amount = + Social Security Employer Tax Amount (4.1.28)
+ Medicare Employer Tax Amount (4.1.30)
+ Federal Unemployment Tax Amount (4.1.34)
+ State Unemployment Tax Amount (4.1.37)

4.1.40 Payroll Journal Entry: Payroll Tax Expense

		Debit	Credit
XX/XX/XX	Payroll Tax Expense (4.1.38)	Payroll Tax Expense Amount (4.1.39)	
	Social Security Tax Payable		(4.1.28)
	Medicare Tax Payable		(4.1.30)
	Federal Unemployment Tax Payable		(4.1.34)
	State Unemployment Tax Payable		(4.1.37)

4.2 Compensated Absenses

Compensated Absenses are paid time off — whether by sickness, vacation, or personal time. Compensated Absenses must accrue if:

1. the obligation is a result of the employees' previous services.

2. the rights accumulate (carry forward to the next period) or the rights vest (are reimbursed upon employees' separation).

3. the payment of the compensation is probable.

4. the amount of the compensation is reasonably estimated.

4.2.1 Take Vacation Earned Current Year Journal Entry

		Debit	Credit
XX/XX/XX	Salary/Wage Expense	Actual Amount	
	Cash or Salary/Wage Payable		Actual Amount

4.2.2 Employee Count of Those Who Accrued Vacation$_{week}$

Employee Count of Those Who Accrued Vacation$_0$ = the number of employees who did not accrue any vacation weeks.
Employee Count of Those Who Accrued Vacation$_1$ = the number of employees who accrued one vacation week.
Employee Count of Those Who Accrued Vacation$_2$ = the number of employees who accrued two vacation weeks.
Employee Count of Those Who Accrued Vacation$_3$ = the number of employees who accrued three vacation weeks.
Employee Count of Those Who Accrued Vacation$_4$ = the number of employees who accrued four vacation weeks.

4.2.3 Vacation Weeks Earned But Not Taken$_{week}$

Vacation Weeks Earned But Not Taken$_0$ = 0
Vacation Weeks Earned But Not Taken$_1$ = 1
Vacation Weeks Earned But Not Taken$_2$ = 2
Vacation Weeks Earned But Not Taken$_3$ = 3
Vacation Weeks Earned But Not Taken$_4$ = 4

4.2.4 Total Carryover Weeks

Total Carryover Weeks = $\sum_{i=0}^{4}$ Vacation Weeks Earned But Not Taken (4.2.3)$_i$ ×
Employee Count of Those Who Accrued Vacation (4.2.2)$_i$

4.2.5 Total Carryover Weeks Table

Use the following table to simplify the calculation of the Total Carryover Weeks (TCW):

Employee Count (1)	Vacation Weeks Earned but Not Taken (2)	Carryover Weeks (1) × (2)
	0	
	1	
	2	
	3	
	4	
$\sum_{i=0}^{4}$ = Total Employees		$\sum_{i=0}^{4}$ = TCW

4.2.6 Liability Amount

Liability Amount = [Total Carryover Weeks (4.2.4) ×
Average Weekly Pay] –
Estimate of Benefits Not Expected to be Taken

4.2.7 Accrue Vacation Adjusting Entry

		Debit	Credit
12/31/XX	Salary/Wage Expense	Liability Amount (4.2.6)	
	Vacation Payable		Liability Amount (4.2.6)

4.2.8 Take Vacation Earned Prior Year: Salary/Wage Payable Amount

Salary/Wage Payable Amount = Weeks Taken ×
Average Weekly Pay ×
(1 + Inflation Rate)

–OR–

Salary/Wage Payable Amount = Actual Amount

4.2.9 Take Vacation Earned Prior Year: Vacation Payable Amount

Vacation Payable Amount = Weeks Taken ×
Average Weekly Pay

4.2.10 Take Vacation Earned Prior Year: Salary Expense Amount

Salary Expense Amount = Salary/Wage Payable Amount (4.2.8) –
Vacation Payable Amount (4.2.9)

4.2.11 Take Vacation Earned Prior Year Journal Entry

		Debit	Credit
XX/XX/XX	Vacation Payable	(4.2.9)	
	Salary Expense	(4.2.10)	
	Salary/Wage Payable		(4.2.8)

4.3 Warranties

A Warranty is a promise to fix a deficiency of quality, quantity, or performance of a product, within a given period.

4.3.1 Warranty Claims on Current Year Sales

		Debit	Credit
XX/XX/XX	Warranty Expense	Cost to Fix	
	Cash		Cost to Fix

4.3.2 Estimated Warranty Claims: Percent of Sales Method

Estimated Warranty Claims = Sales Amount × Warranty Claims Percent Estimate

4.3.3 Estimated Warranty Claims: Expected Cash Flow Method

Let x = a future Cost × Probability likelihood.
Let n = the number of Cost × Probability likelihoods for year y.
Let y = a future year.
Let p = the number of years of the warranty period.
Estimated Warranty Claims =
$\sum_{y=1}^{p}\{\sum_{x=1}^{n}[\text{Expected Warranty Cost}_x \times \text{Probability of Cost}_x] \times \text{pv(y, Risk Free Rate)}\}$

4.3.4 Estimated Warranty Claims: Expected Cash Outflow Method Table

Use the following table to simplify the calculation of the Estimated Warranty Claims (EWC):

Year	Warranty Cost	Probability	Cost × Probability (1)	$\sum_{x=1}^{n}$ (1) = Weighted Average (2)	PV of y at Risk Free Rate (3)	PV of Weighted Average (2) × (3)
						...
						$\sum_{y=1}^{p}$ = EWC

4.3.5 Warranty Claims Adjustment Amount

Warrancy Claims Adjustment Amount = Estimated Warranty Claims (4.3.2) or (4.3.3) – Warranty Expense Debit Balance

4.3.6 Warranty Claims Adjusting Journal Entry

		Debit	Credit
XX/XX/XX	Warranty Expense	Adjustment Amount (4.3.5)	
	Warranty Liability		Adjustment Amount (4.3.5)

4.3.7 Warranty Claims on Prior Year Sales

		Debit	Credit
XX/XX/XX	Warranty Liability	Cost to Fix	
	Cash		Cost to Fix

If Warranty Liability Credit Balance < 0 then:

		Debit	Credit
XX/XX/XX	Warranty Expense	Warranty Liability Credit Balance	
	Warranty Liability		Warranty Liability Credit Balance

If the prior estimate was understated, then expense the deficiency this year.

4.4 Long-Term Notes

4.4.1 Borrow Money or Purchase With Note

		Debit	Credit
XX/XX/XX	Cash or PP&E$_{item}$	Note Amount	
	Notes Payable		Note Amount

4.4.2 Interest Payment Amount

Interest Payment Amount = Note Amount × Annual Interest Rate

4.4.3 Pay Interest

		Debit	Credit
XX/XX/XX	Interest Expense	Interst Payment Amount (4.4.2)	
	Cash		Interest Payment Amount (4.4.2)

4.4.4 Financial Statement Interest Accrual Amount

At year-end, a partial interest expense must be recognized.

$$\text{Financial Statement Interest Accrual Amount} = \text{Interest Payment Amount (4.4.2)} \times \text{Fraction of the Year}$$

Journal Entry

		Debit	Credit
12/31/XX	Interest Expense	Interest Accrual Amount (4.4.4)	
	Interest Payable		Interest Accrual Amount (4.4.4)

4.4.5 Pay Back the Note

		Debit	Credit
XX/XX/XX	Notes Payable	Note Amount	
	Cash		Note Amount

4.5 Installment Notes

Installment Notes are debt issues that include both principle and interest in each payment.

4.5.1 Market Interest Rate

The Market Interest Rate is the going annual rate for debt issues of this term and risk. The Market Interest Rate represents the true compounded rate of return on the debt. It is also called the Effective Interest Rate.

4.5.2 Note Interest Rate

The Note Interest Rate is the stated annual rate on the indenture. It may differ from the Market Interest Rate (4.5.1) due to incentives.

4.5.3 Payments Per Year

Annually	1
Quarterly	4
Monthly	12

4.5.4 Market Period Interest Rate

$$\text{Market Period Interest Rate} = \frac{\text{Market Interest Rate (4.5.1)}}{\text{Payments Per Year (4.5.3)}}$$

4.5.5 Note Period Interest Rate

$$\text{Note Period Interest Rate} = \frac{\text{Note Interest Rate (4.5.2)}}{\text{Payments Per Year (4.5.3)}}$$

4.5.6 Period Payment Amount

$$\text{Period Payment Amount} = \frac{\text{Note Amount}}{\text{pva}[\$1, \text{Note Period Interest Rate (4.5.5)}, \text{Note Term} \times \text{Payments Per Year (4.5.3)}}$$

4.5.7 Present Value of Note

$$\text{Present Value of Note} = \text{pva}[\text{Period Payment (4.5.6)}, \text{Market Period Interest Rate (4.5.4)}, \text{Note Term} \times \text{Payments Per Year (4.5.3)}]$$

4.5.8 Borrow Money or Purchase With Note

		Debit	Credit
XX/XX/XX	Cash or PP&E$_{item}$	Present Value of Note (4.5.7)	
	Notes Payable$_{issue}$		Present Value of Note (4.5.7)

4.5.9 Period Interest Expense Amount

Period Interest Expense Amount = Note Payable$_{issue}$ Credit Balance × Market Period Interest Rate (4.5.4)

4.5.10 Period Note Amortization Amount

Period Note Amortization Amount = Period Payment Amount (4.5.6) – Period Interest Expense Amount (4.5.9)

4.5.11 Make an Installment Note Payment

		Debit	Credit
XX/XX/XX	Interest Expense	Period Interest Expense Amount (4.5.9)	
	Note Payable$_{issue}$	Period Note Amortization Amount (4.5.10)	
	Cash		Period Payment Amount (4.5.6)

4.5.12 Financial Statement Interest Accrual Amount

At year-end, a partial interest expense must be recognized.

Financial Statement Interest Accrual Amount = Period Interest Expense Amount (4.5.9) × Fraction of the Year

Journal Entry

		Debit	Credit
12/31/XX	Interest Expense	Interest Accrual Amount (4.5.12)	
	Interest Payable		Interest Accrual Amount (4.5.12)

4.6 Bond Issue

Firms may raise money by borrowing from the public through a Bond Issue.

4.6.1 Bonds Payable$_{issue}$

Bonds Payable$_{issue}$ is a liability account used to record a Bond Issue (4.6). It is easiest to create an account for each issue, then sum them up to report Bonds Payable on the balance sheet.

4.6.2 Bond Underwriter

The Bond Underwriter is the investment banking firm that pools together a syndicate of securities firms to sell the Bond Issue (4.6). The participating securities firms then sell the bonds to their clients.

4.6.3 Face Amount per Bond

The Face Amount Per Bond is the amount paid on one bond to the bond holder at maturity. The Face Amount per Bond is usually $1,000.

4.6.4 Bond Quantity Issued

The Bond Quantity Issued is the number of certificates issued, each valued at the Face Amount (4.6.5).

4.6.5 Face Amount

Face Amount = Face Amount per Bond (4.6.3) × Bond Quantity Issued (4.6.4)

4.6.6 Bond Date

The Bond Date is the date the bond is intended to be sold. This date is listed on the bond.

4.6.7 Issuance Date

The Issuance Date is the date the bond is actually sold. It cannot be before the Bond Date (4.6.6) and is frequently later. Issuing firms might delay an issue to try to gain a more favorable Market Interest Rate (4.6.13). This date is not listed on the bond.

4.6.8 Maturity Date

The Maturity Date is the date the Face Amount (4.6.5) is redeemed.

4.6.9 Bond Term

The Bond Term is the number of years between the Bond Date (4.6.6) and the Maturity Date (4.6.8).

4.6.10 Coupon Interest Rate

The Coupon Interest Rate is the annual rate at which the bond pays cash interest twice a year.

4.6.11 Bond Quote Percentage

The Bond Quote Percentage is the percentage of the Face Amount (4.6.5) that a Bond Issue (4.6) is currently trading for.

4.6.12 Interest Payment Amount

$$\text{Interest Payment Amount} = \text{Face Amount (4.6.5)} \times \frac{\text{Coupon Interest Rate (4.6.10)}}{2}$$

4.6.13 Market Interest Rate

The Market Interest Rate is the going rate for bond issues of this Bond Term (4.6.9) and risk. Independent of the Coupon Interest Rate (4.6.10), it represents the true compounded rate of return on the bond. It is also called the Effective Interest Rate.

4.6.14 Bond Issue Price

$$\text{Bond Issue Price} = \text{pv}[\text{Face Amount (4.6.5)}, \frac{\text{Market Interest Rate (4.6.13)}}{2}, \text{Bond Term (4.6.9)} \times 2] + \text{pva}[\text{Interest Payment Amount (4.6.12)}, \frac{\text{Market Interest Rate (4.6.13)}}{2}, \text{Bond Term (4.6.9)} \times 2]$$

–OR–

$$\text{Bond Issue Price} = \text{Face Amount (4.6.5)} \times \text{Bond Quote Percentage (4.6.11)}$$

4.6.15 Bond Issuance Delay

The Bond Issuance Delay is the fraction of a year (represented in months divided by 12) between the Bond Date (4.6.6) and the Issuance Date (4.6.7).

4.6.16 Interst Payment Dates

The Interst Payment Dates are the two dates each year that the bond pays the Interest Payment Amount (4.6.12). These dates are six months apart.

4.6.17 Discount Bond

A Discount Bond is a bond issue with the Coupon Interest Rate (4.6.10) less than the Market Interest Rate (4.6.13). In this case, the bond is sold below the Face Amount (4.6.5) to prevent investors from receiving higher Interest Payment Amounts (4.6.12) from other bond issues.

4.6.18 Discount Amount

If a bond issue is a Discount Bond (4.6.17) then:
Discount Amount = Face Amount (4.6.5) –
Bond Issue Price (4.6.14)

4.6.19 Discount on Bonds Payable$_{issue}$

Discount on Bonds Payable$_{issue}$ is a contra Bonds Payable$_{issue}$ (4.6.1) account.

4.6.20 Premium Bond

A Premium Bond is a bond issue with the Coupon Interest Rate (4.6.10) greater than the Market Interest Rate (4.6.13). In this case, the bond is sold above the Face Amount (4.6.5) to enable the issuing firm to recapture the higher Interest Payment Amounts (4.6.12).

4.6.21 Premium Amount

If a bond issue is a Premium Bond (4.6.20) then:
Premium Amount = Bond Issue Price (4.6.14) –
Face Amount (4.6.5)

4.6.22 Premium on Bonds Payable$_{issue}$

Premium on Bonds Payable$_{issue}$ is an adjunct Bonds Payable$_{issue}$ (4.6.1) account.

4.6.23 Bond Issue Book Value

If Discount Bond (4.6.17) then:
Bond Issue Book Value = Bonds Payable$_{issue}$ (4.6.1) –
Discount on Bonds Payable$_{issue}$ (4.6.19)
If Premium Bond (4.6.20) then:
Bond Issue Book Value = Bonds Payable$_{issue}$ (4.6.1) +
Premium on Bonds Payable$_{issue}$ (4.6.22)
–OR–
Bond Issue Book Value =

$$\text{pv}[\text{Face Amount (4.6.5)}, \frac{\text{Market Interest Rate (4.6.13)}}{2}, \text{Remaining Interest Payments (4.6.16)}] +$$
$$\text{pva}[\text{Interest Payment Amount (4.6.12)}, \frac{\text{Market Interest Rate (4.6.13)}}{2}, \text{Remaining Interest Payments (4.6.16)}]$$

4.6.24 Total Interest Cash

Total Interest Cash = Interest Payment Amount (4.6.12) × 2 × Bond Term (4.6.9)

4.6.25 Total Interest Expense

If Discount Bond (4.6.17) then:
Total Interest Expense = Total Interest Cash (4.6.24) + Discount Amount (4.6.18)
If Premium Bond (4.6.20) then:
Total Interest Expense = Total Interest Cash (4.6.24) – Premium Amount (4.6.21)

4.6.26 Issue Fees

The Issue Fees are the fees paid to the Bond Underwriter (4.6.2) to market the bond issue.

4.6.27 Unamortized Bond Issue Costs$_{issue}$

Unamortized Bond Issue Costs is an asset account used to record the Issue Fees (4.6.26). Amortize this amount using Straight Line Amortization to Bond Issue Expense (4.6.28) throughout the Bond Term (4.6.9).

Journal Entry

		Debit	Credit
XX/XX/XX	Unamortized Bond Issue Costs$_{issue}$	Issue Fees (4.6.26)	
	Cash		Issue Fees (4.6.26)

4.6.28 Bond Issue Expense

Bond Issue Expense is an expense account used to Match (1.1.5) the Issue Fees (4.6.26) with the additional revenues anticipated because of the the Bond Issue (4.6).

4.6.29 Annual Bond Issue Expense Amount

$$\text{Annual Bond Issue Expense Amount} = \frac{\text{Issue Fees (4.6.26)}}{\text{Bond Term (4.6.9)}}$$

4.6.30 Cash Proceeds

Cash Proceeds = Bond Issue Price (4.6.14) – Issue Fees (4.6.26)

4.6.31 Bond Issue Journal Entry

If Not Discount Bond (4.6.17) and Not Premium Bond (4.6.20) then:

		Debit	Credit
XX/XX/XX	Cash	Cash Proceeds (4.6.30)	
	Unamortized Bond Issue Costs$_{issue}$ (4.6.27)	Issue Fees (4.6.26)	
	Bonds Payable$_{issue}$		Face Amount (4.6.5)

If Discount Bond (4.6.17) then:

		Debit	Credit
XX/XX/XX	Cash	Cash Proceeds (4.6.30)	
	Unamortized Bond Issue Costs$_{issue}$ (4.6.27)	Issue Fees (4.6.26)	
	Discount on Bonds Payable$_{issue}$ (4.6.19)	Discount Amount (4.6.18)	
	Bonds Payable$_{issue}$		Face Amount (4.6.5)

If Premium Bond (4.6.20) then:

		Debit	Credit
XX/XX/XX	Cash	Cash Proceeds (4.6.30)	
	Unamortized Bond Issue Costs$_{issue}$ (4.6.27)	Issue Fees (4.6.26)	
	Bonds Payable$_{issue}$		Face Amount (4.6.5)
	Premium on Bonds Payable$_{issue}$ (4.6.22)		Premium Amount (4.6.21)

4.6.32 Bond Issuance Delay Interest Accrual

If the bond issue is delayed (4.6.15), then the bond purchaser will receive the entire first six-month interest payment, even though the purchaser held the bond for less than six months. Therefore, the purchaser will prepay the interest accrued.

If Bond Issuance Delay (4.6.15) > 0 then:

$$\begin{aligned}\text{Issuance Delay Interest Accrual} = {} & \text{Face Amount (4.6.5)} \times \\ & \text{Coupon Interest Rate (4.6.10)} \times \\ & \text{Bond Issuance Delay (4.6.15)}\end{aligned}$$

		Debit	Credit
XX/XX/XX	Cash	(4.6.32)	
	Interest Expense		(4.6.32)

4.7 Interest Payments

Every six months, record and pay interest expense.

		Debit	Credit
XX/XX/XX	Interest Expense	Interest Payment Amount (4.6.12)	
	Cash		Interest Payment Amount (4.6.12)

4.7.1 Effective Interest Amortization Amount

Bond Amortization is a method of systematically Matching (1.1.5) any Discount Amount (4.6.18) or Premium Amount (4.6.21) to the additional revenues anticipated because of the the Bond Issue (4.6).

If Discount Bond (4.6.17) then:

$$\begin{aligned}\text{Amortization Amount} = &[\text{Face Amount (4.6.5)} \\ &- \text{Discount on Bonds Payable}_{issue}\text{ (4.6.19) Debit Balance}] \times \\ &\frac{\text{Market Interest Rate (4.6.13)}}{2} \\ &- \text{Interest Payment Amount (4.6.12)}\end{aligned}$$

If Premium Bond (4.6.20) then:

$$\begin{aligned}\text{Amortization Amount} = &[\text{Face Amount (4.6.5)} \\ &+ \text{Premium on Bonds Payable}_{issue}\text{ (4.6.22) Credit Balance}] \times \\ &\frac{\text{Market Interest Rate (4.6.13)}}{2} \\ &- \text{Interest Payment Amount (4.6.12)}\end{aligned}$$

4.7.2 Effective Interest Amortization Journal Entry

If Discount Bond (4.6.17) then:

		Debit	Credit
XX/XX/XX	Interest Expense	Amortization Amount (4.7.1)	
	Discount on Bonds Payable$_{issue}$ (4.6.19)		Amortization Amount (4.7.1)

If Premium Bond (4.6.20) then:

		Debit	Credit
XX/XX/XX	Premium on Bonds Payable$_{issue}$ (4.6.22)	Amortization Amount (4.7.1)	
	Interest Expense		Amortization Amount (4.7.1)

4.7.3 Issue Fee Amortization Journal Entry

		Debit	Credit
XX/XX/XX	Bond Issue Expense (4.6.28)	Expense Amount (4.6.29)	
	Unamortized Bond Issue Costs$_{issue}$ (4.6.27)		Expense Amount (4.6.29)

4.7.4 Financial Statement Amortization Amount

At year-end, a premium/discount amortization must be recognized.

$$\begin{aligned}\text{Financial Statement Amortization Amount} = &\text{Effective Interest Amortization Amount (4.7.1)} \times \\ &\text{Fraction of the Year}\end{aligned}$$

Journal Entry If Discount Bond (4.6.17)

		Debit	Credit
12/31/XX	Interest Expense	Amortization Amount (4.7.4)	
	Discount on Bonds Payable$_{issue}$ (4.6.19)		Amortization Amount (4.7.4)

Journal Entry If Premium Bond (4.6.20)

		Debit	Credit
12/31/XX	Premium on Bonds Payable$_{issue}$ (4.6.22)	Amortization Amount (4.7.4)	
	Interest Expense		Amortization Amount (4.7.4)

4.7.5 Financial Statement Interest Accrual Amount

At year-end, a partial interest expense must be recognized.

$$\begin{aligned}\text{Financial Statement Interest Accrual Amount} = &\text{Interest Payment Amount (4.6.12)} \times \\ &\text{Fraction of the Year}\end{aligned}$$

Journal Entry

		Debit	Credit
12/31/XX	Interest Expense	Interest Accrual Amount (4.7.5)	
	Interest Payable		Interest Accrual Amount (4.7.5)

4.7.6 Financial Statement Fee Amortization Amount

At year-end, a partial fee amortization must be recognized.

$$\begin{aligned}\text{Financial Statement Fee Amortization Amount} = {} & \text{Annual Bond Issue Expense Amount (4.6.29)} \times \\ & \text{Fraction of the Year}\end{aligned}$$

		Debit	Credit
12/31/XX	Bond Issue Expense (4.6.28)	Expense Amount (4.7.6)	
	Unamortized Bond Issue Costs$_{issue}$ (4.6.27)		Expense Amount (4.7.6)

4.8 Bond Reacquisition

The firm might purchase its own bonds on the open market or execute a callable option.

4.8.1 Reacquisition Date

The Reacquisition Date is the date the firm Reacquired (4.8) some or all of its Bond Issue (4.6).

4.8.2 Percentage of Issue Reacquired

$$\text{Percentage of Issue Reacquired} = \frac{\text{Quantity of Bonds Reacquired} \times 1000}{\text{Face Amount (4.6.5)}}$$

4.8.3 Reacquisition Face Amount

$$\begin{aligned}\text{Reacquisition Face Amount} = {} & \text{Face Amount (4.6.5)} \times \\ & \text{Percentage of Issue Reacquired (4.8.2)}\end{aligned}$$

4.8.4 Reacquisition Fraction of the Year

$$\text{Reacquisition Fraction of the Year} = \frac{\text{Months Since Previous Interest Payment Date (4.6.16)}}{12}$$

4.8.5 Reacquisition Amortization Catchup Amount

Before early reacquisition, a premium/discount catchup amortization must be recognized.

$$\begin{aligned}\text{Reacquisition Amortization Catchup Amount} = {} & \text{Effective Interest Amortization Amount (4.7.1)} \times \\ & \text{Reacquisition Fraction of the Year (4.8.4)} \times \\ & \text{Percentage of Issue Reacquired (4.8.2)}\end{aligned}$$

Journal Entry If Discount Bond (4.6.17)

		Debit	Credit
XX/XX/XX	Interest Expense	Catchup Amount (4.8.5)	
	Discount on Bonds Payable$_{issue}$ (4.6.19)		Catchup Amount (4.8.5)

Journal Entry If Premium Bond (4.6.20)

		Debit	Credit
XX/XX/XX	Premium on Bonds Payable$_{issue}$ (4.6.22)	Catchup Amount (4.8.5)	
	Interest Expense		Catchup Amount (4.8.5)

4.8.6 Reacquisition Interest Accrual Catchup Amount

Before early reacquisition, a partial interest expense must be recognized.

$$\begin{aligned}\text{Reacquisition Interest Accrual Catchup Amount} = {} & \text{Interest Payment Amount (4.6.12)} \times \\ & \text{Reacquisition Fraction of the Year (4.8.4)} \times \\ & \text{Percentage of Issue Reacquired (4.8.2)}\end{aligned}$$

Journal Entry

		Debit	Credit
XX/XX/XX	Interest Expense	Interest Accrual Amount (4.8.6)	
	Interest Payable		Interest Accrual Amount (4.8.6)

4.8.7 Reacquisition Issue Fee Amortization Catchup Amount

Before early reacquisition, a partial fee amortization must be recognized.

Reacquisition Issue Fee Amortization Catchup Amount = Annual Bond Issue Expense Amount (4.6.29) ×
Reacquisition Fraction of the Year (4.8.4) ×
Percentage of Issue Reacquired (4.8.2)

		Debit	Credit
XX/XX/XX	Bond Issue Expense (4.6.28)	Expense Amount (4.8.7)	
	Unamortized Bond Issue Costs$_{issue}$ (4.6.27)		Expense Amount (4.8.7)

4.8.8 Reacquisition Interest Accrual Amount

Reacquisition Interest Accrual Amount = Interest Payment Amount (4.6.12) ×
Reacquisition Fraction of the Year (4.8.4) ×
Percentage of Issue Reacquired (4.8.2)

4.8.9 Reacquisition Price

The Reacquisition Price is the cost to the firm to reacquire any or all of a Bond Issue (4.6).

Reacquisition Price = [Face Amount (4.6.5) ×
Bond Quote Percentage (4.6.11) ×
Percentage of Issue Reacquired (4.8.2)] +
Reacquisition Interest Accrual Amount (4.8.8) +
Reacquisition Fees

–OR–

Reacquisition Price =
{pv[Face Amount (4.6.5), $\frac{\text{Market Interest Rate (4.6.13)}}{2}$, Remaining Interest Payments (4.6.16)] +
pva[Interest Payment Amount (4.6.12), $\frac{\text{Market Interest Rate (4.6.13)}}{2}$, Remaining Interest Payments (4.6.16)]} ×
Percentage of Issue Reacquired (4.8.2) +
Reacquisition Interest Accrual Amount (4.8.8) +
Reacquisition Fees

4.8.10 Reacquisition Discount Amount

If a bond issue is a Discount Bond (4.6.17) then:

Reacquisition Discount Amount = Face Amount (4.6.5) –
Bond Issue Book Value (4.6.23)

4.8.11 Reacquisition Premium Amount

If a bond issue is a Premium Bond (4.6.20) then:

Reacquisition Premium Amount = Bond Issue Book Value (4.6.23) –
Face Amount (4.6.5)

4.8.12 Reacquisition Amortization Amount

If Discount Bond (4.6.17) then:

Reacquisition Amortization Amount =
Discount on Bonds Payable$_{issue}$ (4.6.19) Debit Balance –OR– Reacquisition Discount Amount (4.8.10) ×
Percentage of Issue Reacquired (4.8.2)

If Premium Bond (4.6.20) then:

Reacquisition Amortization Amount =
Premium on Bonds Payable$_{issue}$ (4.6.22) Credit Balance –OR– Reacquisition Premium Amount (4.8.11) ×
Percentage of Issue Reacquired (4.8.2)

4.8.13 Reacquisition Unamortized Costs

Reacquisition Unamortized Costs = Unamortized Bond Issue Costs$_{issue}$ (4.6.27) ×
Percentage of Issue Reacquired (4.8.2)

4.8.14 Gain or (Loss) on Reacquisition

If Discount Bond (4.6.17) then:

Gain or (Loss) on Reacquisition =	[Face Amount (4.6.5)	–
	Discount on Bonds Payable$_{issue}$ (4.6.19) or Discount Amount (4.6.18)	–
	Unamortized Bond Issue Costs$_{issue}$ (4.6.27)]	×
	Percentage of Issue Reacquired (4.8.2)	–
	Reacquisition Interest Accrual Amount (4.8.8)	–
	Reacquisition Fees	–
	Reacquisition Price (4.8.9)	

If Premium Bond (4.6.20) then:

Gain or (Loss) on Reacquisition =	[Face Amount (4.6.5)	+
	Premium on Bonds Payable$_{issue}$ (4.6.22) or Premium Amount (4.6.21)	–
	Unamortized Bond Issue Costs$_{issue}$ (4.6.27)]	×
	Percentage of Issue Reacquired (4.8.2)	–
	Reacquisition Interest Accrual Amount (4.8.8)	–
	Reacquisition Fees	–
	Reacquisition Price (4.8.9)	

4.8.15 Reacquisition Journal Entry

If Discount Bond (4.6.17) and Gain (4.8.14) then:

		Debit	Credit
XX/XX/XX	Bonds Payable$_{issue}$ (4.6.1)	Face Amount (4.8.3)	
	Discount on Bonds Payable$_{issue}$		Amortization Amount (4.8.12)
	Unamortized Bond Issue Costs$_{issue}$		Unamortized Costs (4.8.13)
	Gain on Reacquisition		Gain (4.8.14)
	Cash		Reacquisition Price (4.8.9)

If Discount Bond (4.6.17) and (Loss) (4.8.14) then:

		Debit	Credit
XX/XX/XX	Bonds Payable$_{issue}$ (4.6.1)	Face Amount (4.8.3)	
	Loss on Reacquisition	Loss (4.8.14)	
	Discount on Bonds Payable$_{issue}$		Amortization Amount (4.8.12)
	Unamortized Bond Issue Costs$_{issue}$		Unamortized Costs (4.8.13)
	Cash		Reacquisition Price (4.8.9)

If Premium Bond (4.6.20) and Gain (4.8.14) then:

		Debit	Credit
XX/XX/XX	Bonds Payable$_{issue}$ (4.6.1)	Face Amount (4.8.3)	
	Premium on Bonds Payable$_{issue}$	Amortization Amount (4.8.12)	
	Unamortized Bond Issue Costs$_{issue}$		Unamortized Costs (4.8.13)
	Gain on Reacquisition		Gain (4.8.14)
	Cash		Reacquisition Price (4.8.9)

If Premium Bond (4.6.20) and (Loss) (4.8.14) then:

		Debit	Credit
XX/XX/XX	Bonds Payable$_{issue}$ (4.6.1)	Face Amount (4.8.3)	
	Loss on Reacquisition	Loss (4.8.14)	
	Premium on Bonds Payable$_{issue}$	Amortization Amount (4.8.12)	
	Unamortized Bond Issue Costs$_{issue}$		Unamortized Costs (4.8.13)
	Cash		Reacquisition Price (4.8.9)

4.9 Troubled Debt Restructuring

If a payment is missed on a debt contract, the lender might decide to continue the debt with modified terms.

4.9.1 Debt Restructuring Carrying Amount

Debt Restructuring Carrying Amount = Debt Book Value +
Unpaid Accrued Interest

4.9.2 New Effective Interest Rate

Solve for New Effective Interest Rate:
Debt Restructuring Carrying Amount (4.9.1) =
pva(New Payment Amount, New Effective Interest Rate, New Number of Payments)

4.9.3 Troubled Debt Identification

If New Effective Interest Rate (4.9.2) < Original Effective Interest Rate then:
The restructuring is a Troubled Debt Restructuring (4.9).
Note: lowering the payments in proportion to lengthening the term does not constitute Troubled Debt Restructuring. However, it does require the journal entry at Sum New Cash Outflows Is Higher Than Carry (4.9.6).

4.9.4 Sum New Cash Outflows

Let n = the number of new future cash payments for debt payment.
Sum New Cash Outflows = $\sum_{i=1}^{n}$ New Payment Amount$_i$

4.9.5 Sum New Cash Outflows Is Lower Than Carry

If Sum New Cash Outflows (4.9.4) < Carrying Amount (4.9.1) then:
Gain Amount = Carrying Amount (4.9.1) –
Sum New Cash Outflows (4.9.4)
Payable Decrease = Gain Amount –
Unpaid Accrued Interest

		Debit	Credit
XX/XX/XX	Payable$_{issue}$	Payable Decrease	
	Interest Payable	Unpaid Accrued Interest	
	Gain on Debt Restructuring		Gain Amount

		Debit	Credit
XX/XX/XX	Payable$_{issue}$	New Payment Amount	
	Cash		New Payment Amount

Note: no more interest expense is recorded — all subsequent payments reduce Payable$_{issue}$.

4.9.6 Sum New Cash Outflows Is Higher Than Carry

If Sum New Cash Outflows (4.9.4) > Carrying Amount (4.9.1) then:

		Debit	Credit
XX/XX/XX	Interest Payable	Unpaid Accrued Interest	
	Payable$_{issue}$		Unpaid Accrued Interest

Interest Expense Amount = Payable$_{issue}$ Credit Balance ×
New Effective Interest Rate (4.9.2)
New Amortization Amount = New Payment Amount –
Interest Expense Amount

		Debit	Credit
XX/XX/XX	Interest Expense	Interest Expense Amount	
	Payable$_{issue}$		New Amortization Amount
	Cash		New Payment Amount

Chapter 5

Shareholder's Equity

5.1 Common Stock Issue

Firms issue stock to purchase expansion capabilities. This chapter covers only Common Stock. Preferred Stock is an alternative Shareholder's Equity option for corportations, not covered.

5.1.1 Common Stock States

The states of Common Stock are:

1. Authorized but not Issued: these shares have not yet provided capital from shareholders. These are also called Unissued Shares.

2. Issued and Outstanding: used for dividend calculation, earnings per share calculation, market capitalization calculation, and voting rights.

3. Issued but in the Treasury: repurchased by the firm with the intention of resale; no voting rights; no dividends (except stock dividends, maybe).

4. Retired: repurchased by the firm without the intention of resale; returned to state of Authorized but not Issued.

Note the identity:

$$\begin{aligned}\text{Quantity of shares Issued} = {} & \text{Quantity of shares Issued and Outstanding} + \\ & \text{Quantity of shares Issued but in the Treasury}\end{aligned}$$

5.1.2 Par Value Per Share

Par Value Per Share is the stated value on each stock certificate. Par Value Per Share is the minimum issue price. Practically speaking, it is a leftover from days when lawmakers tried to safeguard creditors by requiring firms to maintain minimum equity values (watered shares liability).

5.1.3 Common Stock at Par

Common Stock at Par is an equity account used to record Cash (1.1.9), PP&E (3), or services (sweat equity) invested by owners.

5.1.4 Common Stock—Additional Paid-in Capital

Common Stock—Additional Paid-in Capital is an equity account used to record Cash (1.1.9), PP&E (3), or services (sweat equity) invested by owners.

5.1.5 Issue Fees

The Issue Fees are the fees paid to the underwriter to market the stock issue. They also include legal and accounting costs.

5.1.6 Net Proceeds

Net Proceeds are the Cash (1.1.9), PP&E (3), or services (sweat equity) received in exchange for common stock.
If exchange is Cash (1.1.9) then:
Net Proceeds = Gross Proceeds – Issue Fees (5.1.5)
If exchange is PP&E (3) then:
Net Proceeds = Fair Value of PP&E.
If exchange is services then:
Net Proceeds = Fair Value of services performed.

5.1.7 Net Proceeds Per Share

$$\text{Net Proceeds Per Share} = \frac{\text{Net Proceeds (5.1.6)}}{\text{Quantity of Shares Issued}}$$

5.1.8 Common Stock At Par Amount

$$\text{Common Stock At Par Amount} = \text{Par Value Per Share (5.1.2)} \times \text{Quantity of Shares Issued}$$

5.1.9 Common Stock—Additional Paid-in Amount

$$\text{Common Stock Additional Paid-in Amount} = \text{Net Proceeds (5.1.6)} - \text{Common Stock At Par Amount (5.1.8)}$$

5.1.10 Common Stock—Price Per Additional Share

$$\text{Common Stock—Price Per Additional Share} = \frac{\text{Common Stock Additional Paid-in Amount (5.1.9)}}{\text{Quantity of Shares Issued}}$$

5.1.11 Cash Investment By Stockholders

		Debit	Credit
XX/XX/XX	Cash	Net Proceeds (5.1.6)	
	Common Stock at Par (5.1.3)		(5.1.8)
	Common Stock—Additional Paid-in Capital (5.1.4)		(5.1.9)

Note 1: Record the Quantity Issued, Quantity Outstanding, and Par Value Per Share (5.1.2) in the Common Stock Par Share Table (5.1.15). Note 2: Record the Quantity Issued, Quantity Outstanding, and Price Per Additional Share (5.1.10) in the Common Stock Additional Share Table (5.1.16).

5.1.12 Share Purchase Contract Receivable

Share Purchase Contract Receivable is a contra-Common Stock—Additional Paid-in Capital (5.1.4) account used to record promises to pay Cash (1.1.9) (or equivalent value) in the future in exchange for common stock. Use this account instead of Accounts Receivable (1.1.11) because a promise to buy stock is not considered an asset.

5.1.13 Promised Investment By Stockholders

		Debit	Credit
XX/XX/XX	Share Purchase Contract Receivable (5.1.12)	Net Proceeds (5.1.6)	
	Common Stock at Par (5.1.3)		(5.1.8)
	Common Stock—Additional Paid-in Capital (5.1.4)		(5.1.9)

Note 1: Record the Quantity Issued, Quantity Outstanding, and Par Value Per Share (5.1.2) in the Common Stock Par Share Table (5.1.15). Note 2: Record the Quantity Issued, Quantity Outstanding, and Price Per Additional Share (5.1.10) in the Common Stock Additional Share Table (5.1.16).

5.1.14 Promised Investment By Stockholders Fulfilled

		Debit	Credit
XX/XX/XX	Cash	Cash Amount	
	Share Purchase Contract Receivable (5.1.12)		Cash Amount

5.1.15 Common Stock Par Share Table

Date	Quantity Issued	Quantity Outstanding	Par Value Per Share
			(5.1.2)

Note: If the Stock Repurchase: Retirement Method (5.3) is used to account for repurchased shares, then keep a running count of Quantity Outstanding. If the Stock Repurchase: Treasury Method (5.4) is used to account for repurchased shares, then leave Quantity Outstanding blank.

5.1.16 Common Stock Additional Share Table

Date	Quantity Issued	Quantity Outstanding	Price Per Additional Share
			(5.1.10)

Note: If the Stock Repurchase: Retirement Method (5.3) is used to account for repurchased shares, then keep a running count of Quantity Outstanding. If the Stock Repurchase: Treasury Method (5.4) is used to account for repurchased shares, then leave Quantity Outstanding blank.

5.1.17 Share Repurchase Gains

Share Repurchase Gains is an equity account used to record any gains resulting from:

1. if Stock Repurchase: Retirement Method (5.3) is used, then buying back shares at a cost below the Net Proceeds Per Share (5.1.7).
2. if Stock Repurchase: Treasury Method (5.4) is used, then reselling shares at a price above the buyback cost.

Note: this account cannot have a debit balance. After reaching zero, then start debiting Retained Earnings (5.1.18).

5.1.18 Retained Earnings

Retained Earnings is an equity account used mainly to record a firm's accumulated Net Income less Dividends. However, other events could affect its account balance.

The following identity holds:
Let n = the number of years the firm has existed.

$$\begin{aligned}\text{Retained Earnings Credit Balance} = \sum_{i=1}^{n} \quad &+ \quad \text{Net Income}_i \\ &+/- \quad \text{Cumulative Effect of Accounting Changes}_i \\ &+/- \quad \text{Prior Period Adjustment}_i \\ &- \quad \text{Cash Dividends Declared}_i \\ &- \quad \text{Stock Dividends Declared}_i \\ &- \quad \text{Property Dividends Declared}_i \\ &- \quad \text{Retirement Retained Earnings Adjustment Amount (5.3.4)}_i \\ &- \quad \text{Treasury Retained Earnings Adjustment Amount (5.4.8)}_i\end{aligned}$$

Note: Retained Earnings could have a debit balance if (for example) the sum of Net Losses exceed the sum of Net Income.

5.2 Stock Repurchase

Firms often repurchase their own stock to:

1. take advantage of a low stock price. Treasury Stock (5.4.1) can later be sold for an economic profit (not Income Statement profit.)
2. raise the stock price. The repurchase price per share might estabilish a new market value.
3. increase earnings per share. Earnings remain the same in a stock repurchase; however, shares outstanding decrease.
4. combat hostile takeovers. Stock repurchases increase management's controling interest.
5. reduce future cash dividends.
6. obtain shares for stock option plans for employees.
7. provide distributions to shareholders that are taxed at a rate lower that dividends. Significant stock repurchases increase the price per share for existing stockholders. Therefore, if existing stockholders were to sell their shares to the public, then the capital gains tax would be less than a dividend.

5.3 Stock Repurchase: Retirement Method

When firms buyback previously issued stock, the Retirement Method is a viable accounting choice if the repurchased stock is not intended for resale.

5.3.1 Retirement At Par Amount

Retirement At Par Amount = Shares Purchased ×
Common Stock Par Share Table (5.1.15) Par Value Per Share

5.3.2 Retirement At Excess Amount

Retirement At Excess Amount = Shares Purchased ×
Common Stock Additional Share Table (5.1.16) Price Per Additional Share

5.3.3 Gain/(Loss) On Purchase

Gain/(Loss) On Purchase = [Retirement At Par Amount (5.3.1) +
Retirement At Excess Amount (5.3.2)] –
Cash Paid

5.3.4 Retirement Retained Earnings Adjustment Amount

If Gain/(Loss) On Purchase (5.3.3) < 0 then:
Retirement Retained Earnings Adjustment Amount = |Gain/(Loss) On Purchase| (5.3.3) –
Share Repurchase Gains (5.1.17) Credit Balance
If Retirement Retained Earnings Adjustment Amount < 0 then:
Retirement Retained Earnings Adjustment Amount = 0

5.3.5 Share Repurchase Gains: Journal Entry

If Gain/(Loss) On Purchase (5.3.3) < 0 and Retained Earnings Adjustment Amount (5.3.4) > 0 then:

		Debit	Credit
XX/XX/XX	Common Stock at Par (5.1.3)	(5.3.1)	
	Common Stock—Additional Paid-in Capital (5.1.4)	(5.3.2)	
	Share Repurchase Gains (5.1.17)	(5.1.17) Credit Balance	
	Retained Earnings (5.1.18)	(5.3.4)	
	Cash		Cash Paid

If Gain/(Loss) On Purchase (5.3.3) < 0 and Retained Earnings Adjustment Amount (5.3.4) = 0 then:

		Debit	Credit
XX/XX/XX	Common Stock at Par (5.1.3)	(5.3.1)	
	Common Stock—Additional Paid-in Capital (5.1.4)	(5.3.2)	
	Share Repurchase Gains (5.1.17)	(5.3.3)	
	Cash		Cash Paid

If Gain/(Loss) On Purchase (5.3.3) > 0 then:

		Debit	Credit
XX/XX/XX	Common Stock at Par (5.1.3)	(5.3.1)	
	Common Stock—Additional Paid-in Capital (5.1.4)	(5.3.2)	
	Share Repurchase Gains (5.1.17)		(5.3.3)
	Cash		Cash Paid

Note 1: Subtract the Quantity of Shares Purchased from the Quantity Outstanding column in the Common Stock Par Share Table (5.1.15). Note 2: Subtract the Quantity of Shares Purchased from the Quantity Outstanding column in the Common Stock Additional Share Table (5.1.16).

5.4 Stock Repurchase: Treasury Method

When firms buyback previously issued stock, the Treasury Method is a viable accounting choice if the repurchased stock is intended for resale.

5.4.1 Treasury Stock

Treasury Stock is an contra-equity account used to account for stock repurchases using the Stock Repurchase: Treasury Method (5.4).

5.4.2 Share Repurchase Cost Per Share

$$\text{Share Repurchase Cost Per Share} = \frac{\text{Cash Paid}}{\text{Quantity of Shares Repurchased}}$$

5.4.3 Share Repurchase Journal Entry

		Debit	Credit
XX/XX/XX	Treasury Stock (5.4.1)	Cash Paid	
	Cash		Cash Paid

Note: Add the Quantity Repurchased and Quantity Remaining to the Treasury Stock Table (5.4.4).

5.4.4 Treasury Stock Table

Date	Quantity Repurchased	Quantity Remaining	Cost Per Share
			(5.4.2)

5.4.5 Treasury Resale: Price Per Share

$$\text{Treasury Resale: Price Per Share} = \frac{\text{Cash Received}}{\text{Quantity of Shares Sold}}$$

5.4.6 Treasury Resale: Cost Amount

Using the Treasury Table (5.4.4) Cost Per Share column, several costing methods are permissible: LIFO, FIFO, or Average Cost.

$$\text{Treasury Resale: Cost Amount} = \text{Quantity Shares Sold} \times \text{Treasury Table (5.4.4) Cost Per Share}$$

5.4.7 Treasury Gain/(Loss) Amount

$$\text{Treasury Gain/(Loss) Amount} = \text{Cash Received} - \text{Treasury Resale: Cost Amount (5.4.6)}$$

5.4.8 Treasury Retained Earnings Adjustment Amount

If Treasury Gain/(Loss) Amount (5.4.7) < 0 then:

$$\text{Treasury Retained Earnings Adjustment Amount} = |\text{Treasury Gain/(Loss) Amount}| \text{ (5.4.7)} - \text{Share Repurchase Gains (5.1.17) Credit Balance}$$

If Treasury Retained Earnings Adjustment Amount < 0 then:

$$\text{Treasury Retained Earnings Adjustment Amount} = 0$$

5.4.9 Treasury Resale: Journal Entry

If Gain/(Loss) Amount (5.4.7) < 0 and Retained Earnings Adjustment Amount (5.4.8) > 0 then:

		Debit	Credit
XX/XX/XX	Cash	Cash Received	
	Share Repurchase Gains (5.1.17)	(5.1.17) Credit Balance	
	Retained Earnings (5.1.18)	(5.4.8)	
	Treasury Stock (5.4.1)		Treasury Resale: Cost Amount (5.4.6)

If Gain/(Loss) Amount (5.4.7) < 0 and Retained Earnings Adjustment Amount (5.4.8) = 0 then:

		Debit	Credit
XX/XX/XX	Cash	Cash Received	
	Share Repurchase Gains (5.1.17)	(5.4.7)	
	Treasury Stock (5.4.1)		Treasury Resale: Cost Amount (5.4.6)

If Gain/(Loss) Amount (5.4.7) > 0 then:

		Debit	Credit
XX/XX/XX	Cash	Cash Received	
	Share Repurchase Gains (5.1.17)		(5.4.7)
	Treasury Stock (5.4.1)		Treasury Resale: Cost Amount (5.4.6)

Note: Subtract the quantity sold from the Quantity Remaining column in the Treasury Stock Table (5.4.4).

5.5 Cash Dividend

A Cash Dividend is a distribution of Retained Earnings (5.1.18) to existing owners in the form of Cash (1.1.9).

5.5.1 Cash Dividend Declared

		Debit	Credit
XX/XX/XX	Retained Earnings (5.1.18)	Cash Dividend Declared	
	Dividends Payable		Cash Dividend Declared

5.5.2 Cash Dividend Paid

		Debit	Credit
XX/XX/XX	Dividends Payable	Cash Dividend Declared	
	Cash		Cash Dividend Declared

5.6 Non-Asset Distribution

A Non-Asset Distribution is a common stock distribution to shareholders that does not cost the firm any assets. Non-Asset Distributions are Stock Dividends (5.8) and Stock Splits (5.7). They are usually presented as a percentage increase over existing Outstanding Shares (5.1.1).

5.7 Stock Split

A Stock Split is a Non-Asset Distribution that replaces one share of Outstanding Stock (5.1.1) with n shares. N could be less than one for a reverse split, or n could be greater than one for a normal split.

5.8 Stock Dividend

A Stock Dividend is a Non-Asset Distribution (5.6) of Retained Earnings (5.1.18) to existing owners in the form of stock. It is taking earned capital and converting it into investment capital (A.K.A. Permanent Capitalization of Retained Earnings). With a Stock Dividend:

1. the firm's price per share (in theory) decreases proportionally with the percentage of additional shares now on the market.
2. assets and equity remain the same.
3. no liability is declared.
4. shareholder percentage remains the same.
5. the stock market pays for the dividend.
6. less Retained Earnings remains for future dividends.
7. no substantive transaction takes place. Shareholders frequently are mislead into thinking their economy has improved.[1]

[1] *Intermediate Accounting*; Fourth edition; Spiceland, Sepe, Tomassini; page 918.

5.8.1 Stock Dividend Classification

Stock Dividends are classified as either small or large. Small Stock Dividends are Quantity Dividend Shares Issued (5.8.2) less that 25% of the Outstanding (5.1.1) shares. Large Stock Dividends are Quantity Dividend Shares Issued equal to or greater that 25% of the Outstanding shares.

5.8.2 Quantity Dividend Shares Issued

Quantity Dividend Shares Issued = Quantity of shares Issued and Outstanding (5.1.1) ×
Dividends Declared Percent

5.8.3 Par Issued Amount

Par Issued Amount = Quantity Dividend Shares Issued (5.8.2) ×
Par Value Per Share (5.1.2)

5.8.4 Large Stock Dividend (5.8.1) Journal Entry

Two Journal Entry choices are available:

		Debit	Credit
XX/XX/XX	Retained Earnings (5.1.18)	Par Issued Amount (5.8.3)	
	Common Stock At Par (5.1.3)		Par Issued Amount (5.8.3)

–OR–

		Debit	Credit
XX/XX/XX	Common Stock—Additional Paid-in Capital (5.1.4)	Par Issued Amount (5.8.3)	
	Common Stock At Par (5.1.3)		Par Issued Amount

5.8.5 Excess Issued Amount

Excess Issued Amount = [Current Market Value Per Share ×
Quantity Dividend Shares Issued (5.8.2)] –
Par Issued Amount (5.8.3)

5.8.6 Small Stock Dividend (5.8.1) Journal Entry

		Debit	Credit
XX/XX/XX	Retained Earnings (5.1.18)	(5.8.3) + (5.8.5)	
	Common Stock At Par (5.1.3)		Par Issued Amount (5.8.3)
	Common Stock—Additional Paid-in Capital (5.1.4)		(5.8.5)

5.9 Property Dividends

Instead of a Cash Dividend (5.5), a firm might distribute Retained Earnings (5.1.18) to existing owners in the form of non-cash assets, like Investments (7). With an Investment Property Dividend, first mark-to-market (7.3.6) (7.4.7) the security.

5.9.1 Investment Property Dividend Declared

		Debit	Credit
XX/XX/XX	Retained Earnings (5.1.18)	Property Dividend Declared	
	Dividends Payable		Property Dividend Declared

5.9.2 Investment Property Dividend Paid

		Debit	Credit
XX/XX/XX	Dividends Payable	Property Dividend Declared	
	$\text{Security}_{security}$		Property Dividend Declared

5.10 Earnings Per Share

5.10.1 Preferred Dividends Declared

$$\begin{aligned}\text{Preferred Dividends} = {} & \text{Preferred Shares Outstanding} \times \\ & \text{Preferred Shares Dividend Rate} \times \\ & \text{Preferred Shares Par Value}\end{aligned}$$

5.10.2 EPS Preferred Dividends

If Preferred Dividends are Cumulative then:
EPS Preferred Dividends = One Year's Dividends, whether in arrears or declared, or not.
If Preferred Dividends are not Cumulative then:
EPS Preferred Dividends = Preferred Dividends Declared (5.10.1)

5.10.3 Weighted-Average Common Shares Outstanding

Let n = the number of month ranges where Shares Outstanding (5.1.1) was consistent.
Weighted-Average Common Shares Outstanding =

$$\sum_{i=1}^{n} \{\text{Shares Outstanding} \times [1 + \text{Non-Asset Distribution (5.6) occuring subsequently}]\}_i \times \frac{\text{Months During Period}_i}{12}$$

Note the identity:
Let n = the number of month ranges where Shares Outstanding was consistent.

$$\sum_{i=1}^{n} \frac{\text{Months During Period}_i}{12} = \frac{12}{12}$$

5.10.4 Weighted-Average Common Shares Outstanding Table

Use the following table to simplify the calculation of the Weighted-Average Common Shares Outstanding (WACSO):

Month Range	Shares Outstanding (1)	Non-Asset Distribution Multiplier (2)	Fraction of Year (3)	Weighted Shares (1) × (2) × (3)
			$\sum_{i=1}^{n} = \frac{12}{12}$	$\sum_{i=1}^{n}$ = WACSO

Note: Non-Asset Distribution Multiplier = 1 + Non-Asset Distribution (5.6) occuring subsequently$_i$

5.10.5 Basic Earnings Per Share

$$\text{Basic Earnings Per Share} = \frac{\text{Net Income – EPS Preferred Dividends (5.10.2)}}{\text{Weighted-Average Common Shares Outstanding (5.10.3)}}$$

5.11 Diluted Earnings Per Share: Convertible Bonds

If Convertible Bonds are outstanding, then their potential conversion to Common Shares could dilute Earnings Per Share. Therefore, in addition to Basic Earnings Per Share (5.10.5), the firm must also report Diluted Earnings Per Share. However, converting bonds to common stocks might increase Earnings Per Share. If Diluted Earnings Per Share is greater than Earnings Per Share, then do not report Diluted Earnings Per Share.

5.11.1 Diluted Earnings Per Share

The process of computing Diluted Earnings Per Share, given Convertible Bonds, is to:

1. add the after-tax interest savings to the numerator. If the bonds were converted, then no interest would be paid and would, therefore, remain with the firm.

2. add the after-tax discount amortization, if any, to the numerator. If the bonds were converted, then no discount amortization would be deducted from net income.

3. subtract the after-tax premium amortization, if any, from the numerator. If the bonds were converted, then no premium amortization would be added to net income.

4. add the number of Converted Into Common Shares to the denomonator. Also, adjust the converted shares by any Non-Asset Distribution (5.6) that may have taken place anytime during the year.

If Discount Bond (4.6.17) then:

$$\text{After-Tax Straight-Line Discount Amortization Amount} = \frac{\text{Discount Amount (4.6.18)}}{\text{Bond Term (4.6.9)}} \times [1 - \text{Tax Rate}]$$

If Premium Bond (4.6.20) then:

$$\text{After-Tax Straight-Line Premium Amortization Amount} = \frac{\text{Premium Amount (4.6.21)}}{\text{Bond Term (4.6.9)}} \times [1 - \text{Tax Rate}]$$

After-Tax Interest Savings Amount

$$\text{After-Tax Interest Savings Amount} = [\text{Interest Payment Amount (4.6.12)} \times 2] \times [1 - \text{Tax Rate}]$$

Diluted Earnings Per Share

$$\text{Diluted Earnings Per Share} = \frac{\text{Net Income} + \text{Interest Savings Amount} + \text{Discount Amortization Amount} - \text{Premium Amortization Amount}}{\text{Weighted-Average Outstanding (5.10.3)} + \{\text{Converted Common Shares} \times [1 + \text{Non-Asset Distribution (5.6)}]\}}$$

If Diluted Earnings Per Share > Earnings Per Share then:

$$\text{Diluted Earnings Per Share} = 0.0$$

5.12 Diluted Earnings Per Share: Convertible Preferred Stocks

If Convertible Preferred Stocks are outstanding, then their potential conversion to Common Shares could dilute Earnings Per Share. Therefore, in addition to Basic Earnings Per Share (5.10.5), the firm must also report Diluted Earnings Per Share. However, converting preferred stocks to common stocks might increase Earnings Per Share. If Diluted Earnings Per Share is greater than Earnings Per Share, then do not report Diluted Earnings Per Share.

5.12.1 Diluted Earnings Per Share

The process of computing Diluted Earnings Per Share, given Convertible Preferred Stocks, is to:

1. not subtract the preferred dividends from the numerator. If the preferred shares were converted, then no preferred dividends would be paid and would, therefore, remain with the firm.

2. add the number of Converted Into Common Shares to the denomonator. Also, adjust the converted shares by any Non-Asset Distribution (5.6) that may have taken place anytime during the year.

$$\text{Diluted Earnings Per Share} = \frac{\text{Net Income}}{\text{Weighted-Average Outstanding (5.10.3)} + \{\text{Converted Common Shares} \times [1 + \text{Non-Asset Distribution (5.6)}]\}}$$

If Diluted Earnings Per Share > Earnings Per Share then:

$$\text{Diluted Earnings Per Share} = 0.0$$

5.13 Diluted Earnings Per Share: Employee Stock Options and Warrants

If Employee Stock Options (5.16) or Warrants (5.13.1) are outstanding, then their potential conversion to Common Shares could dilute Earnings Per Share. Therefore, in addition to Basic Earnings Per Share (5.10.5), the firm must also report Diluted Earnings Per Share. However, if options are not in-the-money [if the current market value is less than the Exercise Price (5.13.2)], then their conversion to common shares is uneconomical and assumed not to happen.

5.13.1 Warrant

A warrant is a security that entitles the holder to buy a firm's common stock at an Exercise Price (5.13.2). Warrants are attached to bonds or preferred stock as a mechanism to pay lower interest rates or dividends. Upon exercise, the firm issues new shares of stock, so Dilution (5.13) will occur.

5.13.2 Exercise Price

The Exercise Price is the price the firm will sell to the employee one Treasury Share (5.1.1). For Employee Stock Options (5.16), it is usually set at the firm's current stock price on the grant date. For Warrants (5.13.1), it is usually set higher than the firm's current stock price on the grant date.

5.13.3 Additional Shares

$$\text{Additional Shares} = \text{Shares Issued Upon Option Exercise} - \frac{\text{Shares Issued Upon Option Exercise} \times \text{Exercise Price (5.13.2)}}{\text{Market Price}}$$

–OR–

$$\text{Additional Shares} = \frac{\text{Market Price} - \text{Exercise Price (5.13.2)}}{\text{Market Price}} \times \text{Shares Issued Upon Option Exercise}$$

5.13.4 Diluted Earnings Per Share

The process of computing Diluted Earnings Per Share, given Employee Stock Options (5.16) outstanding and in-the-money, is to assume they become exercised with the proceeds used to purchase Treasury Stock (5.4.1).

$$\text{Diluted Earnings Per Share} = \frac{\text{Net Income} - \text{EPS Preferred Dividends (5.10.2)}}{\text{Weighted-Average Outstanding (5.10.3)} + \text{Additional Shares (5.13.3)}}$$

If Diluted Earnings Per Share > Earnings Per Share then:

Diluted Earnings Per Share = 0.0

5.14 Non-Compensatory Stock Award Plan

A Non-Compensatory Stock Award Plan is an employee incentive plan that allows employees to purchase a firm's stock directly from the firm. The cost savings to the employee are the transaction fees and any discount the firm may provide.

5.14.1 Net Proceeds

The Net Proceed is the Cash (1.1.9) received from the employee in exchange for common stock.

5.14.2 Common Stock At Par Amount

$$\text{Common Stock At Par Amount} = \text{Par Value Per Share (5.1.2)} \times \text{Quantity of Shares Issued}$$

5.14.3 Common Stock—Additional Paid-in Amount

$$\text{Common Stock Additional Paid-in Amount} = \text{Net Proceeds (5.14.1)} - \text{Common Stock At Par Amount (5.14.2)}$$

5.14.4 Common Stock—Price Per Additional Share

$$\text{Common Stock—Price Per Additional Share} = \frac{\text{Common Stock Additional Paid-in Amount (5.14.3)}}{\text{Quantity of Shares Issued}}$$

5.14.5 Compensation Expense Amount

$$\text{Compensation Expense Amount} = \text{Net Proceeds (5.14.1)} - [\text{Common Stock At Par Amount (5.14.2)} + \text{Common Stock—Additional Paid-in Amount (5.14.3)}]$$

5.14.6 Non-Compensatory Employee Investment Journal Entry

		Debit	Credit
XX/XX/XX	Cash	Net Proceeds (5.14.1)	
	Compensation Expense	(5.14.5)	
	Common Stock at Par (5.1.3)		(5.14.2)
	Common Stock—Additional Paid-in Capital (5.1.4)		(5.14.3)

Note 1: Record the Quantity Issued, Quantity Outstanding, and Par Value Per Share (5.1.2) in the Common Stock Par Share Table (5.1.15). Note 2: Record the Quantity Issued, Quantity Outstanding, and Price Per Additional Share (5.14.4) in the Common Stock Additional Share Table (5.1.16).

5.15 Compensatory Stock Award Plan

A Compensatory Stock Award Plan is an employee incentive plan in which management issues shares and gives the shares to key employees. The stock certificates are in the employee's name; however, they are held with the firm during the vesting period. After the vesting period, the employee retains full control of the shares.

5.15.1 Restricted Shares

The Restricted Shares are the stock shares in the Compensatory Participating Employee's name held by the firm during the Vesting Period (5.15.2).

5.15.2 Vesting Period

The Vesting Period is the number of years that the Compensatory Participating Employee must be employeed in order to receive the Restricted Shares (5.15.1). After the Vesting Period, the shares are no longer restricted and the employee may sell the shares.

5.15.3 Deferred Compensation$_{employee}$

Deferred Compensation$_{employee}$ is a set of contra-Equity accounts used to store Compensatory Stock Award Plan (5.15) stock issues. It is easiest to use a new account for each employee, then sum them to report Deferred Compensation on the Balance Sheet:

Let n = the number of participating employees.
Deferred Compensation = $\sum_{i=1}^{n}$ Deferred Compensation$_i$

5.15.4 Deferred Compensation Amount

Deferred Compensation Amount = Current Market Value Per Share ×
Quantity Restricted Shares (5.15.1) Issued

5.15.5 Common Stock At Par Amount

Common Stock At Par Amount = Par Value Per Share (5.1.2) ×
Quantity of Restricted Shares (5.15.1) Issued

5.15.6 Common Stock—Additional Paid-in Amount

Common Stock Additional Paid-in Amount = Deferred Compensation Amount (5.15.4) –
Common Stock At Par Amount (5.15.5)

5.15.7 Common Stock—Price Per Additional Share

$$\text{Common Stock—Price Per Additional Share} = \frac{\text{Common Stock Additional Paid-in Amount (5.15.6)}}{\text{Quantity of Restricted Shares (5.15.1) Issued}}$$

5.15.8 Compensatory Award Journal Entry

		Debit	Credit
XX/XX/XX	Deferred Compensation$_{employee}$ (5.15.3)	(5.15.4)	
	Common Stock at Par (5.1.3)		(5.15.5)
	Common Stock—Additional Paid-in Capital (5.1.4)		(5.15.6)

Note 1: Record the Quantity Restricted Issued, Quantity Outstanding, and Par Value Per Share (5.1.2) in the Common Stock Par Share Table (5.1.15). Note 2: Record the Quantity Restricted Issued, Quantity Outstanding, and Price Per Additional Share (5.15.7) in the Common Stock Additional Share Table (5.1.16).

5.15.9 Annual Compensation Expense Amount

$$\text{Annual Compensation Expense Amount} = \frac{\text{Deferred Compensation Amount (5.15.4)}}{\text{Vesting Period (5.15.2)}}$$

5.15.10 Annual Compensation Expense Journal Entry

		Debit	Credit
12/31/XX	Compensation Expense	Annual Compensation Expense Amount (5.15.9)	
	Deferred Compensation$_{employee}$ (5.15.3)		(5.15.9)

5.15.11 Employee Forfeiture

Expense Adjustment = Annual Compensation Expense Amount (5.15.9) ×
Years Employee Participated

Employee Forfeiture Journal Entry

		Debit	Credit
XX/XX/XX	Common Stock at Par (5.1.3)	(5.15.5)	
	Common Stock—Additional Paid-in Capital (5.1.4)	(5.15.6)	
	Deferred Compensation$_{employee}$ (5.15.3)		(5.15.4)
	Compensation Expense		Expense Adjustment

5.16 Employee Stock Option Plan

An Employee Stock Option Plan is a plan to allow employees to purchase a firm's Authorized but not Issued or Issued but in the Treasury (5.1.1) stock in the future at a predetermined price.

5.17 Stock Appreciation Plan

A Stock Appreciation Plan is a plan to reward employees for stock price increases. It has the following characteristics:

1. The employee decides to receive either cash or stock after being continuously employeed during a Service Period.
2. The Service Period begins at the Grant Date and ends at the Vesting Date.
3. The employee vests at the Vesting Date and has until the Expiration Date to claim the benefit.
4. The firm pays the employee the earned benefits when the employee decides to exercise his or her rights on the Exercise Date.
5. The employee's benefit is Plan Rights Quantity times any increase in stock price from the Grant Date (Grant Date Price Per Share) to the Exercise Date (Exercise Date Price Per Share).
6. The Vesting Date is on or before the Exercise Date, and the Exercise Date is on or before the Expiration Date.
7. The employee pays nothing.

5.17.1 Plan Rights Quantity$_{employee}$

Plan Rights Quantity is the number of rights issued to an employee in a Stock Appreciation Plan (5.17).

5.17.2 Benefit To Employee

Benefit To Employee = [Exercise Date Price Per Share −
Grant Date Price Per Share] ×
Plan Rights Quantity$_{employee}$ (5.17.1)

5.17.3 Service Period Years

Service Period Years = Years between Grant Date and Vesting Date

5.17.4 Stock Appreciation Plan Liability$_{employee}$

Stock Appreciation Plan Liability$_{employee}$ is a set of liability accounts used to store Stock Appreciation Plan (5.17) liabilities. It is easiest to use a new account for each employee, then sum them to report Stock Appreciation Plan Liability on the Balance Sheet:

Let n = the number of participating employees.
Stock Appreciation Plan Liability = $\sum_{i=1}^{n}$ Stock Appreciation Plan Liability$_i$

5.17.5 Service Period Completed Percent

$$\text{Service Period Completed Percent} = \frac{\text{Years Participation Before Vesting Date}}{\text{Service Period Years (5.17.3)}}$$

5.17.6 Stock Appreciation Plan Liability$_{employee}$ Balance

Stock Appreciatin Plan Liability$_{employee}$ Balance = [Current Price Per Share –
Grant Date Price Per Share] ×
Plan Rights Quantity$_{employee}$ (5.17.1) ×
Service Period Completed Percent (5.17.5)

5.17.7 Stock Appreciation Plan Expense Amount

Stock Appreciation Plan Expense Amount = Stock Appreciation Plan Liability$_{employee}$ Balance (5.17.6) –
Stock Appreciation Plan Liability$_{employee}$ (5.17.4) Credit Balance

5.17.8 Stock Appreciation Expense Journal Entry

If Stock Appreciation Plan Expense Amount (5.17.7) > 0 then:

		Debit	Credit
12/31/XX	Compensation Expense	(5.17.7)	
	Stock Appreciation Plan Liability$_{employee}$ (5.17.4)		(5.17.7)

If Stock Appreciation Plan Expense Amount (5.17.7) < 0 then:

		Debit	Credit
12/31/XX	Stock Appreciation Plan Liability$_{employee}$ (5.17.4)	(5.17.7)	
	Compensation Expense		(5.17.7)

5.17.9 Employee Exercises Rights

Upon employee exercise, the following journal entry is performed.
Expense Amount = Benefit To Employee (5.17.2) –
Stock Appreciation Plan Liability$_{employee}$ (5.17.4) Credit Balance

If Expense Amount > 0 then:

		Debit	Credit
XX/XX/XX	Compensation Expense	Expense Amount	
	Stock Appreciation Plan Liability$_{employee}$ (5.17.4)	(5.17.4) Credit Balance	
	Cash		(5.17.2)

If Expense Amount < 0 then:

		Debit	Credit
XX/XX/XX	Stock Appreciation Plan Liability$_{employee}$ (5.17.4)	(5.17.4) Credit Balance	
	Compensation Expense		Expense Amount
	Cash		(5.17.2)

5.18 Interim Financial Statements

Financial Statements are frequently needed before the year-end closing entries. To create Interim Financial Statements, calculate the Pro-forma Net Income (5.18.1), then add that amount to the Book Value Equity (5.18.2) to roughly achieve the Current Equity (5.18.3). At the same time, segretate the Income Statement accounts from the Balance Sheet accounts in the Statement Trial Balance (5.18.5).

5.18.1 Pro-forma Net Income

Pro-forma Net Income = + $\sum_{i=1}^{n}$ Net Revenue$_i$ Credit Balance
– $\sum_{i=1}^{n}$ Expense$_i$ Debit Balance
+ $\sum_{i=1}^{n}$ Gain$_i$ Credit Balance
– $\sum_{i=1}^{n}$ Loss$_i$ Debit Balance
– Preacquisition Earnings (8.2.5) Debit Balance

5.18.2 Book Value Equity

Book Value Equity = $\sum_{i=1}^{n}$ Equity$_i$ Credit Balance

5.18.3 Current Equity

Current Equity = + Book Value Equity (5.18.2)
+ Pro-forma Net Income (5.18.1)
– Dividends Declared (← temporary contra-Equity account) Debit Balance
+ Non-Controlling Interest (8.2.2)

5.18.4 Current Retained Earnings

Current Retained Earnings = + Pro-forma Net Income (5.18.1)
+ Retained Earnings Credit Balance
– Dividends Declared (← temporary contra-Equity account) Debit Balance

5.18.5 Statement Trial Balance

Account	Debit	Credit	Statement
Net Revenue$_1$		Amount$_1$	
...			
Expense$_1$	Amount$_1$		
...			
Gain$_1$		Amount$_1$	
...			
Loss$_1$	Amount$_1$		
...			
Preacquisition Earnings (8.2.5)	Amount		
Pro-forma Net Income			(5.18.1) (1)
Retained Earnings			Credit Balance (2)
Dividends Declared	Amount (3)		
Current Retained Earnings			(1) + (2) – (3) = (5.18.4)
Net Asset$_1$	Amount$_1$		
...			
Total Assets			$\sum_{i=1}^{n}$ Asset$_i$ (4)
Net Liability$_1$		Amount$_1$	
...			
Total Liabilities			$\sum_{i=1}^{n}$ Liability$_i$ (5)
Equity$_1$		Amount$_1$	
...			
Book Value Equity			(5.18.2) (6)
Pro-form Net Income			(5.18.1) (1)
Dividends Declared			-Debit Balance (3)
Non-Controlling Interest (8.2.2)		Amount (7)	
Current Equity			(6) + (1) – (3) + (7) = (5.18.3)
			(4) = (5) + (5.18.3)
	$\sum$	$\sum$	

Chapter 6

Statement of Cash Flows

6.1 Change In Cash

$$\begin{aligned}\text{Change In Cash} = \text{Cash Ending Balance} \; - \\ \text{Cash Beginning Balance}\end{aligned}$$

6.2 Change In Balance Sheet Accounts

6.2.1 Change In Accounts Receivable

$$\begin{aligned}\text{Change In Accounts Receivable} = \text{Accounts Receivable Ending Balance} \; - \\ \text{Accounts Receivable Beginning Balance}\end{aligned}$$

6.2.2 Change In Interest Receivable

$$\begin{aligned}\text{Change In Interest Receivable} = \text{Interest Receivable Ending Balance} \; - \\ \text{Interest Receivable Beginning Balance}\end{aligned}$$

6.2.3 Change In Dividends Receivable

$$\begin{aligned}\text{Change In Dividends Receivable} = \text{Dividends Receivable Ending Balance} \; - \\ \text{Dividends Receivable Beginning Balance}\end{aligned}$$

6.2.4 Change In Allowance For Doubtful Accounts

$$\begin{aligned}\text{Change In Allowance For Doubtful Accounts} = \text{Allowance For Doubtful Accounts Ending Balance} \; - \\ \text{Allowance For Doubtful Accounts Beginning Balance}\end{aligned}$$

6.2.5 Change In Inventory

$$\begin{aligned}\text{Change In Inventory} = \text{Inventory Ending Balance} \; - \\ \text{Inventory Beginning Balance}\end{aligned}$$

6.2.6 Change In Prepaid Expenses (Non-rent & Non-insurance)

$$\begin{aligned}\text{Change In Prepaid Expenses (Non-rent \& Non-insurance)} = \text{Prepaid Expenses Ending Balance} \; - \\ \text{Prepaid Expenses Beginning Balance}\end{aligned}$$

6.2.7 Change In Prepaid Rent

$$\begin{aligned}\text{Change In Prepaid Rent} = \text{Prepaid Rent Ending Balance} \; - \\ \text{Prepaid Rent Beginning Balance}\end{aligned}$$

6.2.8 Change In Prepaid Insurance

$$\begin{aligned}\text{Change In Prepaid Insurance} = \text{Prepaid Insurance Ending Balance} \; - \\ \text{Prepaid Insurance Beginning Balance}\end{aligned}$$

6.2.9 Change In Unearned Revenue

Change In Unearned Revenue = Unearned Revenue Ending Balance − Unearned Revenue Beginning Balance

6.2.10 Change In Accrued Expenses Payable

Change In Accrued Expenses Payable = Accrued Expenses Payable Ending Balance − Accrued Expenses Payable Beginning Balance

6.2.11 Change In Deferred Tax Liability

Change In Deferred Tax Liability = Deferred Tax Liability Ending Balance − Deferred Tax Liability Beginning Balance

6.2.12 Change In Deferred Tax Asset

Change In Deferred Tax Asset = Deferred Tax Asset Ending Balance − Deferred Tax Asset Beginning Balance

6.2.13 Change In Accounts Payable

Change In Accounts Payable = Accounts Payable Ending Balance − Accounts Payable Beginning Balance

6.2.14 Change In Salary/Wages Payable

Change In Salary/Wages Payable = Salary/Wages Payable Ending Balance − Salary/Wages Payable Beginning Balance

6.2.15 Change In Taxes Payable

Change In Taxes Payable = Taxes Payable Ending Balance − Taxes Payable Beginning Balance

6.2.16 Change In Interest Payable

Change In Interest Payable = Interest Payable Ending Balance − Interest Payable Beginning Balance

6.2.17 Change In Discount on Bonds

Change In Discount on Bonds = Discount on Bonds Ending Balance − Discount on Bonds Beginning Balance

6.2.18 Change In Premium on Bonds

Change In Premium on Bonds = Premium on Bonds Ending Balance − Premium on Bonds Beginning Balance

6.2.19 Change In Retained Earnings

Change In Retained Earnings = Retained Earnings Ending Balance − Retained Earnings Beginning Balance

6.2.20 Change In Dividends Payable

Change In Dividends Payable = Dividends Payable Ending Balance − Dividends Payable Beginning Balance

6.3 Operating Cash Flows

Operating Cash Flows are cash transactions that comprise Net Income.

6.3.1 Cash Received From Customers

Cash Received From Customers = + Sales Revenues
– Change In Accounts Receivable (6.2.1)
+ Change In Unearned Revenue (6.2.9)
– Change In Allowance For Doubtful Accounts (6.2.4)

6.3.2 Cash Received From Interest and Dividends

Cash Received From Interest and Dividends = [Interest Revenue –
Change In Interest Receivable (6.2.2)] +
[Dividend Revenue –
Change In Dividends Receivable (6.2.3)]

6.3.3 Cash Paid To Employees

Cash Paid To Employees = Salary Expense –
Change In Salary/Wages Payable (6.2.14)

6.3.4 Cash Paid For Rent

Cash Paid For Rent = Rent Expense +
Change In Prepaid Rent (6.2.7)

6.3.5 Cash Paid For Insurance

Cash Paid For Insurance = Insurance Expense +
Change In Prepaid Insurance (6.2.8)

6.3.6 Cash Paid To Suppliers

Cash Paid To Suppliers = + Costs Of Goods Sold
+ Change In Inventory (6.2.5)
– Change In Accounts Payable (6.2.13)

6.3.7 Cash Paid For Other Operations

Cash Paid For Other Operations = + Operating Expenses
+ Change In Prepaid Expenses (Non-rent & Non-insurance) (6.2.6)
– Change In Accrued Expenses Payable (6.2.10)

6.3.8 Cash Paid For Taxes

Cash Paid For Taxes = + Taxes Expense
– Change In Taxes Payable (6.2.15)
– Change In Deferred Tax Liability (6.2.11)
+ Change In Deferred Tax Asset (6.2.12)

6.3.9 Cash Paid For Interest

Cash Paid For Interest = + Interest Expense
+ Change In Discount On Bonds (6.2.17)
– Change In Interest Payable (6.2.16)
– Change In Premium On Bonds (6.2.18)

6.3.10 Gain or (Loss) on PP&E Sale

Gain or (Loss) on PP&E Sale = Cash Received – Book Value

6.3.11 Depreciation Expense

Depreciation Expense might be given. However, if an accounting problem omits Depreciation Expense, then it can be calculated by:

Depreciation Expense = (Accumulated Depreciation—building Ending Balance –
Accumulated Depreciation—building Beginning Balance) +
(Accumulated Depreciation—equipment Ending Balance –
Accumulated Depreciation—equipment Beginning Balance) +
Accumulated Depreciation—buildings sold +
Accumulated Depreciation—equipment sold

6.3.12 Cash Provided By Operating Activities: Direct Method

Cash Provided By Operating Activities = + Cash Received From Customers (6.3.1)
+ Cash Received From Interest and Dividends (6.3.2)
– Cash Paid To Employees (6.3.3)
– Cash Paid To Suppliers (6.3.6)
– Cash Paid For Rent (6.3.4)
– Cash Paid For Insurance (6.3.5)
– Cash Paid For Interest (6.3.9)
– Cash Paid For Other Operations (6.3.7)
– Cash Paid For Taxes (6.3.8)

6.3.13 Cash Provided By Operating Activities: Indirect Method

Cash Provided By Operating Activities = Net Income
– Change In Accounts Receivable (6.2.1)
– Change In Interest Receivable (6.2.2)
– Change In Dividends Receivable (6.2.3)
– Change In Inventory (6.2.5)
– Change In Prepaid Expenses (Non-rent & Non-insurance) (6.2.6)
– Change In Prepaid Rent (6.2.7)
– Change In Prepaid Insurance (6.2.8)
– Gain on PP&E Sale (6.3.10)
– Equity Investments: Revenue (7.2.4)
– Equity Investment: Gain on Sale (7.7.20)
– Change In Premium On Bonds (6.2.18)
– Change In Deferred Tax Asset (6.2.12)
+ Change In Interest Payable (6.2.16)
+ Change In Unearned Revenue (6.2.9)
+ Change In Allowance For Doubtful Accounts (6.2.4)
+ Change In Accounts Payable (6.2.13)
+ Change In Salary/Wages Payable (6.2.14)
+ (Loss) on PP&E Sale (6.3.10)
+ (Loss) on Lower of Cost or Market Write Down
+ Equity Investments Dividends Received (7.7.11)
+ Equity Investment: (Loss) on Sale (7.7.20)
+ Change In Accrued Expenses Payable (6.2.10)
+ Depreciation Expense (6.3.11)
+ Amortization of Intangibles
+ Amortization of Capitalized Costs
(A.K.A. Deferred Charges; e.g. bond issue costs)
+ Change In Discount On Bonds (6.2.17)
+ (Loss) on Writedown of PP&E
+ Change In Deferred Tax Liability (6.2.11)
+ Change In Taxes Payable (6.2.15)

6.3.14 Omitted from Cash Provided By Operating Activities: Indirect Method

Some cash transactions have already been factored into Net Income and should be ignored. These include:

1. Interest paid on bonds.
2. Interest paid on loans.
3. Interest received on loans.
4. Dividends received on investments.

6.4 Investing Cash Flows

Investing Cash Flows are cash transactions that affect Property (Land), Plant (Building), and Equipment (3). Also included are investments in other firms and loans to others (7). Information regarding Investing Cash Flows are derived from the Cash Ledger.

6.4.1 Investing Cash Flows: No Additional Information

If an accounting problem does not specify a cash transaction for an investing activity, then use the Comparative Balance Sheet and assume a cash transaction:

Cash Investing Activity = Property, Plant, or Equipment Ending Balance –
Property, Plant, or Equipment Beginning Balance

Note: Cash inflows will have a negative balance.

6.4.2 Investing Cash Flows: Additional Information Provided

If an accounting problem specifies a PP&E (3) cost value, accumulated depreciation, and either a gain or loss on sale reported on the Income Statement:

Investing Cash Inflow = [Cost Value –
Accumulated Depreciation] –
(Loss) on Sale

–OR–

Investing Cash Inflow = [Cost Value –
Accumulated Depreciation] +
Gain on Sale

6.4.3 Cash Provided By Investing Activities

Cash Provided By Investing Activities = + Cash Portion of Sale of Property (Land)
– Cash Portion of Purchase of Property (Land)
+ Cash Portion of Sale of Plant (Building)
– Cash Portion of Purchase of Plant (Building)
+ Cash Portion of Sale of Equipment
– Cash Portion of Purchase of Equipment
+ Cash Portion of Sale of Investments
– Cash Portion of Purchase of Investments
+ Cash Portion of Principal on Loan Collections
– Cash Portion of Principal on Loans to Others

6.5 Financing Cash Flows

Financing Cash Flows are cash transactions that affect stockholders' equity, loans from others, or bonds issued. Information regarding Financing Cash Flows are derived from the Cash Ledger. If an accounting problem does not specify a cash transaction for a financing activity, then use the Comparative Balance Sheet and assume a cash transaction:

Cash Financing Activity = Equity, Loan, or Bond Ending Balance –
Equity, Loan, or Bond Beginning Balance

6.5.1 Cash Dividends Paid

Cash Dividends Paid = Net Income –
[Change In Retained Earnings (6.2.19) +
Change In Dividends Payable (6.2.20)]

6.5.2 Cash Provided By Financing Activities

Cash Provided By Financing Activities = + Issuance of Common Stock
+ Loans from a bank
+ Issuance of Bonds
– Repurchase of Common Stock (Retirement or Treasury)
– Principal Payments on loans to a bank
– Redemption of Bonds
– Cash Dividends Paid (6.5.1)
– Principal Portion of Capital Lease Payments

6.5.3 Net Increase In Cash

Net Increase In Cash =
+ Cash Provided By Operating Activities (6.3.12) or (6.3.13)
+ Cash Provided By Investing Activities (6.4.3)
+ Cash Provided By Financing Activities (6.5.2)
= Change In Cash (6.1)

6.6 Statement of Cash Flows: Presentation

The firm can present either the Direct Method (6.6.1) or the Indirect Method (6.6.2) to report its Cash Flows From Operations. If the firm decides to use the Direct Method, then the firm must also report the Indirect Method and have it titled "Reconciliation of Operating Activities."

6.6.1 Operating Section: Direct Method

Cash flows from operating activities	
(add)Cash received from customers	(6.3.1)
(add)Cash received from interest and dividends	(6.3.2)
(less)Cash paid to suppliers	(6.3.6)
(less)Cash paid for operations	(6.3.7)
(less)Cash paid for taxes	(6.3.8)
(less)Cash paid for interest	(6.3.9)
Net cash provided by operating activities	(6.3.12)

6.6.2 Operating Section: Indirect Method

Note: To save space, this section only shows the effect of increases in balance sheet accounts. The effect would be the opposite if a balance sheet account had a decrease. For example, this section shows to subtract an increase in Accounts Receivable. However, if Accounts Receivable decreased, then it would be correct to add the decrease.

Cash flows from operating activities	
Net Income	Net Income
(less)Increase in accounts receivable	(6.2.1)
(less)Increase in inventory	(6.2.5)
(less)Increase in prepaid expenses	(6.2.6)
(less)Gain on PP&E sale	(6.3.10)
(less)Gain on equity method sale	(7.7.20)
(less)Equity investment revenue	(7.2.4)
(less)Decrease in Premium on bonds	(6.2.18)
(less)Increase in deferred tax asset	(6.2.12)
(add)Increase in allowance for doubtful accounts	(6.2.4)
(add)Increase in accounts payable	(6.2.13)
(add)Increase in wages payable	(6.2.14)
(add)(Loss) on PP&E sale	(6.3.10)
(add)(Loss) on equity method sale	(7.7.20)
(add)Equity investments dividends received	(7.7.11)
(add)Increase in accrued expenses payable	(6.2.10)
(add)Depreciation expense	(6.3.11)
(add)Amortization of intangibles	Amount of Amortization
(add)Amortization of capitalized costs	Amount of Amortization
(add)Decrease in Discount on bonds	(6.2.17)
(add)(Loss) on PP&E writedown	Amount of Writedown
(add)Increase in deferred tax liability	(6.2.11)
Net cash provided by operating activities	(6.3.13)

6.6.3 Statement of Cash Flows: Presentation

Operating Section: (6.6.1) or (6.6.2)

Cash flows from investing activities	
(add)Cash inflow of sale of land	From Cash Ledger
(less)Cash outflow of purchase of land	From Cash Ledger
(add)Cash inflow of sale of building	From Cash Ledger
(less)Cash outflow of purchase of building	From Cash Ledger
(add)Cash inflow of sale of equipment	From Cash Ledger
(less)Cash outflow of purchase of equipment	From Cash Ledger
Net cash provided by investing activities	(6.4.3)

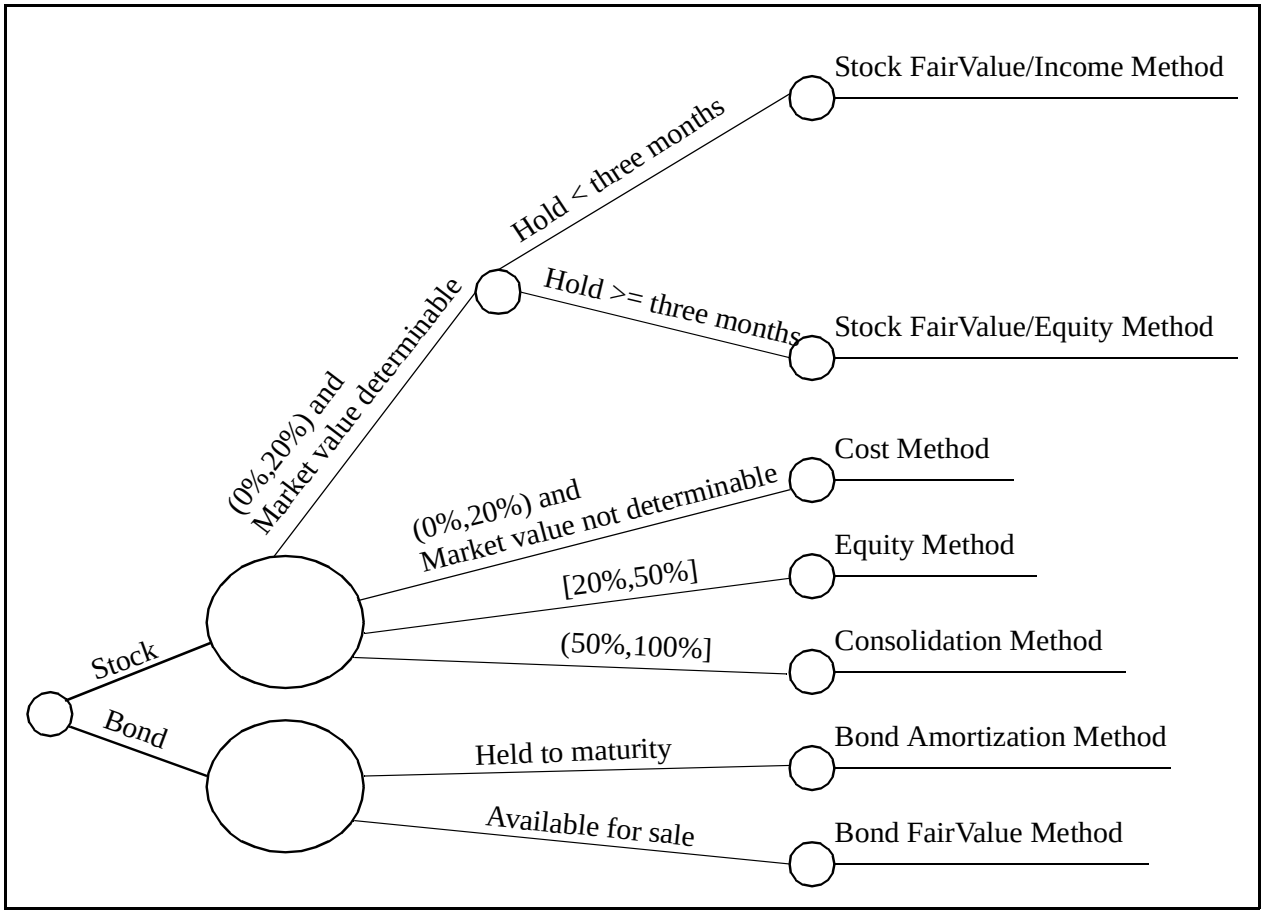
Cash flows from financing activities	
(add)Issuance of common stock	From Cash Ledger
(less)Redemption of common stock	From Cash Ledger
(add)Loans received from banks	From Cash Ledger
(less)Payments on loans to banks	From Cash Ledger
(add)Issuance of bonds	From Cash Ledger
(less)Redemption of bonds	From Cash Ledger
(less)Cash dividends paid	From Cash Ledger
Net cash provided by financing activities	(6.5.2)
Net increase in cash	(6.5.3) or (6.1)
Cash, Beginning Balance	Beginning
Cash, Ending Balance	Ending

Chapter 7

Investments and Bonds

7.1 Investment Method Decision Tree

The Investment Method Decision Tree is used to determine which investment reporting method to use. The percentage range is the percent the firm owns of the outstanding common stock of the acquired firm.



7.2 Stock Calculations and Accounts

7.2.1 Stock Cost

If Price Per Share is determinable then:
Stock Cost = (Shares Purchased × Price Per Share) + Commissions + Other Transaction Fees
If Price Per Share is not determinable then:
Stock Cost = Fair value of items given up or services performed.

7.2.2 Dividend Amount

Dividend Amount = Dividends Per Share × Shares Purchased

7.2.3 Dividends Revenue

Dividends Revenue is an Other Revenues and Gains (1.1.12) account reported on the Income Statement.

7.2.4 Investment Revenue

Investment Revenue is an Other Revenues and Gains (1.1.12) account reported on the Income Statement.

7.3 Stock FairValue/Income Method

The Stock FairValue/Income Method is used when the ownership in the acquired firm is less than 20%, the market value is determinable, and the expected hold time is less than three months. Under the Stock FairValue/Income Method, investments are categorized as Trading Securities. Trading Securities are short-term assets.

7.3.1 Trading Security$_{security}$

Trading Security$_{security}$ (TS) is a set of Asset accounts. It is easiest to use a new account for each security purchased, then sum them to report Trading Securities on the Balance Sheet:

Let n = the number of trading securities.
Trading Securities = $\sum_{i=1}^{n}$ Trading Security$_i$

7.3.2 Unrealized Holding Gain/Loss$_{security}$ On Trading Securities

Unrealized Holding Gain/Loss$_{security}$ On Trading Securities is a set of Gain/Loss accounts. These accounts are populated by adjusting journal entries at year-end to increase or decrease the firm's portfolio to market value (A.K.A. marked-to-market). To report unrealized holding gains and losses:

Let n = the number of securities that have a unrealized holding gain.
Unrealized Holding Gain On Trading Securities = $\sum_{i=1}^{n}$ Unrealized Holding Gain/Loss$_i$ Credit Balance

Let n = the number of securities that have a unrealized holding loss.
Unrealized Holding Loss On Trading Securities = $\sum_{i=1}^{n}$ Unrealized Holding Gain/Loss$_i$ Debit Balance

Unrealized Holding Gain On Trading Securities and Unrealized Holding Loss On Trading Securities are used to generate Income Before Extraordinary Items, and therefore Net Income. After the Income Statement is finished printing, then close Unrealized Holding Gain and Unrealized Holding Loss to Income Summary.

7.3.3 Trading Security: Purchase

		Debit	Credit
XX/XX/XXXX	Trading Security$_{security}$ (7.3.1)	Stock Cost (7.2.1)	
	Cash		Stock Cost (7.2.1)

7.3.4 Dividends Declared

		Debit	Credit
XX/XX/XXXX	Dividends Receivable	Dividend Amount (7.2.2)	
	Dividends Revenue (7.2.3)		Dividend Amount (7.2.2)

7.3.5 Dividends Received

		Debit	Credit
XX/XX/XXXX	Cash	Dividend Amount (7.2.2)	
	Dividends Receivable		Dividend Amount (7.2.2)

7.3.6 Trading Security: Marked-To-Market Adjustment

At year-end an adjustment is needed to increase or decrease the firm's portfolio to market value.

Note: some accounting textbooks use the contra-TS (7.3.1) account called Valuation Allowance for the year-end adjustment. However, the adjusting entries are easier if they are made in the Trading Security$_{security}$ (7.3.1) accounts directly.

7.3.7 Trading Security Adjustment

Trading Security Adjustment = Fair Value$_{security}$ –
Trading Security$_{security}$ (7.3.1) Balance

If Trading Security Adjustment > 0 then:

		Debit	Credit
12/31/XXXX	Trading Security$_{security}$ (7.3.1)	(7.3.7)	
	Unrealized Holding Gain/Loss$_{security}$ (7.3.2)		(7.3.7)

If Trading Security Adjustment < 0 then:

		Debit	Credit
12/31/XXXX	Unrealized Holding Gain/Loss$_{security}$ (7.3.2)	(7.3.7)	
	Trading Security$_{security}$ (7.3.1)		(7.3.7)

7.3.8 Trading Security: Gain or (Loss) on Sale

Gain or (Loss) on Sale = Proceeds –
Trading Security$_{security}$ (7.3.1) Balance

If Gain or (Loss) on Sale > 0 then:

		Debit	Credit
XX/XX/XXXX	Cash	Proceeds	
	Gain On Sale of Securities		(7.3.8)
	Trading Security$_{security}$		TS$_{security}$ (7.3.1) Balance

If Gain or (Loss) on Sale < 0 then:

		Debit	Credit
XX/XX/XXXX	Cash	Proceeds	
	Loss On Sale of Securities	(7.3.8)	
	Trading Security$_{security}$		TS$_{security}$ (7.3.1) Balance

7.4 Stock FairValue/Equity Method

The Stock FairValue/Equity Method is used when the ownership in the acquired firm is less than 20%, the market value is determinable, and the expected hold time is equal to or greater than three months. Under the Stock FairValue/Equity Method, investments are categorized as Securities Available For Sale. Securities Available For Sale are long-term assets.

7.4.1 Securities Available For Sale$_{security}$

Securities Available For Sale$_{security}$ (SAS) is a set of Asset accounts. It is easiest to use a new account for each security purchased, then sum them to report Securities Available For Sale on the Balance Sheet:

Let n = the number of securities available for sale.
Securities Available For Sale = $\sum_{i=1}^{n}$ Securities Available For Sale$_i$

7.4.2 Unrealized Holding Gain/Loss—Equity$_{security}$

Unrealized Holding Gain/Loss—Equity$_{security}$ is a set of Other Comprehensive Income accounts. These accounts are populated by adjusting journal entries at year-end to increase or decrease the firm's portfolio to market value (A.K.A. marked-to-market). To report unrealized holding gains and losses:

Let n = the number of securities that have an unrealized gain.
Unrealized Holding Gain—Equity = $\sum_{i=1}^{n}$ Unrealized Holding Gain/Loss—Equity$_i$ Credit Balance

Let n = the number of securities that have an unrealized loss.
Unrealized Holding Loss—Equity = $\sum_{i=1}^{n}$ Unrealized Holding Gain/Loss—Equity$_i$ Debit Balance

Unrealized Holding Gain—Equity and Unrealized Holding Loss—Equity are not used to generate Net Income; instead, they are reported in the Other Comprehensive Income section of the Income Statement.

7.4.3 Accumulated Unrealized Holding Gain/Loss—Equity$_{security}$

Accumulated Unrealized Holding Gain/Loss—Equity$_{security}$ is a set of Retained Earnings accounts. They are populated by the closing entries for Unrealized Holding Gain/Loss—Equity$_{security}$ (7.4.2). To report accumulated unrealized holding gains and losses:

Let n = the number of securities that have an accumulated gain.
Accumulated Unrealized Holding Gain—Equity =
$\sum_{i=1}^{n}$ Accumulated Unrealized Holding Gain/Loss—Equity$_i$ Credit Balance

Let n = the number of securities that have an accumulated loss.
Accumulated Unrealized Holding Loss—Equity =
$\sum_{i=1}^{n}$ Accumulated Unrealized Holding Gain/Loss—Equity$_i$ Debit Balance

Accumulated Unrealized Holding Gain—Equity and Accumulated Unrealized Holding Loss—Equity are reported in the Owner's Equity section of the Balance Sheet.

7.4.4 Stock Securities Available For Sale: Purchase

		Debit	Credit
XX/XX/XXXX	Securities Available For Sale$_{security}$ (7.4.1)	Stock Cost (7.2.1)	
	Cash		Stock Cost (7.2.1)

7.4.5 Dividends Declared

		Debit	Credit
XX/XX/XXXX	Dividends Receivable	Dividend Amount (7.2.2)	
	Dividends Revenue (7.2.3)		Dividend Amount (7.2.2)

7.4.6 Dividends Received

		Debit	Credit
XX/XX/XXXX	Cash	Dividend Amount (7.2.2)	
	Dividends Receivable		Dividend Amount (7.2.2)

7.4.7 Stock Securities Available For Sale: Marked-To-Market Adjustment

At year-end an adjustment is needed to increase or decrease the firm's portfolio to market value.

Note: some accounting textbooks use the contra-SAS (7.4.1) account called Valuation Allowance for the year-end adjustment. The justification for using Valuation Allowance for stock Securities Available For Sale adjustments is to be consistent with bond Securities Available For Sale, which do need the Valuation Allowance accounts. However, the adjusting entries are easier if they are made in the Securities Available For Sale$_{security}$ (7.4.1) accounts directly.

7.4.8 Stock Securities Available For Sale Adjustment

Securities Available For Sale Adjustment = Fair Value$_{security}$ –
Securities Available For Sale$_{security}$ (7.4.1) Balance

If Stock Securities Available For Sale Adjustment > 0 then:

		Debit	Credit
12/31/XXXX	Securities Available For Sale$_{security}$ (7.4.1)	(7.4.8)	
	Unrealized Holding Gain/Loss—Equity$_{security}$ (7.4.2)		(7.4.8)

If Stock Securities Available For Sale Adjustment < 0 then:

		Debit	Credit
12/31/XXXX	Unrealized Holding Gain/Loss—Equity$_{security}$ (7.4.2)	(7.4.8)	
	Securities Available For Sale$_{security}$ (7.4.1)		(7.4.8)

7.4.9 Stock Securities Available For Sale: Gain or (Loss) on Sale

Gain or (Loss) on Sale = Proceeds –
Securities Available For Sale$_{security}$ Opening Balance (7.4.4)

If Gain or (Loss) on Sale > 0 and Accumulated Unrealized Holding Gain/Loss—Equity$_{security}$ has a loss:

		Debit	Credit
XX/XX/XXXX	Cash	Proceeds	
	Gain On Sale of Securities		(7.4.9)
	Securities Available For Sale$_{security}$		(7.4.1) Balance
	Accumulated Unrealized Holding Gain/Loss—Equity$_{security}$		(7.4.3) Balance

If Gain or (Loss) on Sale > 0 and Accumulated Unrealized Holding Gain/Loss—Equity$_{security}$ has a gain:

		Debit	Credit
XX/XX/XXXX	Cash	Proceeds	
	Accumulated Unrealized Holding Gain/Loss—Equity$_{security}$	(7.4.3) Balance	
	Gain On Sale of Securities		(7.4.9)
	Securities Available For Sale$_{security}$		(7.4.1) Balance

If Gain or (Loss) on Sale < 0 and Accumulated Unrealized Holding Gain/Loss—Equity$_{security}$ has a loss:

		Debit	Credit
XX/XX/XXXX	Cash	Proceeds	
	Loss On Sale of Securities	(7.4.9)	
	Securities Available For Sale$_{security}$		(7.4.1) Balance
	Accumulated Unrealized Holding Gain/Loss—Equity$_{security}$		(7.4.3) Balance

If Gain or (Loss) on Sale < 0 and Accumulated Unrealized Holding Gain/Loss—Equity$_{security}$ has a gain:

		Debit	Credit
XX/XX/XXXX	Cash	Proceeds	
	Loss On Sale of Securities	(7.4.9)	
	Accumulated Unrealized Holding Gain/Loss—Equity$_{security}$	(7.4.3) Balance	
	Securities Available For Sale$_{security}$		(7.4.1) Balance

7.4.10 Stock Securities Available For Sale Closing Entries

The amount of Unrealized Holding Gain/Loss—Equity$_{security}$ (7.4.2) is simultaneously reported in three places: on the Income Statement and twice on the Balance Sheet. To accomplish this apparent contradiction, a closing entry must be made after printing the Income Statement, but before printing the Balance Sheet.

If Unrealized Holding Gain/Loss—Equity$_{security}$ has a gain:

		Debit	Credit
12/31/XXXX	Unrealized Holding Gain/Loss—Equity$_{security}$	(7.4.2) Balance	
	Accumulated Unrealized Holding Gain/Loss—Equity$_{security}$		(7.4.2) Balance

If Unrealized Holding Gain/Loss—Equity$_{security}$ has a loss:

		Debit	Credit
12/31/XXXX	Accumulated Unrealized Holding Gain/Loss—Equity$_{security}$	(7.4.2) Balance	
	Unrealized Holding Gain/Loss—Equity$_{security}$		(7.4.2) Balance

7.5 Equity Account Method

The Equity Account Method is used when the firm invests its extra cash in mutual funds, money market accounts, certificates of deposit, and bank savings accounts.

7.5.1 Securities Available For Sale

Securities Available For Sale (SAS) is a Long-term Investment account.

7.5.2 Savings Account

A Savings Account is a Securities Available For Sale (7.5.1) account with the characteristic of the Share Price remaining $1.00. Savings Accounts include money market accounts, certificates of deposit, and bank savings accounts.

7.5.3 Mutual Fund Account

A Mutual Fund Account is a Securities Available For Sale (7.5.1) account with the characteristic of the Share Price changing. Additionally dividends may be reinvested, causing an increase in the quantity of shares over time. This increase is recorded as a Realized Investment Gain (7.5.5).

7.5.4 Unrealized Holding Gain/Loss—Equity

The Unrealized Holding Gain/Loss—Equity account is used for Mutual Fund Accounts (7.5.3). On the Income Statement this is reported in the Other Comprehensive Income section. It is not used to generate Net Income. On the Balance Sheet this is reported in the Equity section. This account is never closed; instead, it continuously fluctuates.

7.5.5 Realized Investment Gain

The Realized Investment Gain is used for Mutual Fund Accounts (7.5.3). On the Income Statement this is reported as a Gain. This account is closed to Income Summary.

7.5.6 Realized Investment Loss

The Realized Investment Loss is used for Mutual Fund Accounts (7.5.3). On the Income Statement this is reported as a Loss. This account is closed to Income Summary.

7.5.7 Equity Account Transaction Table

Build the following Equity Account Transaction table for each Equity Account (7.5). As purchases and sales are made, add a table row. Also add a row if time passes and the Market Value changes. For Savings Accounts (7.5.2), the Market Value changes as interest is accrued.

Equity Account Transaction$_{account}$					
Date	Operation	Share Price	Share Quanity Change	Share Quantity Balance	Cash In

Operation is either 'purchase', 'sale', or 'time passage'.

7.5.8 Equity Account Balance Table

Build the following Equity Account Balance table for each Equity Account (7.5). As purchases and sales are made, add a table row. Also add a row if time passes and the Market Value changes.

Equity Account Balance$_{account}$								
Date	Operation	Market Value	Book Value Change	Book Value Balance	Moving Share Price	Unrealized Gain Balance	Unrealized Gain Change	Realized Gain

Operation is either 'purchase', 'sale', or 'time passage'.

7.5.9 Equity Account Purchase

1 Add a row in the Equity Account Transaction (7.5.7) and Balance (7.5.8) Tables setting Operation = 'purchase'
2 Let R = row number
3 Share Price$_R$ = 1.00 (7.5.2) or Share Price (7.5.3)
4 Share Quantity Change$_R$ = Deposit Amount (7.5.2) or $\frac{\text{Stock Cost}_{(7.2.1)}}{\text{Share Price}_R}$ (7.5.3)
5 If R = 1 then:
Share Quantity Balance$_1$ = Share Quantity Change$_1$
6 If R > 1 then:
Share Quantity Balance$_R$ = Share Quantity Balance$_{R-1}$ + Share Quantity Change$_R$
7 Cash In$_R$ = Share Price$_R$ × (0.00 − Share Quantity Change$_R$)
8 Market Value$_R$ = Share Price$_R$ × Share Quantity Balance$_R$
9 Book Value Change$_R$ = Share Price$_R$ × Share Quantity Change$_R$
10 If R = 1 then:
Book Value Balance$_1$ = Book Value Change$_1$
11 If R > 1 then:
Book Value Balance$_R$ = Book Value Balance$_{R-1}$ + Book Value Change$_R$
12 Moving Share Price$_R$ = $\frac{\text{Book Value Balance}_R}{\text{Share Quantity Balance}_R}$
13 If R = 1 then:
Unrealized Gain Balance$_1$ = 0.00
14 If R > 1 then:
Unrealized Gain Balance$_R$ = Market Value$_R$ − Book Value Balance$_R$
Unrealized Gain Change$_R$ = Unrealized Gain Balance$_R$ − Unrealized Gain Balance$_{R-1}$

7.5.10 Equity Account Purchase Journal Entry

Let amount = 0.00 − Cash In$_R$

		Debit	Credit
XX/XX/XX	Securities Available For Sale (7.5.1)	amount	
	Cash		amount

If Unrealized Gain Change$_R$ > 0 then:
Let amount = Unrealized Gain Change$_R$

		Debit	Credit
XX/XX/XX	Securities Available For Sale (7.5.1)	amount	
	Unrealized Holding Gain/Loss—Equity (7.5.4)		amount

If Unrealized Gain Change$_R$ < 0 then:
Let amount = 0.00 − Unrealized Gain Change$_R$

		Debit	Credit
XX/XX/XX	Unrealized Holding Gain/Loss—Equity (7.5.4)	amount	
	Securities Available For Sale (7.5.1)		amount

7.5.11 Equity Account Time Passage

1 Add a row in the Equity Account Transaction (7.5.7) and Balance (7.5.8) Tables setting Operation = 'time passage'
2 Let R = row number
3 Share Price$_R$ = 1.00 (7.5.2) or Share Price (7.5.3)
4 Share Quantity Change$_R$ = Dividend Reinvestment Share Quantity Change (7.5.3)
5 Share Quantity Balance$_R$ = Share Quantity Balance$_{R-1}$ + Share Quantity Change$_R$
8 Market Value$_R$ = Share Price$_R$ × Share Quantity Balance$_R$
9 Book Value Change$_R$ = Share Price$_R$ × Share Quantity Change$_R$
10 Book Value Balance$_R$ = Book Value Balance$_{R-1}$ + Book Value Change$_R$
11 Moving Share Price$_R$ = $\frac{\text{Book Value Balance}_R}{\text{Share Quantity Balance}_R}$
12 Unrealized Gain Balance$_R$ = Market Value$_R$ − Book Value Balance$_R$
13 Unrealized Gain Change$_R$ = Unrealized Gain Balance$_R$ − Unrealized Gain Balance$_{R-1}$
14 If Share Quantity Change$_R$ > 0 then:
Realized Gain$_R$ = Book Value Change$_R$

7.5.12 Equity Account Time Passage Journal Entry

If Unrealized Gain Change$_R$ > 0 then:
Let amount = Unrealized Gain Change$_R$

		Debit	Credit
XX/XX/XX	Securities Available For Sale (7.5.1)	amount	
	Unrealized Holding Gain/Loss—Equity (7.5.4)		amount

If Unrealized Gain Change$_R$ < 0 then:
Let amount = 0.00 − Unrealized Gain Change$_R$

		Debit	Credit
XX/XX/XX	Unrealized Holding Gain/Loss—Equity (7.5.4)	amount	
	Securities Available For Sale (7.5.1)		amount

If Realized Gain$_R$ > 0 then:
Let amount = Realized Gain$_R$

		Debit	Credit
XX/XX/XX	Securities Available For Sale (7.5.1)	amount	
	Realized Investment Gain (7.5.5)		amount

7.5.13 Equity Account Sale

1 Add a row in the Equity Account Transaction (7.5.7) and Balance (7.5.8) Tables setting Operation = 'sale'
2 Let R = row number
3 Share Price$_R$ = 1.00 (7.5.2) or Share Price (7.5.3)
4 Share Quantity Change$_R$ = Withdrawal Amount (7.5.2) or Shares Sold (7.5.3) < − Negative number
5 Share Quantity Balance$_R$ = Share Quantity Balance$_{R-1}$ + Share Quantity Change$_R$
6 Cash In$_R$ = Share Price$_R$ × (0.00 − Share Quantity Change$_R$)
7 Market Value$_R$ = Share Price$_R$ × Share Quantity Balance$_R$
8 Moving Share Price$_R$ = Moving Share Price$_{R-1}$
9 Book Value Change$_R$ = Moving Share Price$_R$ × Share Quantity Change$_R$ < − Negative number
10 Book Value Balance$_R$ = Book Value Balance$_{R-1}$ + Book Value Change$_R$
11 Unrealized Gain Balance$_R$ = Market Value$_R$ − Book Value Balance$_R$
12 Unrealized Gain Change$_R$ = Unrealized Gain Balance$_R$ − Unrealized Gain Balance$_{R-1}$
13 Realized Gain$_R$ = Cash In$_R$ + Book Value Change$_R$

7.5.14 Equity Account Sale Journal Entry

		Debit	Credit
XX/XX/XX	Cash	Cash In$_R$	
	Securities Available For Sale (7.5.1)		Cash In$_R$

If Unrealized Gain Change$_R$ > 0 then:
Let amount = Unrealized Gain Change$_R$

		Debit	Credit
XX/XX/XX	Securities Available For Sale (7.5.1)	amount	
	Unrealized Holding Gain/Loss—Equity (7.5.4)		amount

If Unrealized Gain Change$_R$ < 0 then:
Let amount = 0.00 − Unrealized Gain Change$_R$

		Debit	Credit
XX/XX/XX	Unrealized Holding Gain/Loss—Equity (7.5.4)	amount	
	Securities Available For Sale (7.5.1)		amount

If Realized Gain$_R$ > 0 then:
Let amount = Realized Gain$_R$

		Debit	Credit
XX/XX/XX	Securities Available For Sale (7.5.1)	amount	
	Realized Investment Gain (7.5.5)		amount

If Realized Gain$_R$ < 0 then:
Let amount = 0.00 − Realized Gain$_R$

		Debit	Credit
XX/XX/XX	Realized Investment Loss (7.5.6)	amount	
	Securities Available For Sale (7.5.1)		amount

7.6 Cost Method

The Cost Method is used when the ownership in the acquired firm is less than 20% and the market value is not determinable. Under the Cost Method, investments are categorized as long-term assets.

7.6.1 Cost Method Security$_{security}$

Cost Method Security$_{security}$ is a set of Asset accounts. It is easiest to use a new account for each security purchased, then sum them to report Cost Method Securities on the Balance Sheet:

Let n = the number of cost method securities.
Cost Method Securities = $\sum_{i=1}^{n}$ Cost Method Security$_i$

7.6.2 Cost Method Security: Purchase

		Debit	Credit
XX/XX/XXXX	Cost Method Security$_{security}$ (7.6.1)	Stock Cost (7.2.1)	
	Cash		Stock Cost (7.2.1)

7.6.3 Liquidation Dividend

Liquidation Dividend = Dividend Amount (7.2.2) –
Net Income Per Share × Shares Purchased

7.6.4 Dividends Declared

If Liquidation Dividend (7.6.3) > 0 then:

		Debit	Credit
XX/XX/XXXX	Dividends Receivable	Dividend Amount (7.2.2)	
	Cost Method Security$_{security}$ (7.6.1)		Liquidation Dividend (7.6.3)
	Dividends Revenue (7.2.3)		(7.2.2) – (7.6.3)

If Liquidation Dividend (7.6.3) <= 0 then:

		Debit	Credit
XX/XX/XXXX	Dividends Receivable	Dividend Amount (7.2.2)	
	Dividends Revenue (7.2.3)		Dividend Amount (7.2.2)

7.6.5 Dividends Received

		Debit	Credit
XX/XX/XXXX	Cash	Dividend Amount (7.2.2)	
	Dividends Receivable		Dividend Amount (7.2.2)

7.6.6 Cost Method Security: Gain or (Loss) on Sale

Gain or (Loss) on Sale = Proceeds –
Cost Method Security$_{security}$ (7.6.1) Balance

If Gain or (Loss) on Sale > 0 then:

		Debit	Credit
XX/XX/XXXX	Cash	Proceeds	
	Gain On Sale of Securities		(7.6.6)
	Cost Method Security$_{security}$		(7.6.1) Balance

If Gain or (Loss) on Sale < 0 then:

		Debit	Credit
XX/XX/XXXX	Cash	Proceeds	
	Loss On Sale of Securities	(7.6.6)	
	Cost Method Security$_{security}$		(7.6.1) Balance

7.7 Equity Method

The Equity Method is used when stock ownership in the acquired firm is between 20% and 50%, inclusive.

7.7.1 Equity Investment$_{security}$

Equity Investment$_{security}$ is a set of Asset accounts. It is easiest to use a new account for each security purchased, then sum them to report Equity Investments on the Balance Sheet:

Let n = the number of equity investments.
Equity Investments = $\sum_{i=1}^{n}$ Equity Investment$_i$ Debit Balance

7.7.2 Ownership Percentage

$$\text{Ownership Percentage} = \frac{\text{Shares Owned}}{\text{Shares Outstanding}}$$

7.7.3 Equity Investment: Purchase Journal Entry

		Debit	Credit
XX/XX/XXXX	Equity Investment$_{security}$ (7.7.1)	Stock Cost (7.2.1)	
	Cash		Stock Cost (7.2.1)

7.7.4 Equity Investment: Subsequent Acquiree Activities

Following the purchase of a equity investment, the acquiree will continue to function as an independent firm. Those activities are partially recognized in the acquired firm's books.

7.7.5 Equity Investment: Percentage of Year Held

If Current Year = Year Of Purchase then:

$$\text{Percentage of Year Held} = \frac{\text{Months Remaining In Year}}{12}$$

If Current Year > Year Of Purchase then:

Percentage of Year Held = 1.0

7.7.6 Equity Investment: Post-Acquisition Net Income

$$\begin{aligned}\text{Acquiree Annual Earnings Amount} = &+ \textstyle\sum_{i=1}^{n} \text{Subsidiary Revenue}_i \\ &+ \textstyle\sum_{i=1}^{n} \text{Subsidiary Gain}_i \\ &- \textstyle\sum_{i=1}^{n} \text{Subsidiary Expense}_i \\ &- \textstyle\sum_{i=1}^{n} \text{Subsidiary Loss}_i\end{aligned}$$

If in the current year of the acquisition then:

Post-Acquisition Net Income = Acquiree Annual Earnings Amount – Preacquisition Earnings (8.2.6)

If beyond the year of the acquisition then:

Post-Acquisition Net Income = Acquiree Annual Earnings Amount

7.7.7 Equity Investment: Net Income Realization Amount

If Acquiree's Extraordinary Items = 0 and
If Acquiree's Discontinued Operations = 0 then:

Net Income Realization Amount = Acquiree Post-Acquisition Net Income (7.7.6) × Ownership Percentage (7.7.2)

Journal Entry, If Net Income Realization (7.7.7) > 0 then:

		Debit	Credit
12/31/XXXX	Equity Investment$_{security}$ (7.7.1)	(7.7.7)	
	Investment Revenue (7.2.4)		(7.7.7)

Journal Entry, If Net Income Realization (7.7.7) < 0 then:

		Debit	Credit
12/31/XXXX	Investment Revenue (7.2.4)	(7.7.7)	
	Equity Investment$_{security}$ (7.7.1)		(7.7.7)

7.7.8 Equity Investment: Income Before Extraordinary Items Realization Amount

If Acquiree's Extraordinary Items <> 0 or
If Acquiree's Discontinued Operations > 0 then:

Income Before Extraordinary Items Realization Amount = Acquiree's Income Before Extraordinary Items ×
Ownership Percentage (7.7.2) ×
Percentage of Year Held (7.7.5)

Journal Entry

		Debit	Credit
12/31/XXXX	Equity Investment$_{security}$ (7.7.1)	(7.7.8)	
	Investment Revenue (7.2.4)		(7.7.8)

7.7.9 Equity Investment: Extraordinary Items Realization Amount

The firm must report on the Income Statement its proportionate share of the acquired firm's extraordinary items.

Extraordinary Items Realization Amount = Acquiree's Extraordinary Items ×
Ownership Percentage (7.7.2)

Journal Entry, If Extraordinary Items Realization Amount > 0 then:

		Debit	Credit
12/31/XXXX	Equity Investment$_{security}$ (7.7.1)	(7.7.9)	
	Extraordinary Gain		(7.7.9)

Journal Entry, If Extraordinary Items Realization Amount < 0 then:

		Debit	Credit
12/31/XXXX	Extraordinary Loss	(7.7.9)	
	Equity Investment$_{security}$ (7.7.1)		(7.7.9)

7.7.10 Equity Investment: Discontinued Operations Realization Amount

The firm must report on the Income Statement its proportionate share of the acquired firm's discontinued operations.

Discontinued Operations Realization Amount = Acquiree's Discontinued Operations ×
Ownership Percentage (7.7.2)

Journal Entry

		Debit	Credit
12/31/XXXX	Equity Investment$_{security}$ (7.7.1)	(7.7.10)	
	Discontinued Operations		(7.7.10)

7.7.11 Equity Investment: Majority Dividend Realization Amount

Majority Dividend Realization Amount = Acquiree's Dividends Declared ×
Ownership Percentage (7.7.2)

Journal Entry

		Debit	Credit
XX/XX/XXXX	Cash or Dividends Receivable	(7.7.11)	
	Equity Investment$_{security}$ (7.7.1)		(7.7.11)

7.7.12 Depreciatable Assets Premium/(Discount)

Depreciatable Assets Premium/(Discount) = Acquiree's Depreciatable Assets Fair Value –
Acquiree's Depreciatable Assets Book Value

7.7.13 Equity Investment: Depreciation Realization Amount

If Depreciatable Assets Premium/(Discount) (7.7.12) <> 0 then:

$$\text{Depreciation Realization Amount} = \frac{\text{Premium/(Discount) (7.7.12)} \times \text{Ownership Percentage (7.7.2)}}{\text{Estimated Average Useful Years}} \times \text{Percentage of Year Held (7.7.5)}$$

Journal Entry, If Premium/(Discount) (7.7.12) > 0:

		Debit	Credit
12/31/XXXX	Investment Revenue (7.2.4)	(7.7.13)	
	Equity Investment$_{security}$ (7.7.1)		(7.7.13)

Journal Entry, If Premium/(Discount) (7.7.12) < 0:

		Debit	Credit
12/31/XXXX	Equity Investment$_{security}$ (7.7.1)	(7.7.13)	
	Investment Revenue (7.2.4)		(7.7.13)

7.7.14 Other Assets Premium/(Discount)

$$\text{Other Assets Premium/(Discount)} = \text{Acquiree's Other Assets Fair Value} - \text{Acquiree's Other Assets Book Value}$$

7.7.15 Equity Investment: Other Amortization Realization Amount

If Other Assets Premium/(Discount) (7.7.14) <> 0 then:

$$\text{Other Amortization Realization Amount} = \frac{\text{Premium/(Discount) (7.7.14)} \times \text{Ownership Percentage (7.7.2)}}{\text{Estimated Average Useful Years}} \times \text{Percentage of Year Held (7.7.5)}$$

Journal Entry, If Premium/(Discount) (7.7.14) > 0:

		Debit	Credit
12/31/XXXX	Investment Revenue (7.2.4)	(7.7.15)	
	Equity Investment$_{security}$ (7.7.1)		(7.7.15)

Journal Entry, If Premium/(Discount) (7.7.14) < 0:

		Debit	Credit
12/31/XXXX	Equity Investment$_{security}$ (7.7.1)	(7.7.15)	
	Investment Revenue (7.2.4)		(7.7.15)

7.7.16 Equity Investment: Liability Premium/(Discount)

$$\text{Liability Premium/(Discount)} = \text{Acquiree's Liability Fair Value} - \text{Acquiree's Liability Book Value}$$

7.7.17 Equity Investment: Liability Realization Amount

If Liability Premium/(Discount) (7.7.16) <> 0 then:

$$\text{Liability Realization Amount} = \frac{\text{Liability Premium/(Discount) (7.7.14)} \times \text{Ownership Percentage (7.7.2)}}{\text{Average Maturity Years}} \times \text{Percentage of Year Held (7.7.5)}$$

Journal Entry, If Premium/(Discount) (7.7.16) < 0:

		Debit	Credit
12/31/XXXX	Equity Investment$_{security}$ (7.7.1)	(7.7.17)	
	Investment Revenue (7.2.4)		(7.7.17)

Journal Entry, If Premium/(Discount) (7.7.16) > 0:

		Debit	Credit
12/31/XXXX	Investment Revenue (7.2.4)	(7.7.17)	
	Equity Investment$_{security}$ (7.7.1)		(7.7.17)

7.7.18 Equity Investment: Inventory Premium/(Discount)

$$\text{Inventory Premium/(Discount)} = \text{Acquiree's Inventory Fair Value} - \text{Acquiree's Inventory Book Value}$$

7.7.19 Equity Investment: Inventory Realization Amount

If Inventory Premium/(Discount) (7.7.18) <> 0 then:

$$\text{Inventory Realization Amount} = \text{Inventory Premium (7.7.18)} \times \text{Ownership Percentage (7.7.2)} \times \text{Percentage of Original Inventory Sold During Year}$$

Journal Entry, If Premium/(Discount) (7.7.18) > 0:

		Debit	Credit
12/31/XXXX	Investment Revenue (7.2.4)	(7.7.19)	
	Equity Investment$_{security}$ (7.7.1)		(7.7.19)

Journal Entry, If Premium/(Discount) (7.7.18) < 0:

		Debit	Credit
12/31/XXXX	Equity Investment$_{security}$ (7.7.1)	(7.7.19)	
	Investment Revenue (7.2.4)		(7.7.19)

7.7.20 Equity Investment: Gain or (Loss) on Sale

Gain or (Loss) on Sale = Proceeds –
Equity Investment$_{security}$ (7.7.1) Balance

If Gain or (Loss) on Sale > 0 then:

		Debit	Credit
XX/XX/XXXX	Cash	Proceeds	
	Gain On Sale of Securities		(7.7.20)
	Equity Investment$_{security}$		(7.7.1) Balance

If Gain or (Loss) on Sale < 0 then:

		Debit	Credit
XX/XX/XXXX	Cash	Proceeds	
	Loss On Sale of Securities	(7.7.20)	
	Equity Investment$_{security}$		(7.7.1) Balance

7.8 Bond Calculations and Accounts

7.8.1 Bond Purchase Cost

Bond Purchase Cost = (Bond Purchase Quantity × \$1,000) +
Commissions +
Other Transaction Fees

7.8.2 Cost Per Bond

$$\text{Cost Per Bond} = \frac{\text{Bond Purchase Cost (7.8.1)}}{\text{Bond Purchase Quantity}}$$

7.8.3 Bond Redemption Amount

The Bond Redemption Amount is also called Bond Face Value.
Bond Redemption Amount = 1,000 × Bond Purchase Quantity

7.8.4 Semi-Annual Coupon Amount Per Bond

$$\text{Semi-Annual Coupon Amount Per bond} = \$1{,}000 \times \frac{\text{Coupon Rate}}{2}$$

7.8.5 Bond Remaining Term Years

Bond Remaining Term Years is the number of years remaining until the bond matures.

7.8.6 Bond Effective Interest Rate Calculator

Solve for Effective Interest Rate.

Cost Per Bond (7.8.2) = Semi-Annual Coupon Amount Per Bond (7.8.4) ×
pva[\$1, $\frac{\text{Effective Interest Rate}}{2}$, Bond Remaining Term Years (7.8.5) × 2] +
pv[\$1,000, $\frac{\text{Effective Interest Rate}}{2}$, Bond Remaining Term Years × 2]

7.8.7 Semi-Annual Interest Receivable Amount

Semi-Annual Interest Receivable Amount = Semi-Annual Coupon Amount Per Bond (7.8.4) ×
Bond Purchase Quantity

7.8.8 Interest Revenue

Interest Revenue is an Other Revenues and Gains (1.1.12) account reported on the Income Statement.

7.8.9 Bond Premium/(Discount) Amount

$$\begin{aligned}\text{Bond Premium/(Discount) Amount} = {} & \text{Bond Purchase Cost (7.8.1)} - \\ & \text{Bond Redemption Amount (7.8.3)}\end{aligned}$$

7.8.10 Bond Interest Receivable Amount

Record interest receivable for the two interest payments expected; record receivable three times a year — once on each interest date and an adjusting entry at year-end.

If this is the first interest payment received then:

$$\text{Interest Receivable Amount} = \text{Semi-Annual Interest Receivable Amount (7.8.7)}$$

If Interest Date < July 1 and this is not the first interest payment received then:

$$\text{Interest Receivable Amount} = \text{Semi-Annual Interest Receivable Amount (7.8.7)} \times \frac{6 - \text{Number of Months Last Year Since Interest Payment}}{6}$$

If Interest Date >= July 1 and this is not the first interest payment received then:

$$\text{Interest Receivable Amount} = \text{Semi-Annual Interest Receivable Amount (7.8.7)}$$

If Current Date = December 31 and December 31 is not an interest date then:

$$\text{Interest Receivable Amount} = \text{Semi-Annual Interest Receivable Amount (7.8.7)} \times \frac{\text{Number of Months Since Last Interest Payment}}{6}$$

7.8.11 Bond Interest Revenue Amount

Record interest revenue three times a year — once on each interest date and an adjusting entry at year-end.

If this is the first interest payment received then:

$$\begin{aligned}\text{Interest Revenue Amount} = {} & \text{Bond}_{security}\text{ (7.9.1) Debit Balance} \times \\ & \text{Effective Interest Rate (7.8.6)} \times \tfrac{6}{12}\end{aligned}$$

If Interest Date < July 1 and this is not the first interest payment received then:

$$\begin{aligned}\text{Interest Revenue Amount} = {} & \text{Bond}_{security}\text{ (7.9.1) Debit Balance} \times \\ & \text{Effective Interest Rate (7.8.6)} \times \\ & \frac{6 - \text{Number of Months Last Year Since Interest Payment}}{12}\end{aligned}$$

If Interest Date >= July 1 and this is not the first interest payment received then:

$$\begin{aligned}\text{Interest Revenue Amount} = {} & \text{Bond}_{security}\text{ (7.9.1) Debit Balance} \times \\ & \text{Effective Interest Rate (7.8.6)} \times \tfrac{6}{12}\end{aligned}$$

If Current Date = December 31 and December 31 is not an interest date then:

$$\begin{aligned}\text{Interest Revenue Amount} = {} & \text{Bond}_{security}\text{ (7.9.1) Debit Balance} \times \\ & \text{Effective Interest Rate (7.8.6)} \times \\ & \frac{\text{Number of Months Since Last Interest Payment}}{12}\end{aligned}$$

7.8.12 Bond Amortization Amount

Adjust the bond asset account for the amortization of the premium or discount three times a year — once on each interest date and an adjusting entry at year-end.

If Premium/(Discount) (7.8.9) < 0 then:

$$\begin{aligned}\text{Bond Amortization Amount} = {} & \text{Bond Interest Revenue Amount (7.8.11)} - \\ & \text{Bond Interest Receivable (7.8.10)}\end{aligned}$$

If Premium/(Discount) (7.8.9) > 0 then:

$$\begin{aligned}\text{Bond Amortization Amount} = {} & \text{Bond Interest Receivable (7.8.10)} - \\ & \text{Bond Interest Revenue Amount (7.8.11)}\end{aligned}$$

7.9 Bond Amortization Method

The Bond Amortization Method is appropriate if each of the following occur:

1. The firm intends to hold the bond until maturity.

2. The firm can afford to hold the bond until maturity.

Note: this model assumes the bonds purchased were issued on the first of the month.

7.9.1 Bond Held To Maturity$_{security}$

Bond Held To Maturity$_{security}$ is a set of Asset accounts. It is easiest to use a new account for each bond purchased, then sum them to report Bonds Held To Maturity on the Balance Sheet:

Let n = the number of bonds held to maturity.
Bonds Held To Maturity = $\sum_{i=1}^{n}$ Bond Held To Maturity$_i$

7.9.2 Bond Held To Maturity: Purchase

		Debit	Credit
XX/XX/XXXX	Bond Held To Maturity$_{security}$ (7.9.1)	Bond Purchase Cost (7.8.1)	
	Cash		Bond Purchase Cost (7.8.1)

7.9.3 Bond Held To Maturity: Interest and Amortization Journal Entry

Calculate the Bond Interest Receivable (7.8.10), Bond Interest Revenue Amount (7.8.11), and the Bond Amortization Amount (7.8.12).

Journal Entry, If Premium/(Discount) (7.8.9) $<$ 0

		Debit	Credit
XX/XX/XXXX	Interest Receivable	Receivable Amount (7.8.10)	
	Bond Held To Maturity$_{security}$ (7.9.1)	Amortization Amount (7.8.12)	
	Interest Revenue		Revenue Amount (7.8.11)

Journal Entry, If Premium/(Discount) (7.8.9) $>$ 0

		Debit	Credit
XX/XX/XXXX	Interest Receivable	Receivable Amount (7.8.10)	
	Interest Revenue		Revenue Amount (7.8.11)
	Bond Held To Maturity$_{security}$ (7.9.1)		Amortization Amount (7.8.12)

7.9.4 Interest Cash Received

		Debit	Credit
XX/XX/XXXX	Cash	Semi-Annual Interest Receivable Amount (7.8.7)	
	Interest Receivable		(7.8.7)

7.9.5 Bond Held To Maturity: Redemption

		Debit	Credit
XX/XX/XXXX	Cash	(7.8.3)	
	Bond Held To Maturity$_{security}$ (7.9.1)		(7.8.3)

7.10 Bond FairValue Method

The Bond FairValue Method is appropriate if one of the following occurs:

1. The firm does not intend to hold the bond until maturity.

2. The firm cannot afford to hold the bond until maturity.

Note: this model assumes the bonds purchased were issued on the first of the month.

7.10.1 Bond Available For Sale$_{security}$

Bond Available For Sale$_{security}$ is a set of Asset accounts. It is easiest to use a new account for each bond purchased, then sum them to calculate Bond Securities Available For Sale.

Let n = the number of bonds available for sale.
Bond Securities Available For Sale = $\sum_{i=1}^{n}$ Bond Available For Sale$_i$

7.10.2 Bond Valuation Allowance$_{security}$

Bond Valuation Allowance$_{security}$ is a set of contra/adjunct-Bond Available For Sale$_{security}$ (7.10.1) accounts. Each account is used to either increase or decrease the bond's book value to equal the market value.

Let n = the number of bond valuation allowances with a debit balance.
Bond Valuation Allowance Total Debit Amount = $\sum_{i=1}^{n}$ Bond Valuation Allowance$_i$ Debit Balance

Let n = the number of bonds valuation allowances with a credit balance.
Bond Valuation Allowance Total Credit Amount = $\sum_{i=1}^{n}$ Bond Valuation Allowance$_i$ Credit Balance

7.10.3 Bonds Available For Sale at Market Value

Report Bonds Available For Sale at Market Value as an Asset on the Balance Sheet.

Bonds Available For Sale at Market Value = Bond Securities Available For Sale (7.10.1) +
Bond Valuation Allowance Total Debit Amount (7.10.2) –
Bond Valuation Allowance Total Credit Amount (7.10.2)

7.10.4 Bond Available For Sale: Purchase

		Debit	Credit
XX/XX/XXXX	Bond Available For Sale$_{security}$ (7.10.1)	Bond Purchase Cost (7.8.1)	
	Cash		Bond Purchase Cost (7.8.1)

7.10.5 Bond Available For Sale: Interest and Amortization Journal Entry

Calculate the Bond Interest Receivable (7.8.10), Bond Interest Revenue Amount (7.8.11), and the Bond Amortization Amount (7.8.12).

Journal Entry, If Premium/(Discount) (7.8.9) < 0

		Debit	Credit
XX/XX/XXXX	Interest Receivable	Receivable Amount (7.8.10)	
	Bond Available For Sale$_{security}$ (7.9.1)	Amortization Amount (7.8.12)	
	Interest Revenue		Revenue Amount (7.8.11)

Journal Entry, If Premium/(Discount) (7.8.9) > 0

		Debit	Credit
XX/XX/XXXX	Interest Receivable	Receivable Amount (7.8.10)	
	Interest Revenue		Revenue Amount (7.8.11)
	Bond Available For Sale$_{security}$ (7.9.1)		Amortization Amount (7.8.12)

7.10.6 Interest Cash Received

		Debit	Credit
XX/XX/XXXX	Cash	Semi-Annual Interest Receivable Amount (7.8.7)	
	Interest Receivable		(7.8.7)

7.10.7 Bond Available For Sale: Marked-To-Market Adjustment

Bonds available for sale must be reported at market value. The Bond Valuation Allowance$_{security}$ (7.10.2) account is used to either increase or decrease the bond's book value to equal market value.

7.10.8 Bond Available For Sale: Book Value

If Bond Valuation Allowance$_{security}$ (7.10.2) has a zero balance:
Bond Book Value = Bond Available For Sale$_{security}$ (7.10.1) Balance
If Bond Valuation Allowance$_{security}$ (7.10.2) has a debit balance:
Bond Book Value = Bond Available For Sale$_{security}$ (7.10.1) Balance +
Bond Valuation Allowance$_{security}$ Debit Balance
If Bond Valuation Allowance$_{security}$ (7.10.2) has a credit balance:
Bond Book Value = Bond Available For Sale$_{security}$ (7.10.1) Balance –
Bond Valuation Allowance$_{security}$ Credit Balance

7.10.9 Bond Available For Sale: Adjustment

Bond Available For Sale Adjustment = Bond Fair Value$_{security}$ –
Bond Book Value (7.10.8)

If Bond Available For Sale Adjustment > 0 then:

		Debit	Credit
12/31/XXXX	Bond Valuation Allowance$_{security}$ (7.10.2)	(7.10.9)	
	Unrealized Holding Gain/Loss—Equity$_{security}$ (7.4.2)		(7.10.9)

If Bond Available For Sale Adjustment < 0 then:

		Debit	Credit
12/31/XXXX	Unrealized Holding Gain/Loss—Equity$_{security}$ (7.4.2)	(7.10.9)	
	Bond Valulation Allowance$_{security}$ (7.10.2)		(7.10.9)

7.10.10 Bond Available For Sale: Gain or (Loss) on Sale or Redemption

Gain or (Loss) on Sale = Proceeds – Bond Book Value (7.10.8)

If Gain or (Loss) on Sale > 0 and Unrealized Holding Gain/Loss—Equity$_{security}$ has a debit balance:

		Debit	Credit
XX/XX/XXXX	Cash	Proceeds	
	Bond Valution Allowance$_{security}$	(7.10.2) Balance	
	Gain On Sale of Securities		(7.10.10)
	Bond Available For Sale$_{security}$		(7.10.1) Balance
	Unrealized Holding Gain/Loss—Equity$_{security}$		(7.4.2) Balance

If Gain or (Loss) on Sale > 0 and Unrealized Holding Gain/Loss—Equity$_{security}$ has a credit balance:

		Debit	Credit
XX/XX/XXXX	Cash	Proceeds	
	Unrealized Holding Gain/Loss—Equity$_{security}$	(7.4.2) Balance	
	Bond Available For Sale$_{security}$		(7.10.1) Balance
	Bond Valution Allowance$_{security}$		(7.10.2) Balance
	Gain On Sale of Securities		(7.10.10)

If Gain or (Loss) on Sale < 0 and Unrealized Holding Gain/Loss—Equity$_{security}$ has a debit balance:

		Debit	Credit
XX/XX/XXXX	Cash	Proceeds	
	Loss On Sale of Securities	(7.10.10)	
	Bond Valution Allowance$_{security}$	(7.10.2) Balance	
	Bond Available For Sale$_{security}$		(7.10.1) Balance
	Unrealized Holding Gain/Loss—Equity$_{security}$		(7.4.2) Balance

If Gain or (Loss) on Sale < 0 and Unrealized Holding Gain/Loss—Equity$_{security}$ has a credit balance:

		Debit	Credit
XX/XX/XXXX	Cash	Proceeds	
	Loss On Sale of Securities	(7.10.10)	
	Unrealized Holding Gain/Loss—Equity$_{security}$	(7.4.2) Balance	
	Bond Available For Sale$_{security}$		(7.10.1) Balance
	Bond Valution Allowance$_{security}$		(7.10.2) Balance

Chapter 8

Consolidation Method

The Consolidation Method is used when a Parent/Subsidiary Consolidation (8.1.9) is formed as a result of the acquirer gaining more than 50% of the acquiree's voting shares or more than 50% participation in the acquiree's Board of Directors.

8.1 Consolidation Overview

8.1.1 Business Combination

A Business Combination is when two (or more) firms join together and operate as either one entity or related entities. If the acquiree retains its own identity, then a Parent/Subsidiary Consolidation (8.1.9) relationship is formed, with the acquirer gaining control of the acquiree's direction and/or management.

8.1.2 Statutory Combination

A Statutory Combination is a Business Combination (8.1.1) in which either the acquiree or both firms disappear. These combinations are called statutory because state statutes control the creation or dissolution of corporations.

8.1.3 Statutory Merger

A Statutory Merger is a Statutory Combination (8.1.2) in which the acquiree disappears.

8.1.4 Statutory Merger Shares to Issue

If a Statutory Merger (8.1.3) occurs and the acquirer's consideration is Unissued Shares (5.1.1), then how many acquirer's shares should be issued to the owners of the acquiree?

$$\text{Acquiree Ownership Percent} = \frac{\text{Acquiree Market Capitalization}}{\text{Acquiree Market Capitalization} + \text{Acquirer Market Capitalization}}$$

$$\begin{aligned}\text{Acquiree Common Shares Received} &= \text{Acquiree Ownership Percent} \times \\ &\quad (\text{Acquirer Common Shares Outstanding} + \text{Acquiree Common Shares Received})\end{aligned}$$

$$\begin{aligned}\text{Acquiree Common Shares Received} &= (\text{Acquiree Ownership Percent} \times \text{Acquirer Common Shares Outstanding}) + \\ &\quad (\text{Acquiree Ownership Percent} \times \text{Acquiree Common Shares Received})\end{aligned}$$

$$\begin{aligned}&\text{Acquiree Common Shares Received} - (\text{Acquiree Ownership Percent} \times \text{Acquiree Common Shares Received}) = \\ &\quad (\text{Acquiree Ownership Percent} \times \text{Acquirer Common Shares Outstanding})\end{aligned}$$

$$\begin{aligned}&\text{Acquiree Common Shares Received} \times (1 - \text{Acquiree Ownership Percent}) = \\ &\quad (\text{Acquiree Ownership Percent} \times \text{Acquirer Common Shares Outstanding})\end{aligned}$$

$$\text{Acquiree Common Shares Received} = \frac{\text{Acquiree Ownership Percent} \times \text{Acquirer Common Shares Outstanding}}{1 - \text{Acquiree Ownership Percent}}$$

8.1.5 Statutory Consolidation

A Statutory Consolidation is a Statutory Combination (8.1.2) in which both firms disappear and a new firm appears.

8.1.6 Per Share Market Value of Consolidated

If a Business Combination (8.1.1) is a Statutory Consolidation (8.1.5), then the Per Share Market Value of the Consolidated Entity can be estimated to be:

$$\text{Per Share Market Value of Consolidated} = \frac{\text{Acquiree Market Capitalization} + \text{Acquirer Market Capitalization}}{\text{Consolidated Shares Issued}}$$

8.1.7 Acquiree Consolidated Shared

If a Business Combination (8.1.1) is a Statutory Consolidation (8.1.5), then the number of shares the acquiree stockholders' can expect is:

$$\text{Acquiree Consolidated Shares} = \frac{\text{Acquiree Market Capitalization}}{\text{Per Share Market Value of Consolidated (8.1.6)}}$$

8.1.8 Acquirer Consolidated Shared

If a Business Combination (8.1.1) is a Statutory Consolidation (8.1.5), then the number of shares the acquirer stockholders' can expect is:

$$\text{Acquirer Consolidated Shares} = \frac{\text{Acquirer Market Capitalization}}{\text{Per Share Market Value of Consolidated (8.1.6)}}$$

8.1.9 Parent/Subsidiary Consolidation

If a Business Combination (8.1.1) results in the acquirer purchasing the acquiree and the acquiree remains a viable entity, then a Parent/Subsidiary Consolidation has formed. In a Parent/Subsidiary Consolidation, the Consolidation Method (8) of accounting is required. Note: a Parent/Subsidiary Consolidation differs from a Statutory Combination (8.1.2).

8.1.10 Exchange Ratio

$$\text{Exchange Ratio} = \frac{\text{Shares Acquirer Forfeits}}{\text{One Share Acquiree}} = \frac{\text{Per Share Market Value of Acquiree}}{\text{Per Share Market Value of Acquirer}}$$

8.1.11 Stock Consideration Shares Acquirer Issues

If the consideration the acquirer is providing in a Business Combination (8.1.1) is common stock, then the number of new shares to issue is calculated as follows:

$$\text{Stock Consideration Shares Acquirer Issues} = \text{Acquiree Shares Outstanding} \times \text{Exchange Ratio (8.1.10)}$$

8.1.12 Stock Consideration Stock Cost

If the consideration the acquirer is providing in a Business Combination (8.1.1) is common stock, then the Stock Cost is calculated as follows:

$$\text{Stock Consideration Stock Cost} = \text{Stock Consideration Shares Acquirer Issues (8.1.11)} \times \text{Per Share Market Value of Acquirer}$$

8.2 Initial Purchase of a Subsidiary

8.2.1 Imputed Market Value

$$\text{Imputed Market Value} = \frac{\text{Stock Cost (7.2.1) or (8.1.12)}}{\text{Ownership Percentage (7.7.2)}}$$

8.2.2 Non-Controlling Interest

Non-Controlling Interest is an Equity account reported on the Consolidated Balance Sheet. The Subsidiary (8.1.9) investors comprise the Non-Controlling Interest. They have no voting rights in the Parent and no management control in the Subsidiary.

8.2.3 Non-Controlling Interest Amount

$$\text{Non-Controlling Interest Amount} = \text{Imputed Market Value (8.2.1)} - \text{Stock Cost (7.2.1) or (8.1.12)}$$

8.2.4 Non-Controlling Interest in Net Income

Non-Controlling Interest in Net Income is a Contra-Revenue account. It is also called Income to Non-Controlling Interest.

8.2.5 Preacquisition Earnings

Preacquisition Earnings is a Contra-Revenue account reported on the Consolidated Income Statement. It represents the Net Income of the Subsidiary as of the acquisition date and is subtracted from Net Income of the consolidation.

8.2.6 Preacquisition Earnings Amount

The Preacquisition Earnings Amount is the acquiree's earnings as of the date of the acquisition.

$$\begin{aligned}\text{Preacquisition Earnings Amount} = &+ \sum_{i=1}^{n} \text{Acquiree Revenue}_i \\ &+ \sum_{i=1}^{n} \text{Acquiree Gain}_i \\ &- \sum_{i=1}^{n} \text{Acquiree Expense}_i \\ &- \sum_{i=1}^{n} \text{Acquiree Loss}_i\end{aligned}$$

8.2.7 Acquiree Equity

$$\begin{aligned}\text{Acquiree Equity} = &+ \text{Common Stock at Par} \\ &+ \text{Additional Paid-In Capital} \\ &+ \text{Retained Earnings} \\ &+ \text{Preacquisition Earnings Amount (8.2.6)} \\ &- \text{Dividends}\end{aligned}$$

8.2.8 Purchase Differential

$$\begin{aligned}\text{Purchase Differential} = &\text{ Imputed Market Value (8.2.1)} - \\ &\text{Acquiree Equity (8.2.7)}\end{aligned}$$

8.2.9 Total Fair/Book Difference

Let m = the number of acquiree's assets.
Let n = the number of acquiree's liabilities.

$$\begin{aligned}\text{Total Fair/Book Difference} = &\sum_{i=1}^{m}(\text{Fair Value Asset}_i - \text{Book Value Asset}_i) - \\ &\sum_{i=1}^{n}(\text{Fair Value Liability}_i - \text{Book Value Liability}_i)\end{aligned}$$

8.2.10 Total Fair/Book Difference Table

To help calculate the Total Book Fair Difference (8.2.9) and to help record the Elimination Journal Entry (8.2.15), setup the following table:

Account	Debit	Credit
Asset_1	Fair Value Asset_1 – Book Value Asset_1	
Asset_2	Fair Value Asset_2 – Book Value Asset_2	
...		
Asset_m	Fair Value Asset_m – Book Value Asset_m	
Liability_1		Fair Value Liability_1 – Book Value Liability_1
Liability_2		Fair Value Liability_2 – Book Value Liability_2
...		
Liability_n		Fair Value Liability_n – Book Value Liability_n
Total Fair/Book Difference	(8.2.9)	

Note: if Fair Value_i – Book $\text{Value}_i < 0$ then record the absolute value of the difference in the opposite column.

8.2.11 Goodwill Amount

$$\begin{aligned}\text{Goodwill Amount} = &\text{ Purchase Differential (8.2.8)} - \\ &\text{Total Fair/Book Difference (8.2.9)}\end{aligned}$$

8.2.12 Majority Negative Goodwill Amount

If Goodwill Amount (8.2.11) < 0 then:

Majority Negative Goodwill Amount = |Goodwill Amount| (8.2.11) × Ownership Percentage (7.7.2)

8.2.13 Minority Negative Goodwill Amount

If Goodwill Amount (8.2.11) < 0 then:

Minority Negative Goodwill Amount = |Goodwill Amount| (8.2.11) × [1 – Ownership Percentage (7.7.2)]

8.2.14 Consolidation Purchase Journal Entry

If Goodwill Amount (8.2.11) >= 0 then:

		Debit	Credit
XX/XX/XX	Investment in Subsidiary$_{security}$ (8.1.9)	Stock Cost (7.2.1) or (8.1.12)	
	Cash and/or Stock and/or Debt		(7.2.1) or (8.1.12)

If Goodwill (8.2.11) < 0 then:

		Debit	Credit
XX/XX/XX	Investment in Subsidiary$_{security}$	[(7.2.1) or (8.1.12)] + (8.2.12)	
	Extraordinary Gain		(8.2.12)
	Cash and/or Stock and/or Debt		(7.2.1) or (8.1.12)

8.2.15 Initial Purchase Elimination Journal Entry

The Elimination Entity is a fictional entity. It is is used to help consolidate the Parent with the Subsidiary (8.1.9).

		Debit	Credit
XX/XX/XX	Common Stock at Par	Subsidiary @ Purchase Date	
	Additional Paid-In Capital	Subsidiary @ Purchase Date	
	Retained Earnings	Subsidiary @ Purchase Date	
	Goodwill (← an Asset Account)	(8.2.11) if positive	
	Preacquisition Earnings	(8.2.6)	
	Dividends (← a Contra-Equity Account)		Subsidiary @ Purchase Date
	Investment in Subsidiary$_{security}$		Beginning Balance
	Non-Controlling Interest (8.2.2)		(8.2.3)
	Extraordinary Gain		(8.2.13) if negative Goodwill
	Total Fair Book Difference Table (8.2.10)		

If Goodwill (8.2.11) < 0 then:

		Debit	Credit
XX/XX/XX	Non-Controlling Interest in Net Income (8.2.4)	(8.2.13)	
	Non-Controlling Interest (8.2.2)		(8.2.13)

8.2.16 Consolidation Entity/Trial Balance

The Consolidation Entity is reported in the financial statements. It is created as a trial balance called Consolidated Trial Balance.

Consolidated Trial Balance = Parent Trial Balance +
Subsidiary$_1$ Trial Balance +
Subsidiary$_2$ Trial Balance +
...
Subsidiary$_n$ Trial Balance +
Elimination Trial Balance (8.2.15), (8.3.18), (8.3.19), and (8.3.22)

8.2.17 Consolidation Trial Balance Table

To help create the Consolidation Trial Balance (8.2.16), setup the following table:

	Parent		Subsidiary$_i$		Elimination		Consolidation	
Account	Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit
Revenue$_1$								
...								
Expense$_1$								
...								
Gain$_1$								
...								
Loss$_1$								
...								
Extraordinary$_1$								
...								
Discontinued$_1$								
...								
Asset$_1$								
...								
Liability$_1$								
...								
Equity$_1$								
...								
Total								

8.3 Subsequent Subsidiary Activities

Following the purchase of a subsidiary, the subsidiary will continue to function as an independent firm. Those activities are partially recognized in the parent firm's books.

8.3.1 Post-Acquisition Net Income

Apply the Equity Investment: Post-Acquisition Net Income (7.7.6).

8.3.2 Net Income Realization Amount

Apply the Equity Investment: Net Income Realization Amount (7.7.7).

Journal Entry

		Debit	Credit
12/31/XX	Investment in Subsidiary$_{security}$ (7.7.1)	(7.7.7)	
	Investment Revenue (7.2.4)		(7.7.7)

8.3.3 Consolidation Method: Income Before Extraordinary Items Realization Amount

Apply the Equity Investment: Income Before Extraordinary Items Realization Amount (7.7.8).

Journal Entry

		Debit	Credit
12/31/XX	Investment in Subsidiary$_{security}$ (7.7.1)	(7.7.8)	
	Investment Revenue (7.2.4)		(7.7.8)

8.3.4 Extraordinary Items Realization Amount

Apply the Equity Investment: Extraordinary Items Realization Amount (7.7.9).

Journal Entry, If Extraordinary Items Realization Amount (7.7.9) $>$ 0 then:

		Debit	Credit
12/31/XX	Investment in Subsidiary$_{security}$ (7.7.1)	(7.7.9)	
	Extraordinary Gain		(7.7.9)

Journal Entry, If Extraordinary Items Realization Amount (7.7.9) $<$ 0 then:

		Debit	Credit
12/31/XX	Extraordinary Loss	(7.7.9)	
	Investment in Subsidiary$_{security}$ (7.7.1)		(7.7.9)

8.3.5 Discontinued Operations Realization Amount

Apply the Equity Investment: Discontinued Operations Realization Amount (7.7.10).

Journal Entry

		Debit	Credit
12/31/XX	Investment in Subsidiary$_{security}$ (7.7.1)	(7.7.10)	
	Discontinued Operations		(7.7.10)

8.3.6 Dividend Realization Amount

Apply the Equity Investment: Majority Dividend Realization Amount (7.7.11).

Journal Entry

		Debit	Credit
XX/XX/XX	Cash or Dividends Receivable	(7.7.11)	
	Investment in Subsidiary$_{security}$ (7.7.1)		(7.7.11)

8.3.7 Depreciation Realization Amount

Apply the Equity Investment: Depreciation Realization Amount (7.7.13).

Journal Entry, If Premium/(Discount) (7.7.12) $>$ 0 then:

		Debit	Credit
12/31/XX	Investment Revenue (7.2.4)	(7.7.13)	
	Investment in Subsidiary$_{security}$ (8.1.9)		(7.7.13)

Journal Entry, If Premium/(Discount) (7.7.12) $<$ 0 then:

		Debit	Credit
12/31/XX	Investment in Subsidiary$_{security}$ (8.1.9)	(7.7.13)	
	Investment Revenue (7.2.4)		(7.7.13)

8.3.8 Other Amortization Realization Amount

Apply the Equity Investment: Other Amortization Realization Amount (7.7.15).

Journal Entry, If Premium/(Discount) (7.7.14) $>$ 0 then:

		Debit	Credit
12/31/XX	Investment Revenue (7.2.4)	(7.7.15)	
	Investment in Subsidiary$_{security}$ (8.1.9)		(7.7.15)

Journal Entry, If Premium/(Discount) (7.7.14) $<$ 0 then:

		Debit	Credit
12/31/XX	Investment in Subsidiary$_{security}$ (8.1.9)	(7.7.15)	
	Investment Revenue (7.2.4)		(7.7.15)

8.3.9 Liability Realization Amount

Apply the Equity Investment: Liability Realization Amount (7.7.17).

Journal Entry, If Premium/(Discount) (7.7.16) $<$ 0 then:

		Debit	Credit
12/31/XX	Investment in Subsidiary$_{security}$ (8.1.9)	(7.7.17)	
	Investment Revenue (7.2.4)		(7.7.17)

Journal Entry, If Premium/(Discount) (7.7.16) $>$ 0 then:

		Debit	Credit
12/31/XX	Investment Revenue (7.2.4)	(7.7.17)	
	Investment in Subsidiary$_{security}$ (8.1.9)		(7.7.17)

8.3.10 Inventory Realization Amount

Apply the Equity Investment: Inventory Realization Amount (7.7.19).

Journal Entry, If Premium/(Discount) (7.7.18) $>$ 0 then:

		Debit	Credit
12/31/XX	Investment Revenue (7.2.4)	(7.7.19)	
	Investment in Subsidiary$_{security}$ (8.1.9)		(7.7.19)

Journal Entry, If Premium/(Discount) (7.7.18) < 0 then:

		Debit	Credit
12/31/XX	Investment in Subsidiary$_{security}$ (8.1.9)	(7.7.19)	
	Investment Revenue (7.2.4)		(7.7.19)

8.3.11 Subsidiary Depreciation Realization Amount

If Depreciatable Assets Premium/(Discount) (7.7.12) <> 0 then:

$$\text{Subsidiary Depreciation Realization Amount} = \frac{\text{Depreciation Realization Amount (7.7.13)}}{\text{Ownership Percentage (7.7.2)}}$$

8.3.12 Subsidiary Liability Realization Amount

If Liability Premium/(Discount) (7.7.16) <> 0 then:

$$\text{Subsidiary Liability Realization Amount} = \frac{\text{Liability Realization Amount (7.7.17)}}{\text{Ownership Percentage (7.7.2)}}$$

8.3.13 Subsidiary Other Amortization Realization Amount

If Other Assets Premium/(Discount) (7.7.14) <> 0 then:

$$\text{Subsidiary Other Amortization Realization Amount} = \frac{\text{Other Amortization Realization Amount (7.7.15)}}{\text{Ownership Percentage (7.7.2)}}$$

8.3.14 Subsidiary Inventory Realization Amount

If Inventory Premium/(Discount) (7.7.18) <> 0 then:

$$\text{Subsidiary Inventory Realization Amount} = \frac{\text{Inventory Realization Amount (7.7.19)}}{\text{Ownership Percentage (7.7.2)}}$$

8.3.15 Subsidiary Investment Income

Subsidiary Investment Income = + Subsidiary Post-Acquisition Net Income (8.3.1)
– Subsidiary Depreciation Realization Amount (8.3.11)
– Subsidiary Other Amortization Realization Amount (8.3.13)
– Subsidiary Inventory Realization Amount (8.3.14)
+ Subsidiary Liability Realization Amount (8.3.12)

Note: The Subsidiary Investment Income is the full, 100% amount as reported on the subsidiary's Income Statement.

8.3.16 Majority Investment Income

Convert the full, 100% amount as reported on the subsidiary's Income Statement to the proportional amount that is used to eliminate Investment Income in the Elimination Journal Entry (8.3.18).

Majority Investment Income = Subsidiary Investment Income (8.3.15) ×
Ownership Percentage (7.7.2)

8.3.17 Goodwill Impairment Amount

Goodwill does not amortize; instead, each year it is checked for impairment.

Goodwill Impairment Amount = Goodwill (8.2.11) ×
Ownership Percentage (7.7.2) ×
Percentage of Goodwill Impairment

8.3.18 Subsequent Subsidiary Activities Elimination Journal Entry

The Elimination Entity is a fictional entity. It is is used to help consolidate the Parent with the Subsidiary (8.1.9).

Elimination Journal Entry: Subsidiary Activities

		Debit	Credit
12/31/XX	Investment Revenue (7.2.4)	(8.3.16)	
	Dividends (← a Contra-Equity Account)		(7.7.11)
	Investment in Subsidiary$_{security}$ (8.1.9)		(8.3.16) – (7.7.11)

Elimination Journal Entry, If Goodwill Impairment Amount (8.3.17) > 0 then:

		Debit	Credit
12/31/XX	Investment Revenue (7.2.4)	(8.3.17)	
	Investment in Subsidiary$_{security}$ (7.7.1)		(8.3.17)

8.3.19 Amortize Differentials Elimination Journal Entry

The Elimination Entity is a fictional entity. It is is used to help consolidate the Parent with the Subsidiary (8.1.9).

Elimination Journal Entry: If Depreciation Premium/(Discount) (7.7.12) > 0 then:

		Debit	Credit
12/31/XX	Depreciation Expense	(8.3.11)	
	PP&E		(8.3.11)

Elimination Journal Entry: If Depreciation Premium/(Discount) (7.7.12) < 0 then:

		Debit	Credit
12/31/XX	PP&E	(8.3.11)	
	Depreciation Expense		(8.3.11)

Elimination Journal Entry: If Other Assets Premium/(Discount) (7.7.14) > 0 then:

		Debit	Credit
12/31/XX	Other Expense	(8.3.13)	
	Other Assets		(8.3.13)

Elimination Journal Entry: If Other Assets Premium/(Discount) (7.7.14) < 0 then:

		Debit	Credit
12/31/XX	Other Assets	(8.3.13)	
	Other Expense		(8.3.13)

Elimination Journal Entry: If Liability Premium/(Discount) (7.7.16) < 0 then:

		Debit	Credit
12/31/XX	Long-Term Debt	(8.3.12)	
	Interest Expense		(8.3.12)

Elimination Journal Entry: If Liability Premium/(Discount) (7.7.16) > 0 then:

		Debit	Credit
12/31/XX	Interest Expense	(8.3.12)	
	Long-Term Debt		(8.3.12)

Elimination Journal Entry: If Inventory Premium/(Discount) (7.7.18) > 0 then:

		Debit	Credit
12/31/XX	Cost of Goods Sold	(8.3.14)	
	Inventory		(8.3.14)

Elimination Journal Entry: If Inventory Premium/(Discount) (7.7.18) < 0 then:

		Debit	Credit
12/31/XX	Inventory	(8.3.14)	
	Cost of Goods Sold		(8.3.14)

Elimination Journal Entry, If Goodwill Impairment Amount (8.3.17) > 0 then:

		Debit	Credit
12/31/XX	Impairment Loss	(8.3.17)	
	Goodwill		(8.3.17)

8.3.20 Minority Investment Income

Minority Investment Income = Subsidiary Investment Income (8.3.15) ×
[1 – Ownership Percentage (7.7.2)]

8.3.21 Minority Dividend Realization Amount

Minority Dividend Realization Amount = Acquiree's Dividends Declared ×
[1 – Ownership Percentage (7.7.2)]

8.3.22 Non-Controlling Interest Elimination Journal Entry

The Elimination Entity is a fictional entity. It is is used to help consolidate the Parent with the Subsidiary (8.1.9).

		Debit	Credit
12/31/XX	Non-Controlling Interest in Net Income (8.2.4)	(8.3.20)	
	Dividends (← a Contra-Equity Account)		(8.3.21)
	Non-Controlling Interest (8.2.2)		(8.3.20) – (8.3.21)

8.4 Intercompany Transactions

Following the purchase of a subsidiary, the subsidiary might purchase inventory, fixed assets, or debt from the parent. Likewise, the parent might purchase inventory, fixed assets, or debt from the subsidiary. Since the parent has management control over the subsidiary, the net result of these transactions must be eliminated when consolidating the subsidiary with the parent.

8.5 Intercompany Inventory Transaction, One Time

If a parent sells inventory one time to a subsidiary, or if a subsidiary sells inventory one time to the parent, then the following steps will model the events.

8.5.1 Inventory Sales Amount

The Inventory Sales Amount is the retail price of an inventory transaction from the parent to the subsidiary.
Sales Amount = Quantity Sold × Price Per Item

8.5.2 Inventory Cost of Goods Sold

The Inventory Cost of Goods Sold is the parent's Cost of Goods Sold (1.1.14) of an inventory transaction from the parent to the subsidiary.
Cost of Goods Sold = Quantity Sold × Cost Per Item

8.5.3 Gross Profit

Gross Profit = Sales Amount (8.5.1) – Cost of Goods Sold (8.5.2)

8.5.4 Sold Percent Year$_n$

Sold Percent Year$_n$ is the percentage of the Inventory Sales Amount (8.5.1) sold by the subsidiary in year$_n$. Note: the year the inventory transaction took place is year$_0$.

8.5.5 Realized Gross Profit

Realized Gross Profit = Gross Profit (8.5.3) × Sold Percent$_n$ (8.5.4) ← where n >= 0

8.5.6 Total Sold Percent

Total Sold Percent = $\sum_{i=0}^{n}$ Sold Percent Year$_i$ (8.5.4)
Note: the year the inventory transaction took place is year$_0$.

8.5.7 Total Deferred Gross Profit

Total Deferred Gross Profit = Gross Profit (8.5.3) ×
[1 – Total Sold Percent (8.5.6)]

8.5.8 Original Deferred Gross Profit

If in the year the transaction took place (Year$_0$) then:
Original Deferred Gross Profit = Gross Profit (8.5.3) ×
[1 – Sold Percent Year$_0$ (8.5.4)]
Note: the year the inventory transaction took place is year$_0$.

8.5.9 Eliminate Cost of Goods Sold Year$_0$

Eliminate Cost of Goods Sold Year$_0$ = Cost of Goods Sold (8.5.2) +
Realized Gross Profit (8.5.5)

Note: the year the inventory transaction took place is year$_0$.

8.5.10 Eliminate Inventory

Eliminate Inventory = Total Deferred Gross Profit (8.5.7)

8.5.11 Eliminate Sales

If in the year the transaction took place (Year$_0$) then:
Eliminate Sales = Sales Amount (8.5.1)

8.5.12 Inventory Transaction Elimination Journal Entry, First Year

The Elimination Entity is a fictional entity. It is is used to help consolidate the Parent with the Subsidiary (8.1.9).
If in the year the transaction took place (Year$_0$) then:

		Debit	Credit
12/31/XX	Sales Revenue	Eliminate Sales (8.5.11)	
	Cost of Goods Sold		Eliminate Cost of Goods Sold (8.5.9)
	Inventory		Eliminate Inventory (8.5.10)

8.5.13 Eliminate Cost of Goods Sold Year$_n$

If beyond the year the transaction took place (Year$_n$ ← where n >= 1) then:
Eliminate Cost of Goods Sold Year$_n$ = Realized Gross Profit (8.5.5)

8.5.14 Eliminate Retained Earnings

If beyond the year the transaction took place (Year$_n$ ← where n >= 1) then:
Eliminate Retained Earnings = Original Deferred Gross Profit (8.5.8)

8.5.15 Inventory Transaction Elimination Journal Entry, Subsequent Years

The Elimination Entity is a fictional entity. It is is used to help consolidate the Parent with the Subsidiary (8.1.9).
If beyond the year the transaction took place (Year$_n$ ← where n >= 1) then:

		Debit	Credit
12/31/XX	Retained Earnings	Eliminate Retained Earnings (8.5.14)	
	Cost of Goods Sold		Eliminate Cost of Goods Sold (8.5.13)
	Inventory		Eliminate Inventory (8.5.10)

8.5.16 Upstream Inventory Transaction Elimination Journal Entry, Subsequent Years

The Elimination Entity is a fictional entity. It is is used to help consolidate the Parent with the Subsidiary (8.1.9).
If the inventory transaction was from the subsidiary to the parent and
If beyond the year the transaction took place (Year$_n$ ← where n >= 1) then:
Minority Interest Adjustment = Eliminate Retained Earnings (8.5.14) ×
[1 – Ownership Percentage (7.7.2)]

		Debit	Credit
12/31/XX	Retained Earnings	Minority Interest Adjustment	
	Non-Controlling Interest (8.2.2)		Minority Interest Adjustment

8.6 Intercompany Fixed Asset Transaction

If a parent sells a fixed asset to a subsidiary, or if a subsidiary sells a fixed asset to the parent, then the following steps will model the events.

8.6.1 Book Value

Book Value = Asset's Original Cost – Asset's Accumulated Depreciation

8.6.2 Gain/(Loss) on Sale

Gain/(Loss) on Sale = Selling Price – Book Value (8.6.1)

8.6.3 Percentage of Year Purchaser Held

If Current Year = Year Of Transaction then:
Percentage of Year Purchaser Held = $\frac{\text{Months Remaining In Year}}{12}$
If Current Year > Year Of Transaction then:
Percentage of Year Purchaser Held = 1.0

8.6.4 Straight-Line Depreciation Elimination Year$_n$

Straight-Line Depreciation Elimination Year$_n$ = $\frac{\text{Gain/(Loss) on Sale (8.6.2)}}{\text{New Estimated Useful Years}} \times$ Percentage of Year Purchaser Held (8.6.3)

8.6.5 Total Depreciation Elimination

Total Depreication Elimination = $\sum_{i=0}^{n}$ Straight-Line Depreciation Elimination Year$_i$ (8.6.4)
Note: the year the fixed asset transaction took place is year$_0$.

8.6.6 Eliminate Accumulated Depreciation

Eliminate Accumulated Depreciation = Original Accumulated Depreciation – Total Depreciation Elimination (8.6.5)

8.6.7 Eliminate Fixed Asset

Eliminate Fixed Asset = Asset's Original Cost – Selling Price

8.6.8 Fixed Asset Transaction Elimination Journal Entry Year$_0$

The Elimination Entity is a fictional entity. It is is used to help consolidate the Parent with the Subsidiary (8.1.9).
If in the year the transaction took place (Year$_0$) and
If Gain/(Loss) on Sale (8.6.2) >= 0 then:

		Debit	Credit
12/31/XX	PP&E	Eliminate Fixed Asset (8.6.7)	
	Gain on Sale of PP&E	Gain/(Loss) on Sale (8.6.2)	
	Depreciation Expense		Depreciation Elimination Year$_0$ (8.6.4)
	Accumulated Depreciation		Eliminate Accumulated (8.6.6)

If in the year the transaction took place (Year$_0$) and
If Gain/(Loss) on Sale (8.6.2) < 0 then:

		Debit	Credit
12/31/XX	PP&E	Eliminate Fixed Asset (8.6.7)	
	Depreciation Expense	Depreciation Elimination Year$_0$ (8.6.4)	
	Loss on Sale of PP&E		Gain/(Loss) on Sale (8.6.2)
	Accumulated Depreciation		Eliminate Accumulated (8.6.6)

8.6.9 Eliminate Retained Earnings

If beyond the year the transaction took place (Year$_n$ ← where n >= 1) then:
Eliminate Retained Earnings = Gain/(Loss) on Sale (8.6.2) – Total Depreciation Elimination (8.6.5) + Straight-Line Depreciation Elimination Year$_n$ (8.6.4)

8.6.10 Fixed Asset Transaction Elimination Journal Entry Year$_n$

The Elimination Entity is a fictional entity. It is is used to help consolidate the Parent with the Subsidiary (8.1.9).
If beyond the year the transaction took place (Year$_n$ ← where n >= 1) and
If Gain/(Loss) on Sale (8.6.2) >= 0 then:

		Debit	Credit
12/31/XX	PP&E	Eliminate Fixed Asset (8.6.7)	
	Retained Earnings	Eliminate Retained Earnings (8.6.9)	
	Depreciation Expense		Depreciation Elimination Year$_n$ (8.6.4)
	Accumulated Depreciation		Eliminate Accumulated (8.6.6)

If beyond the year the transaction took place (Year$_n$ ← where n >= 1) and
If Gain/(Loss) on Sale (8.6.2) < 0 then:

		Debit	Credit
12/31/XX	PP&E	Eliminate Fixed Asset (8.6.7)	
	Depreciation Expense	Depreciation Elimination Year$_n$ (8.6.4)	
	Retained Earnings		Eliminate Retained Earnings (8.6.9)
	Accumulated Depreciation		Eliminate Accumulated (8.6.6)

8.6.11 Upstream Fixed Asset Transaction Elimination Journal Entry, Subsequent Years

The Elimination Entity is a fictional entity. It is is used to help consolidate the Parent with the Subsidiary (8.1.9).
If the fixed asset transaction was from the subsidiary to the parent and
If beyond the year the transaction took place (Year$_n$ ← where n >= 1) then:
Minority Interest Adjustment = Eliminate Retained Earnings (8.6.9) ×
[1 – Ownership Percentage (7.7.2)]
If Gain/(Loss) on Sale (8.6.2) >= 0 then:

		Debit	Credit
12/31/XX	Retained Earnings	Minority Interest Adjustment	
	Non-Controlling Interest (8.2.2)		Minority Interest Adjustment

If Gain/(Loss) on Sale (8.6.2) < 0 then:

		Debit	Credit
12/31/XX	Non-Controlling Interest (8.2.2)	Minority Interest Adjustment	
	Retained Earnings		Minority Interest Adjustment

8.7 Intercompany Bond Transaction

If a parent purchases some of a subsidiary's bonds on the open market, or if a subsidiary purchases some of a parent's bonds on the open market, then the net effect on the consolidated statement will be an early retirement of those bonds. Note: for simplicity, discount or premium amortization is performed using the straight-line method. Also, assume all transactions occurred on the first of the month.

8.7.1 Bond Issue Quantity

The Bond Issue Quantity is the total quantity of bonds issued from which a parent or subsidiary will purchase.

8.7.2 Bond Term Months

The Bond Term Months is the total number of months the Bond Issue Quantity (8.7.1) will be outstanding.

8.7.3 Coupon Rate

The Coupon Rate is the stated rate that each of the Bond Issue Quantity (8.7.1) will pay to bond holders.

8.7.4 Issue Date

The Issue Date is the date the Bond Issue Quantity (8.7.1) was issued.

8.7.5 Proceeds

The Proceeds is the money the issuer of the Bond Issue Quantity (8.7.1) received.

8.7.6 Intercompany Purchase Quantity

The Intercompany Purchase Quantity is the number of Bond Issue Quantity (8.7.1) that was purchased by a parent or subsidiary.

8.7.7 Intercompany Purchase Date

The Intercompany Purchase Date is the date the Intercompany Purchase Quantity (8.7.6) purchased.

8.7.8 Intercompany Bond Cost

The Intercompany Bond Cost is the total paid for the Intercompany Purchase Quantity (8.7.6) bonds.

8.7.9 Age At Purchase In Months

The Age At Purchase In Months is the number of months the Bond Issue Quantity (8.7.1) was outstanding at the Intercompany Purchase Date (8.7.7).

8.7.10 Bond Purchase Percent

$$\text{Bond Purchase Percent} = \frac{\text{Intercompany Purchase Quantity (8.7.6)}}{\text{Bond Issue Quantity (8.7.1)}}$$

8.7.11 Months Intercompany Will Own

$$\begin{aligned}\text{Months Intercompany Will Own} = {} & \text{Bond Term Months (8.7.2)} - \\ & \text{Age At Purchase In Months (8.7.9)}\end{aligned}$$

8.7.12 Face Amount

$$\text{Face Amount} = \text{Bond Issue Quantity (8.7.1)} \times \$1{,}000$$

8.7.13 Premium/(Discount) Amount

$$\text{Premium/(Discount) Amount} = \text{Proceeds (8.7.5)} - \text{Face Amount (8.7.12)}$$

8.7.14 Intercompany Face Amount

$$\text{Intercompany Face Amount} = \text{Intercompany Purchase Quantity (8.7.6)} \times \$1{,}000$$

8.7.15 Intercompany Premium/(Discount) Amount

$$\begin{aligned}\text{Intercompany Premium/(Discount) Amount} = {} & \text{Intercompany Bond Cost (8.7.8)} - \\ & \text{Intercompany Face Amount (8.7.14)}\end{aligned}$$

8.7.16 Semi-Annual Interest Payment Amount

$$\text{Semi-Annual Interest Payment Amount} = \frac{\text{Face Amount (8.7.12)} \times \text{Coupon Rate (8.7.3)}}{2}$$

8.7.17 Months Owned This Year

If in the year the transaction took place (Year_0) then:

$$\text{Months Owned This Year} = 12 - \text{Purchase Date Month Number (8.7.7)} + 1$$

If beyond the year the transaction took place ($\text{Year}_n \leftarrow$ where n >= 1) then:

$$\text{Months Owned This Year} = 12$$

8.7.18 Intercompany Interest Payments

$$\begin{aligned}\text{Intercompany Interest Payments} = {} & \text{Intercompany Face Amount (8.7.14)} \times \\ & \text{Coupon Rate (8.7.3)} \times \\ & \frac{\text{Months Owned This Year (8.7.17)}}{12}\end{aligned}$$

8.7.19 Intercompany Premium/(Discount) Amortization

$$\text{Intercompany Premium/(Discount) Amortization} = \frac{\text{Intercompany Premium/(Discount) Amount (8.7.15)}}{\text{Months Intercompany Will Own (8.7.11)}} \times \text{Months Owned This Year (8.7.17)} \times -1$$

8.7.20 Interest Revenue Elimination

Interest Revenue Elimination = Intercompany Interest Payments (8.7.18) + Intercompany Premium/(Discount) Amortization (8.7.19)

8.7.21 Interest Revenue Table

Construct the following table to store all of the Interest Revenue Elimination (8.7.20) values.

Year	Interest Revenue Elimination

8.7.22 Total Previous Interest Revenue Elimination

If beyond the year the transaction took place ($\text{Year}_n \leftarrow$ where n >= 1) then:

Let m = the Intercompany Purchase Date (8.7.7) year.

Let n = the current year.

Total Previous Interest Revenue Elimination = $\sum_{i=m}^{n-1}$ Interest Revenue Elimination$_i$

8.7.23 Premium/(Discount) Amortization

$$\text{Premium/(Discount) Amortization} = \frac{\text{Premium/(Discount) Amount (8.7.13)} \times \text{Bond Purchase Percent (8.7.10)}}{\text{Bond Term Months (8.7.2)}} \times \text{Months Owned This Year (8.7.17)} \times -1$$

8.7.24 Interest Expense Elimination

Interest Expense Elimination = Intercompany Interest Payments (8.7.18) + Premium/(Discount) Amortization (8.7.23)

8.7.25 Interest Expense Table

Construct the following table to store all of the Interest Expense Elimination (8.7.24) values.

Year	Interest Expense Elimination

8.7.26 Total Previous Interest Expense Elimination

If beyond the year the transaction took place ($\text{Year}_n \leftarrow$ where n >= 1) then:

Let m = the Intercompany Purchase Date (8.7.7) year.

Let n = the current year.

Total Previous Interest Expense Elimination = $\sum_{i=m}^{n-1}$ Interest Expense Elimination$_i$

8.7.27 Intercompany Premium/(Discount) Total Amortization

$$\text{Intercompany Premium/(Discount) Total Amortization} = \frac{\text{Intercompany Premium/(Discount) Amount (8.7.15)}}{\text{Months Intercompany Will Own (8.7.11)}} \times \text{Total Months Intercompany Owned So Far} \times -1$$

8.7.28 Investment Elimination

Investment Elimination = Intercompany Bond Cost (8.7.8) + Intercompany Premium/(Discount) Total Amortization (8.7.27)

8.7.29 Discount At Purchase Date

If in the year the transaction took place ($Year_0$) and
If Premium/(Discount) Amount (8.7.13) < 0 then:

$$\text{Discount At Purchase Date} = \text{Premium/(Discount) Amount (8.7.13)} \times \text{-1} - \left[\frac{\text{Premium/(Discount) Amount (8.7.13)} \times \text{-1}}{\text{Bond Term Months (8.7.2)}} \times \text{Age At Purchase In Months (8.7.9)}\right]$$

8.7.30 Gain on Early Retirement of Debt Elimination

If in the year the transaction took place ($Year_0$) and
If Premium/(Discount) Amount (8.7.13) < 0 then:

$$\text{Gain Elimination} = \text{Intercompany Premium/(Discount) Amount (8.7.15)} \times \text{-1} - [\text{Discount At Purchase Date (8.7.29)} \times \text{Bond Purchase Percent (8.7.10)}]$$

8.7.31 Premium At Purchase Date

If in the year the transaction took place ($Year_0$) and
If Premium/(Discount) Amount (8.7.13) > 0 then:

$$\text{Premium At Purchase Date} = \text{Premium/(Discount) Amount (8.7.13)} + \left[\frac{\text{Premium/(Discount) Amount (8.7.13)}}{\text{Bond Term Months (8.7.2)}} \times \text{Age At Purchase In Months (8.7.9)}\right]$$

8.7.32 Loss on Early Retirement of Debt Elimination

If in the year the transaction took place ($Year_0$) and
If Premium/(Discount) Amount (8.7.13) > 0 then:

$$\text{Loss Elimination} = \text{Intercompany Premium/(Discount) Amount (8.7.15)} + [\text{Premium At Purchase Date (8.7.31)} \times \text{Bond Purchase Percent (8.7.10)}]$$

8.7.33 Year-End Age In Months

The Year-End Age In Months is the number of months the Bond Issue Quantity (8.7.1) was outstanding from the Issue Date (8.7.4) until Year-End.

8.7.34 Discount At Year-End

If Premium/(Discount) Amount (8.7.13) < 0 then:

$$\text{Discount At Year-End} = \text{Premium/(Discount) Amount (8.7.13)} \times \text{-1} - \left[\frac{\text{Premium/(Discount) Amount (8.7.13)} \times \text{-1}}{\text{Bond Term Months (8.7.2)}} \times \text{Year-End Age In Months (8.7.33)}\right]$$

8.7.35 Discount on Bonds Payable Elimination

If Premium/(Discount) Amount (8.7.13) < 0 then:

$$\text{Discount on Bonds Payable Elimination} = \text{Discount At Year-End (8.7.34)} \times \text{Bond Purchase Percent (8.7.10)}$$

8.7.36 Premium At Year-End

If Premium/(Discount) Amount (8.7.13) > 0 then:

$$\text{Premium At Year-End} = \text{Premium/(Discount) Amount (8.7.13)} + \left[\frac{\text{Premium/(Discount) Amount (8.7.13)}}{\text{Bond Term Months (8.7.2)}} \times \text{Year-End Age In Months (8.7.33)}\right]$$

8.7.37 Premium on Bonds Payable Elimination

If Premium/(Discount) Amount (8.7.13) > 0 then:
Premium on Bonds Payable Elimination = Premium At Year-End (8.7.36) ×
Bond Purchase Percent (8.7.10)

8.7.38 Bond Transaction Elimination Journal Entry Year$_0$

The Elimination Entity is a fictional entity. It is is used to help consolidate the Parent with the Subsidiary (8.1.9).
If in the year the transaction took place (Year$_0$) and
If Premium/(Discount) Amount (8.7.13) < 0 then:

		Debit	Credit
12/31/XX	Bonds Payable	Intercompany Face (8.7.14)	
	Interest Revenue	Revenue Elimination (8.7.20)	
	Interest Expense		Expense Elimination (8.7.24)
	Gain on Retirement		Gain (8.7.30)
	Investment in Bonds		Investment (8.7.28)
	Discount on Bonds Payable		Discount (8.7.35)

If in the year the transaction took place (Year$_0$) and
If Premium/(Discount) Amount (8.7.13) > 0 then:

		Debit	Credit
12/31/XX	Bonds Payable	Intercompany Face (8.7.14)	
	Interest Revenue	Revenue Elimination (8.7.20)	
	Loss on Retirement	Loss (8.7.32)	
	Premium on Bonds Payable	Premium (8.7.37)	
	Interest Expense		Expense Elimination (8.7.24)
	Investment in Bonds		Investment (8.7.28)

8.7.39 Retained Earnings Elimination, If Eliminated Gain

If beyond the year the transaction took place (Year$_n$ ← where n >= 1) and
If Premium/(Discount) Amount (8.7.13) < 0 then:
Retained Earnings Elimination = Gain Elimination (8.7.30) –
[Total Previous Interest Revenue Elimination (8.7.22) –
Total Previous Interest Expense Elimination (8.7.26)]

8.7.40 Retained Earnings Elimination, If Eliminated Loss

If beyond the year the transaction took place (Year$_n$ ← where n >= 1) and
If Premium/(Discount) Amount (8.7.13) > 0 then:
Retained Earnings Elimination = Loss Elimination (8.7.32) +
[Total Previous Interest Revenue Elimination (8.7.22) –
Total Previous Interest Expense Elimination (8.7.26)]

8.7.41 Bond Transaction Elimination Journal Entry Year$_n$

The Elimination Entity is a fictional entity. It is is used to help consolidate the Parent with the Subsidiary (8.1.9).
If beyond the year the transaction took place (Year$_n$ ← where n >= 1) and
If Premium/(Discount) Amount (8.7.13) < 0 then:

		Debit	Credit
12/31/XX	Bonds Payable	Intercompany Face (8.7.14)	
	Interest Revenue	Revenue Elimination (8.7.20)	
	Interest Expense		Expense Elimination (8.7.24)
	Retained Earnings		Eliminate Gain (8.7.39)
	Investment in Bonds		Investment (8.7.28)
	Discount on Bonds Payable		Discount (8.7.35)

If beyond the year the transaction took place (Year$_n$ ← where n >= 1) and
If Premium/(Discount) Amount (8.7.13) > 0 then:

		Debit	Credit
12/31/XX	Bonds Payable	Intercompany Face (8.7.14)	
	Interest Revenue	Revenue Elimination (8.7.20)	
	Premium on Bonds Payable	Premium (8.7.37)	
	Retained Earnings	Eliminate Loss (8.7.40)	
	Interest Expense		Expense Elimination (8.7.24)
	Investment in Bonds		Investment (8.7.28)

8.7.42 Upstream Gain Bond Transaction Elimination Journal Entry, Year$_n$

The Elimination Entity is a fictional entity. It is is used to help consolidate the Parent with the Subsidiary (8.1.9).
If the bond transaction was from the subsidiary to the parent and
If beyond the year the transaction took place (Year$_n$ ← where n >= 1) and
If Premium/(Discount) Amount (8.7.13) < 0 then:
Minority Interest Adjustment = Eliminate Retained Earnings (8.7.39) ×
[1 – Ownership Percentage (7.7.2)]

		Debit	Credit
12/31/XX	Retained Earnings	Minority Interest Adjustment	
	Non-Controlling Interest (8.2.2)		Minority Interest Adjustment

8.7.43 Upstream Loss Bond Transaction Elimination Journal Entry, Year$_n$

The Elimination Entity is a fictional entity. It is is used to help consolidate the Parent with the Subsidiary (8.1.9).
If the bond transaction was from the subsidiary to the parent and
If beyond the year the transaction took place (Year$_n$ ← where n >= 1) and
If Premium/(Discount) Amount (8.7.13) > 0 then:
Minority Interest Adjustment = Eliminate Retained Earnings (8.7.40) ×
[1 – Ownership Percentage (7.7.2)]

		Debit	Credit
12/31/XX	Non-Controlling Interest (8.2.2)	Minority Interest Adjustment	
	Retained Earnings		Minority Interest Adjustment

Chapter 9

Leases

Is the item being leased, or is the item really being purchased in a disquised installment sale? The advantage of recording an item transfer as an operating lease over an installment sale is the liability does not appear in the lessee's books; therefore, the debt to equity ratio is not impaired.

9.1 Lessor's Initial Direct Costs

These are direct costs incurred to originate a lease.

$$\begin{aligned}\text{Lessor's Initial Direct Costs} = &\text{ Legal fees } + \\ &\text{ Commission } + \\ &\text{ Lessee's Credit Check } + \\ &\text{ Document Preparation}\end{aligned}$$

9.2 Operating Lease Accounting

9.2.1 Operating Lease Sum Cash Flows

The cash flows might not be evenly divided. For example, the first and last month's rent might be paid in advance or the first month might be free.

Let n = Lease Term (9.3.2)
Operating Lease Sum Cash Flows = $\sum_{i=1}^{n}$ Expected Cash Receipt/Payment For Period$_i$

9.2.2 Operating Lease Rent Revenue/Expense

$$\text{Operating Lease Rent Revenue/Expense} = \frac{\text{Operating Lease Sum Cash Flows (9.2.1)}}{\text{Lease Term (9.3.2)}}$$

9.2.3 Operating Lease for Lessor: Cash Receipt

		Debit	Credit
01/01/XX	Cash	Cash Receipt	
	Unearned Rent Revenue		Cash Receipt

9.2.4 Operating Lease for Lessor: Recognize Rent Revenue

		Debit	Credit
12/31/XX	Unearned Rent Revenue	(9.2.2)	
	Rent Revenue		(9.2.2)

9.2.5 Operating Lease for Lessor: Depreciate Equipment or Building

Depreciate the equipment or building normally.

9.2.6 Operating Lease for Lessor: Lessor's Initial Direct Cost

Journal Entry

		Debit	Credit
01/01/XX	Deferred Initial Direct Cost (← An Asset)	(9.1)	
	Cash and/or A/P		(9.1)

9.2.7 Operating Lease for Lessor: Lessor's Initial Direct Cost Amortization

$$\text{Lessor's Initial Direct Cost Amortization} = \frac{\text{Lessor's Initial Direct Costs (9.2.7)}}{\text{Lease Term (9.3.2)}}$$

Journal Entry

		Debit	Credit
12/31/XX	Lease Expense	(9.2.7)	
	Deferred Initial Direct Cost		(9.2.7)

9.2.8 Operating Lease for Lessee: Cash Payment

		Debit	Credit
01/01/XX	Prepaid Rent	Cash Payment	
	Cash		Cash Payment

9.2.9 Operating Lease for Lessee: Recognize Rent Expense

		Debit	Credit
12/31/XX	Rent Expense	(9.2.2)	
	Prepaid Rent		(9.2.2)

9.3 Capital Lease Accounting

Capital Lease Accounting is a accounting method for leases which records the item being leased:

1. as an Asset for the lessee.
2. as derecognized (removed) from Assets for the lessor.

9.3.1 Lease Period

A Lease Period is the time the item is used for one Rent (9.2.2) (9.3.5) payment.

9.3.2 Lease Term

The Lease Term is the number of Lease Periods (9.3.1) in the lease contract. Warning: If the Lease Period (9.3.1) is less than a year, then some calculations require Lease Term be converted to years (e.g. Depreciation Expense and Initial Direct Cost Amortization).

9.3.3 Lessor Interest Rate

The Lessor Interest Rate is the incremental interest rate the lessor would be charged to borrow the value of the item being leased. If the Lease Period (9.3.1) is less than a year (e.g. one month), then proportionally scale down this interest rate (e.g. i/12) when it is used.

9.3.4 Lessee Interest Rate

The Lessee Interest Rate is =

1. The incremental interest rate the lessee would be charged to borrow the value of the item being leased or
2. The Lessor Interest Rate (9.3.3) if known and is less than the Lessee's incremental interest rate.

If the Lease Period (9.3.1) is less than a year (e.g. one month), then proportionally scale down this interest rate (e.g. i/12) when it is used.

9.3.5 Capital Lease Rent

Capital Lease Rent = Lease Payment (9.3.23) – Included Executory Costs (9.3.21)

9.3.6 Leased Item Fair Value

Leased Item Fair Value =
If used then Market Value.
If lessor manufactured and new then normal selling price.
If not lessor manufactured and new then lessor's cost.

9.3.7 Residual Value

The Residual Value is the estimated scrap value of the asset after its economic life ends. This is also called Unguaranteed Residual Value.

9.3.8 Guaranteed Residual Value

The Guaranteed Residual Value is a Residual Value (9.3.7) the lessee guarantees to maintain.

9.3.9 Third Party Guarantee

Either the lessor or the lesee might pay a fee to a third party to guarantee the Residual Value (9.3.7).

9.3.10 Bogus Failure To Renew Penalty

The lease contract might have a bogus extension clause which is not likely to be exercised. The failure of the lessee to accept this bogus extension clause would result in a Bogus Failure To Renew Penalty.

9.3.11 Bargain Purchase Option

A Bargain Purchase Option is an unrealistically low offer to sell the item after the Lease Term (9.3.2) ends. The offer is so unrealistically low that the lessee would be foolish to not accept it.

9.3.12 Present Value Minimum Lease Payments for Lessee

PV Minimum Lease Payments for Lessee = Capital Lease Rent (9.3.5) ×
pvad[$1, Lessee Interest Rate (9.3.4), Lease Term (9.3.2)] +
pv[Guaranteed Residual Value (9.3.8), Lessee Interest Rate, Lease Term] +
pv[Bargain Purchase Option (9.3.11), Lessee Interest Rate, Lease Term] +
pv[Bogus Failure To Renew Penalty (9.3.10), Lessee Interest Rate, Lease Term]

9.3.13 Present Value Minimum Lease Payments for Lessor

PV Minimum Lease Payments for Lessor = Capital Lease Rent (9.3.5) ×
pvad[$1, Lessor Interest Rate (9.3.3), Lease Term (9.3.2)] +
pv[Guaranteed Residual Value (9.3.8), Lessor Interest Rate, Lease Term] +
pv[Bargain Purchase Option (9.3.11), Lessor Interest Rate, Lease Term] +
pv[Third Party Guarantee (9.3.9), Lessor Interest Rate, Lease Term] +
pv[Bogus Failure To Renew Penalty (9.3.10), Lessor Interest Rate, Lease Term]

9.3.14 Total Economic Years

The Total Economic Years is the estimated total years the item being leased will provide economic value from new until scrap.

9.3.15 Remaining Economic Years

The Remaining Economic Years is the estimated remaining years the item being leased will provide economic value from now until scrap.

9.3.16 Last Quarter Economic Age

$$\text{Last Quarter Economic Age} = \text{Total Economic Years (9.3.14)} \times 0.75$$

9.3.17 Remaining Years Ratio

$$\text{Remaining Years Ratio} = \frac{\text{Lease Term (9.3.2)}}{\text{Remaining Economic Years (9.3.15)}}$$

9.3.18 Lessee Minimum Lease Payments Ratio

$$\text{Lessee Minimum Lease Payments Ratio} = \frac{\text{PV Minimum Lease Payments for Lessee (9.3.12)}}{\text{Leased Item Fair Value (9.3.6)}}$$

9.3.19 Lessor Minimum Lease Payments Ratio

$$\text{Lessor Minimum Lease Payments Ratio} = \frac{\text{PV Minimum Lease Payments for Lessor (9.3.13)}}{\text{Leased Item Fair Value (9.3.6)}}$$

9.3.20 Executory Costs

Executory Costs are costs usually paid by the owner of an asset.

$$\begin{aligned}\text{Executory Costs} = {} & \text{Insurance} + \\ & \text{Maintenance} + \\ & \text{Taxes} + \\ & \text{Other ownership costs}\end{aligned}$$

9.3.21 Included Executory Costs

Included Executory Costs are Executory Costs (9.3.20) that are added to the Capital Lease Rent (9.3.5) and then paid by the lessor.

9.3.22 Excluded Executory Costs

Excluded Executory Costs are Executory Costs (9.3.20) that are paid and expensed by the lessee.

9.3.23 Lease Payment

$$\begin{aligned}\text{Lease Payment} = {} & \text{Capital Lease Rent (9.3.5)} + \\ & \text{Included Executory Costs (9.3.21)}\end{aligned}$$

9.4 Capital Lease Tests

The first step in lease accounting is to determine if a lease is really an installment sale. If the lease is determined to really be an installment sale, then the proper accounting method for this transaction is Capital Lease Accounting (9.3).

9.4.1 Collectibility Doubtful Test

If the Lessor determines that the collectibility of rents is doubtful then:

The Collectibility Doubtful Test Passes. It is an Operating Lease (9.2) for the Lessor.

9.4.2 Unreimbursable Costs Test

If the Lessor determines that unreimbursable costs are not predictable then:

The Unreimbursable Costs Test Passes. It is an Operating Lease (9.2) for the Lessor.

9.4.3 Transfer of Ownership Test

If the item being leased stays with the lessee after the Lease Term (9.3.2), then it is a Capital Lease (9.3) for both the Lessee (9.5) and the Lessor (9.6).

9.4.4 Bargain Purchase Option Test

A Bargain Purchase Option (9.3.11) automatically results in a Capital Lease (9.3) for both the Lessee (9.5) and the Lessor (9.6).

9.4.5 Economic Life Test

After the end of the Lease Term (9.3.2), is the item's economic life almost over?

First, is the item's economic life almost over at the beginning of the lease?
If Asset's Age >= Last Quarter Economic Age (9.3.16) then:
The Economic Life Test fails. Check the other tests for Capital Lease Accounting (9.3).

If Asset's Age < Last Quarter Economic Age (9.3.16) then:
The Economic Life Test Continues. Check the second step.

Second, is the item's economic life almost over at the end of the lease?
If Remaining Years Ratio (9.3.17) >= 0.75 then:
The Economic Life Test Passes. It is a Capital Lease (9.3) for both the Lessee (9.5) and the Lessor (9.6).

If Remaining Years Ratio (9.3.17) < 0.75 then:
The Economic Life Test fails. Check the other tests for Capital Lease Accounting (9.3).

9.4.6 Recovery Of Investment Test

If Lessee Minimum Lease Payments Ratio (9.3.18) >= 0.90 then:
Capital Lease (9.3) for the Lessee (9.5).
If Lessee Minimum Lease Payments Ratio (9.3.18) < 0.90 then:
The Recovery Of Investment Test fails. Check the other tests for the Lessee (9.5).
If Lessor Minimum Lease Payments Ratio (9.3.19) >= 0.90 then:
Capital Lease (9.3) for the Lessor (9.6).
If Lessor Minimum Lease Payments Ratio (9.3.19) < 0.90 then:
The Recovery Of Investment Test fails. Check the other tests for the Lessor (9.6).

9.5 Capital Lease Accounting For Lessee

9.5.1 Lease Liability

Lease Liability is a Non-Current Liability account that stores the Lessee's commitment to pay the Lessor for the Leased Item.

9.5.2 Lessee Capitalized Amount

Lessee Capitalized Amount = Capital Lease Rent (9.3.5) ×
pvad($1, Lessee Interest Rate (9.3.4), Lease Term (9.3.2) +
pv(Bargain Purchase Option (9.3.11)), Lessee Interest Rate, Lease Term) +
pv(Guaranteed Residual Value (9.3.8)), Lessee Interest Rate, Lease Term)
If Lessee Capitalized Amount > Leased Item Fair Value (9.3.6) then:
Lessee Capitalized Amount = Leased Item Fair Value

Journal Entry

		Debit	Credit
01/01/XX	Capital Lease$_{item}$	(9.5.2)	
	Lease Liability (9.5.1)		(9.5.2)

9.5.3 Lease Liability Reduction, First Rent Payment

Since no time has lapsed on the annuity due, the first rent payment omits Interest Payable.

$$\text{Lease Liability Reduction, First Rent Payment} = \text{Lease Payment (9.3.23)} - \text{Included Executory Costs (9.3.21)}$$

9.5.4 Journal Entry, Lessee's First Rent Payment

If Included Executory Costs (9.3.21) > 0 then:

		Debit	Credit
01/01/XX	Lease Liability (9.5.1)	(9.5.3)	
	Executory Expense$_{item}$	(9.3.21)	
	Cash		(9.3.23)

If Included Executory Cost (9.3.21) = 0 then:

		Debit	Credit
01/01/XX	Lease Liability (9.5.1)	(9.5.3)	
	Cash		(9.3.23)

9.5.5 Lessee Interest Expense

$$\text{Lessee Interest Expense} = \text{Lease Liability (9.5.1) Balance} \times \text{Lessee Interest Rate (9.3.4)}$$

Journal Entry

		Debit	Credit
12/31/XX	Interest Expense	(9.5.5)	
	Interest Payable		(9.5.5)

9.5.6 Lessee Straight-Line Depreciation Denominator

If Lessee Keeps the Leased Item then:

Lessee Straight-Line Depreciation Denominator = Remaining Economic Years (9.3.15)

If Lessee Returns the Leased Item then:

Lessee Straight-Line Depreciation Denominator = Lease Term (9.3.2)

9.5.7 Lessee Depreciation Residual Value

If Lessee Keeps the Leased Item then:

Lessee Depreciation Residual Value = Residual Value (9.3.7)

If Lessee Returns the Leased Item then:

Lessee Depreciation Residual Value = Guaranteed Residual Value (9.3.8) (only [1])

9.5.8 Lessee Annual Depreciation Expense

$$\text{Lessee Annual Depreciation Expense} = \frac{\text{Capitalized Amount (9.5.2)} - \text{Lessee Depreciation Residual Value (9.5.7)}}{\text{Lessee Straight-Line Depreciation Denominator (9.5.6)}}$$

Journal Entry

		Debit	Credit
12/31/XX	Depreciation Expense	(9.5.8)	
	Accumulated Depreciation$_{item}$		(9.5.8)

9.5.9 Lease Liability Reduction, Subsequent Rent Payments

$$\text{Lease Liability Reduction, Subsequent Rent Payments} = \text{Lease Payment (9.3.23)} - [\text{Included Executory Costs (9.3.21)} + \text{Lessee Interest Expense (9.5.5)}]$$

[1] Not Third Party nor Unguaranteed

9.5.10 Journal Entry, Current Lease Liability

The current portion of Lease Liability (9.5.1) must be reported on the balance sheet.

		Debit	Credit
12/31/XX	Lease Liability	(9.5.9)	
	Current Lease Liability		(9.5.9)

9.5.11 Reversing Entry, Current Lease Liability

After the statements are printed, reverse the previous journal entry.

		Debit	Credit
12/31/XX	Current Lease Liability	(9.5.9)	
	Lease Liability		(9.5.9)

9.5.12 Journal Entry, Lessee's Subsequent Rent Payments

If Included Executory Costs (9.3.21) > 0 then:

		Debit	Credit
01/01/XX	Lease Liability (9.5.1)	(9.5.9)	
	Executory Expense$_{item}$	(9.3.21)	
	Interest Payable	(9.5.5)	
	Cash		(9.3.23)

If Included Executory Cost (9.3.21) = 0 then:

		Debit	Credit
01/01/XX	Lease Liability (9.5.1)	(9.5.9)	
	Interest Payable	(9.5.5)	
	Cash		(9.3.23)

9.6 Capital Lease Accounting For Lessor

9.6.1 Lessor Rent Calculation Include

Lessor Rent Calculation Include = Bargain Purchase Option (9.3.11) +
Residual Value (9.3.7) +
Guaranteed Residual Value (9.3.8) +
Third Party Guarantee (9.3.9)

9.6.2 Lessor Rent Calculator

Solve for either Capital Lease Rent or Lessor Interest Rate.

Leased Item Fair Value (9.3.6) = Capital Lease Rent (9.3.5) × pvad[$1, Lessor Interest Rate (9.3.3), Lease Term (9.3.2)] +
pv[Lessor Rent Calculation Include (9.6.1), Lessor Interest Rate, Lease Term]

9.6.3 Lessor Dealer's Profit

Lessor Dealer's Profit = Leased Item Fair Value (9.3.6) – Book Value

If Lessor Dealer's Profit = 0 then:
This is called a Direct Financing Lease.
If Lessor Dealer's Profit > 0 then:
This is called a Sales-Type Lease.
Calculate Lessor Sales Revenue (9.6.6) and Lessor Cost of Goods Sold (9.6.7)

9.6.4 Capital Lease: Direct Financing Lease: Initial Direct Costs

For a Direct Financing Leases, the Initial Direct Costs (9.1) are recognized over the lease term. To accomplish this, capitalize the costs to Lessor Unearned Interest Revenue (9.6.10).
Journal Entry

		Debit	Credit
01/01/XX	Lessor Unearned Interest Revenue (9.6.10)	(9.1)	
	Cash and/or A/P		(9.1)

Note: The Lessor Interest Rate is now lower. Add the Initial Direct Costs to the Leased Item Fair Value (9.3.6), and then recalculate the Lessor Interest Rate using the Lessor Rent Calculator (9.6.2).

9.6.5 Capital Lease: Sales-Type Lease: Initial Direct Costs

		Debit	Credit
01/01/XX	Selling Expenses	Lessor's Initial Direct Costs (9.1)	
	Cash and/or A/P		Lessor's Initial Direct Costs (9.1)

9.6.6 Lessor Sales Revenue

Lessor Sales Revenue = Leased Item Fair Value (9.3.6) –
pv[Residual Value (9.3.7), Lessor Interest Rate, Lease Term]

9.6.7 Lessor Cost of Goods Sold

Lessor Cost of Goods Sold = Book Value –
pv[Residual Value (9.3.7), Lessor Interest Rate, Lease Term]

9.6.8 Lease Receivable

Lease Receivable is a Non-Current Asset account that stores the Lessor's expectation to receive rents from the Lessee for the Leased Item.

9.6.9 Lessor Receivable Amount

Lessor Receivable Amount = [Capital Lease Rent (9.3.5) ×
Lease Term (9.3.2)] +
Bargain Purchase Option (9.3.11) +
Residual Value (9.3.7) +
Guaranteed Residual Value (9.3.8) +
Bogus Failure To Renew Penality (9.3.10) +
Third Party Guarantee (9.3.9)

9.6.10 Lessor Unearned Interest Revenue

Lessor Unearned Interest Revenue is a Contra Lease Receivable Account.

Lessor Unearned Interest Revenue = Lessor Receivable Amount (9.6.9) –
Leased Item Fair Value (9.3.6)

9.6.11 Lessor Lease Receivable Journal Entry

If Direct Financing Lease (9.6.3) then:

		Debit	Credit
01/01/XX	Lease Receivable (9.6.8)	(9.6.9)	
	Inventory_{item}		Leased Item Fair Value (9.3.6)
	Lessor Unearned Interest Revenue (9.6.10)		(9.6.10)

If Sales-Type Lease (9.6.3) then:

		Debit	Credit
01/01/XX	Lease Receivable (9.6.8)	(9.6.9)	
	Cost of Goods Sold	(9.6.7)	
	Sales Revenue		(9.6.6)
	Inventory_{item}		Book Value
	Lessor Unearned Interest Revenue (9.6.10)		(9.6.10)

9.6.12 Journal Entry, Rent Receipt

If Included Executory Costs (9.3.21) > 0 then:

		Debit	Credit
01/01/XX	Cash	Lease Payment (9.3.23)	
	Lease Receivable (9.6.8)		Capital Lease Rent (9.3.5)
	Executory Payable$_{item}$		Include Executory Costs (9.3.21)

If Included Executory Cost (9.3.21) = 0 then:

		Debit	Credit
01/01/XX	Cash	Lease Payment (9.3.23)	
	Lease Receivable (9.6.8)		Capital Lease Rent (9.3.5)

9.6.13 Net Lease Receivable

Net Lease Receivable = Lease Receivable (9.6.8) Balance –
Lessor Unearned Interest Revenue (9.6.10) Balance

9.6.14 Lessor Interest Revenue

Lessor Interest Revenue = Net Lease Receivable (9.6.13) ×
Lessor Interest Rate (9.3.3)

Journal Entry

		Debit	Credit
12/31/XX	Lessor Unearned Interest Revenue (9.6.10)	(9.6.14)	
	Interest Revenue		(9.6.14)

9.6.15 Journal Entry, Current Lease Receivable

The current portion of Lease Receivable (9.6.8) must be reported on the balance sheet.

		Debit	Credit
12/31/XX	Current Lease Receivable	(9.3.5)	
	Lease Receivable		(9.3.5)

9.6.16 Reversing Entry, Current Lease Liability

After the statements are printed, reverse the previous journal entry.

		Debit	Credit
12/31/XX	Lease Receivable	(9.3.5)	
	Current Lease Receivable		(9.3.5)

Chapter 10

Retirement Benefit Plans

10.1 Defined Pension Plan Fundamentals

10.1.1 Defined Benefit Plan

A Defined Benefit Plan is a retirement plan that guarantees the retirement income that pension-participating employees will receive. As a contrast, a Defined Contribution Plan is a retirement plan that both pension-participating employees and their employeer contributes to, and the retirement benefits are limited to the balance in the employee's retirement account (e.g. 401K Plan).

10.1.2 Pension Trustee

The Pension Trustee is an insurance company, trust company, or bank that specializes in Defined Benefit Plans (10.1.1). The Pension Trustee accepts and then responsibly invests Pension Contributions (10.1.15) from the firm. From these investments, pension-participating employees receive their pension benefits (10.1.16) upon retirement.

10.1.3 Actuary

An Actuary is a specialist in risk and uncertainty. Pension Trustees (10.1.2) hire Actuaries to forcast the future, namely the Projected Benefit Obligation Variables (10.1.8).

10.1.4 Vested Employee

A Vested Employee is one that has been participating in a Defined Pension Plan (10.1.1) long enough to qualify for retirement benefits.

10.1.5 Projected Benefit Obligation

The Projected Benefit Obligation is a Liability — the present value of an estimate of the liability due to all pension-participating employees. The liability due is based upon the employees' estimated salary at retirement. Also, it assumes all participating employees will become vested (10.1.4) — the conservatism constraint.

10.1.6 Accumulated Benefit Obligation

The Accumulated Benefit Obligation also is the present value of an estimate of the liability due to all pension-participating employees. However, the liability due is based upon the employees' current salaries. Like the Projected Benefit Obligation (10.1.5), it assumes all participating employees will become vested (10.1.4).

10.1.7 Vested Benefit Obligation

The Vested Benefit Obligation also is the present value of an estimate of the liability due to all pension-participating employees. Like the Accumulated Benefit Obligation (10.1.6), the liability due is based upon the employees' current salaries. However, unlike the Accumulated Benefit Obligation, it includes only those participating employees who are currently vested (10.1.4) — the lease conservative.

10.1.8 Projected Benefit Obligation Variables

Since the Projected Benefit Obligation (10.1.5) is an estimate, variation could be caused by the following:

Pension-Participating employee count	Salary amounts
Inflation rate	Retirement rate
Turnover rate	Disability rate
Mortality rate	

10.1.9 Plan Assets

The Plan Assets are the investments the Pension Trustee (10.1.2) creates with the firm's Pension Contributions (10.1.15). After an employee retires, pension benefits are paid to the employee from these investments. Whereas Plan Assets are held with the Pension Trustee, they are recognized as Assets with the firm. (Note: the firm reports the Plan Assets in the financial statement notes, not the balance sheet.)

10.1.10 Pension Expense

Pension Expense is the amount of expense reported for pensions on the income statement.

10.1.11 Settlement Rate

The Settlement Rate is the estimated time value of money for the year and is provided by an Actuary (10.1.3). The Settlement Rate is also called the Discount Rate.

10.1.12 Interest Cost

Since the Projected Benefit Obligation is a present value amount, each year it increases with the time value of money. Interest Cost represents this inflationary increase. Interest Cost is calculated by multiplying the Settlement Rate (10.1.11) times the Projected Benefit Obligation's beginning (January 1st) balance.

Interest Cost = Projected Benefit Obligation (10.1.5) Beginning Balance ×
Settlement Rate (10.1.11)

Journal Entry

		Debit	Credit
12/31/XX	Pension Expense (10.1.10)	(10.1.12)	
	Projected Benefit Obligation (10.1.5)		(10.1.12)

10.1.13 Service Cost

Service Cost is the estimated pension liability accumulated throughout the year as a result of each pension-participating employee's work. An Actuary (10.1.3) estimates the number of remaining working years for each participating employee and their ending salary. The Actuary then uses these estimates to provide the firm's Service Cost for the year.

Journal Entry

		Debit	Credit
12/31/XX	Pension Expense (10.1.10)	(10.1.13)	
	Projected Benefit Obligation (10.1.5)		(10.1.13)

10.1.14 Plan Assets Return

Since the Pension Trustee (10.1.2) is supposed to invest the firm's contributions responsibly, the Plan Assets (10.1.9) should generate positive returns. Positive returns increase Plan Assets and decrease Pension Expense (10.1.10). However, if market conditions decline (or Trustee irresponsibility occurs) and Plan Assets generate negative returns, then Plan Assets will decrease and Pension Expense will increase. The Plan Assets Return will be provided by the Pension Trustee (10.1.2).

Journal Entry, If Increase

		Debit	Credit
12/31/XX	Plan Assets (10.1.9)	(10.1.14)	
	Pension Expense (10.1.10)		(10.1.14)

Journal Entry, If Decrease

		Debit	Credit
12/31/XX	Pension Expense (10.1.10)	(10.1.14)	
	Plan Assets (10.1.9)		(10.1.14)

Note: Whereas this journal entry implies that Plan Assets Return affects Pension Expense, it is the Plan Assets Expected Return (10.6.3) that ultimately determines the Plan Assets portion of Pension Expense.

10.1.15 Pension Contributions

Pension Contributions are cash payments from the firm to the Pension Trustee (10.1.2) for the Service Cost (10.1.13) for the year.

Journal Entry

		Debit	Credit
12/31/XX	Plan Assets (10.1.9)	(10.1.15)	
	Cash		(10.1.15)

10.1.16 Benefits Paid

Benefits Paid are the monies paid by the Pension Trustee (10.1.2) to retired employees during the year. The Pension Trustee will provide this amount.

Journal Entry

		Debit	Credit
12/31/XX	Projected Benefit Obligation (10.1.5)	(10.1.16)	
	Plan Assets (10.1.9)		(10.1.16)

10.2 Prepaid/Accrued Pension Cost

Many pension accounts are not reported on the financial statements; instead, these pension accounts are closed to Prepaid/Accrued Pension Cost and reported in the notes instead. Therefore, Prepaid/Accrued Pension Cost is an off-balance-sheet account that is created just before the statements are printed. After the statements are finished printing, then reverse these closing entries.

If Prepaid/Accrued Pension Cost has a debit balance, then report Prepaid Pension Cost as a Long-term Asset on the balance sheet. If it has a credit balance, then report Accrued Pension Cost as a Long-term Liability.

10.3 Prior Service Grants

Typically, a pension plan starts after the firm has been operating for a while; therefore, retroactive service years must be credited to employees already working there. An Actuary (10.1.3) will use employees' retroactive service years to estimate the Prior Service Grants.

10.3.1 Unrecognized Prior Service Cost

Prior Service Grants (10.3) are debited to Unrecognized Prior Service Cost. Unrecognized Prior Service Cost is an off-balance-sheet Asset, representing the value of employee morale generated by providing existing employees with Prior Service Grants (10.3).

Journal Entry

		Debit	Credit
01/01/XX	Unrecognized Prior Service Cost (10.3.1)	(10.3)	
	Projected Benefit Obligation (10.1.5)		(10.3)

Note: After the Prior Service Grant, the Projected Benefit Obligation has a new beginning balance for the calculation of Interest Cost (10.1.12).

10.4 Amortization of Prior Service Grants: Straight-Line Method

Prior Service Grants (10.3) are amortized evenly over the estimated average tenure of the participating employees.

10.4.1 Amorization Prior Service Cost: Average Remaining Years

$$\text{Amortization PSC: Average Remaining Years} = \frac{\text{Prior Service Grants (10.3)}}{\text{Average Remaining Service-Years Participating Employees (10.6.12)}}$$

Journal Entry

		Debit	Credit
12/31/XX	Pension Expense (10.1.10)	(10.4.1)	
	Unrecognized Prior Service Cost (10.3.1)		(10.4.1)

10.5 Amortization Prior Service Grants: Years-of-Service Method

Prior Service Grants (10.3) are amortized over the estimated total tenure of the participating employees.

10.5.1 Number of Employees Retiring In Year y

An Actuary (10.1.3) will estimate the number of employees retiring in each of future years.

Let Number of Employees Retiring In Year$_y$ =
An estimate of the number of prior-service employees retiring in year y.

10.5.2 First Year

Let F = The estimated year the first prior-service employee retires.

10.5.3 Final Year

Let L = The estimated year the last prior-service employee retires.

10.5.4 Service-Years-for-Year-y

$$\begin{aligned}\text{Service-Years}_y &= \text{The estimated service-years for year y}\\ &= \sum_{i=y}^{L} \text{Number of Employees Retiring In Year}_i \text{ (10.5.1)}\end{aligned}$$

Service-Years Table
Use the following table to simplify the calculation of the Service-Years-for-year-y. Note: you will need to make a table for each year from the estimated year for the first (10.5.2) prior-service employee who retires to the last (10.5.3).

Year	Service-Years	
Year$_y$	Number of Employees Retiring In Year$_y$	(10.5.1)
Year$_{y+1}$	Number of Employees Retiring In Year$_{y+1}$	(10.5.1)
...	...	
Year$_{L-1}$	Number of Employees Retiring In Year$_{L-1}$	(10.5.1)
Year$_L$	Number of Employees Retiring In Year$_L$	(10.5.1)
	Service-Years$_y$ (10.5.4)	

10.5.5 Total Service-Years

The Total Service-Years is the sum of each Service-Years-for-Year-y (10.5.4) total.

$$\text{Total Service-Years} = \sum_{y=F}^{L} \text{Service-Years}_y \text{ (10.5.4)}$$

Total Service-Years Table
Use the following table to simplify the calculation of the Total Service-Years.

Year	Service-Years
Year_F	Service-Years_F
Year_{F+1}	$\text{Service-Years}_{F+1}$
...	...
Year_{L-1}	$\text{Service-Years}_{L-1}$
Year_L	Service-Years_L
	Total Service-Years (10.5.5)

10.5.6 Cost Per Service-Year

Cost Per Service-Year = Unrecognized Prior Service Cost (10.3.1) ÷
Total Service Years (10.5.5)

10.5.7 Annual Amortization For Year y

Annual Amortization For Year_y = Service-Years_y (10.5.4) ×
Cost Per Service-Year (10.5.6)

Journal Entry

		Debit	Credit
12/31/XX	Pension Expense (10.1.10)	(10.5.7)	
	Unrecognized Prior Service Cost (10.3.1)		(10.5.7)

10.6 Smoothing Gains and Losses

Fluctuations in Plan Assets Return (10.1.14) and Projected Benefit Obligation Variables (10.1.8) tend to counter-out each other. However, if an extraordinary economic event occurs, then an extreme gain or loss could follow. The FASB decided to dampen this spike with two smoothing techniques.

The first smoothing technique is to net any Plan Assets (10.1.9) gain or loss with any Projected Benefit Obligation (10.1.5) gain or loss.

10.6.1 Unrecognized Net Gain/Loss

Unrecognized Net Gain/Loss is an off-balance-sheet account used to smooth out extraordinary gains and losses in pension accounting. It is off-balance-sheet in that its balance is closed to Prepaid/Accrued Pension Cost (10.2) just before statement printing. After the statements are finished printing, then reverse this closing entry. Note: this is also called Deferred Net Gain/Loss.

10.6.2 Plan Assets Expected Rate of Return

The Plan Assets Expected Rate of Return is provided by the Pension Trustee (10.1.2) and is multiplied by the Plan Assets (10.1.9) beginning balance to calculate Plan Assets Expected Return (10.6.3).

10.6.3 Plan Assets Expected Return

The Plan Assets Expected Return is an amount destined to fluctuate minimally from year to year. Moreover, after the Unexpected Net Gain/(Loss) (10.6.4) journal entry is made, it will be the Plan Assets Expected Return that affects Pension Expense (10.1.10).

Plan Assets Expected Return = Plan Assets (10.1.9) Beginning Balance ×
Plan Assets Expected Rate of Return (10.6.2)

10.6.4 Unexpected Net Gain/(Loss)

Unexpected Net Gain/(Loss) = Plan Assets Return (10.1.14) –
Plan Assets Expected Return (10.6.3)

Journal Entry, If Unexpected Net Gain

		Debit	Credit
12/31/XX	Pension Expense (10.1.10)	(10.6.4) [1]	
	Unrecognized Net Gain/Loss (10.6.1)		(10.6.4)

Journal Entry, If Unexpected Net (Loss)

		Debit	Credit
12/31/XX	Unrecognized Net Gain/Loss (10.6.1)	(10.6.4)	
	Pension Expense (10.1.10)		(10.6.4) [1]

10.6.5 Liability Gain/(Loss)

Changes in Projected Benefit Obligation Variables (10.1.8) cause either a liability gain or loss. The Pension Trustee (10.1.2) will provide this amount.

Journal Entry, If Liability Gain

		Debit	Credit
12/31/XX	Projected Benefit Obligation (10.1.5)	(10.6.5)	
	Unrecognized Net Gain/Loss (10.6.1)		(10.6.5)

Journal Entry, If Liability (Loss)

		Debit	Credit
12/31/XX	Unrecognized Net Gain/Loss (10.6.1)	(10.6.5)	
	Projected Benefit Obligation (10.1.5)		(10.6.5)

10.6.6 Projected Benefit Obligation Corridor

The second smoothing technique is to trim off any extreme balance in Unrecognized Net Gain/Loss (10.6.1).

Projected Benefit Obligation Corridor = Projected Benefit Obligation (10.1.5) Beginning Balance × 0.10

10.6.7 Plan Assets Corridor

Plan Assets Corridor = Plan Assets (10.1.9) Beginning Balance × 0.10

10.6.8 Corridor Amount

If Projected Benefit Obligation Corridor (10.6.6) > Plan Assets Corridor (10.6.7) then:
Corridor Amount = Projected Benefit Obligation Corridor (10.6.6)

If Plan Assets Corridor (10.6.7) > Projected Benefit Obligation Corridor (10.6.6) then:
Corridor Amount = Plan Assets Corridor (10.6.7)

10.6.9 Possible Corridor Amortization

Possible Corridor Amortization = Unrecognized Net Gain/Loss (10.6.1) Beginning Balance – Corridor Amount (10.6.8)

If Possible Corridor Amortization < 0 then Smoothing Gains and Losses (10.6) is complete.

10.6.10 Participating Employees Count

The Participating Employees Count is the number of employees participating in the pension program.

Let E = The Participating Employees Count

10.6.11 Total Remaining Sevice-Years for each Participating Employee

Total Remain Service-Years for each Participating Employee =
$\sum_{i=1}^{E}$ Estimated Remaining Service-Years this Participating Employee$_i$

[1] This seems backwards because Pension Expense is derived from Plan Assets Expected Return, not Plan Assets Return.

10.6.12 Average Remaining Service-Years Participating Employees

$$\text{Average Remaining Service-Years Participating Employees} = \frac{\text{Total Remaining Service-Years for each Participating Employee (10.6.11)}}{\text{Participating Employees Count (10.6.10)}}$$

10.6.13 Corridor Amortization

$$\text{Corridor Amortization} = \frac{\text{Possible Corridor Amortization (10.6.9)}}{\text{Average Remaining Service-Years Participating Employees (10.6.12)}}$$

10.6.14 Journal Entry, If Possible Corridor Amortization (10.6.9) > 0 then:

Journal Entry, If Unrecognized Net Gain/Loss (10.6.1) has a debit balance

		Debit	Credit
12/31/XX	Pension Expense (10.1.10)	(10.6.13)	
	Unrecognized Net Gain/Loss (10.6.1)		(10.6.13)

Journal Entry, If Unrecognized Net Gain/Loss (10.6.1) has a credit balance

		Debit	Credit
12/31/XX	Unrecognized Net Gain/Loss (10.6.1)	(10.6.13)	
	Pension Expense (10.1.10)		(10.6.13)

10.7 Pension Identity Table

Defined Pension Plan Accounting (10.1.1) is error prone. Confirm that Total Assets = Total Liabilities + Total Equity by building the following table:

Assets	Liabilities
Plan Assets (10.1.9)	Projected Benefit Obligation (10.1.5)
Unrecognized Prior Service Costs (10.3)	Accrued Pension Cost (10.2)
Prepaid Pension Cost (10.2)	
(Cash) (10.1.15)	
Total Assets	Total Liabilities
	Equity
	(Pension Expense) (10.1.10)
	Unrecognized Net Gain (10.6.1)
	(Unrecognized Net Loss) (10.6.1)
	Retained Earnings
	Total Equity

10.8 Pension Closing Entries

10.8.1 Projected Benefit Obligation and Plan Assets Closing Entries

Since Projected Benefit Obligation (10.1.5) and Plan Assets (10.1.9) are not reported on the balance sheet, a closing entry is required. After the statements are finished printing, then reverse these closing entries.

Journal Entry

		Debit	Credit
12/31/XX	Projected Benefit Obligation (10.1.5)	(10.1.5) Ending Balance	
	Prepaid/Accrued Pension Cost (10.2)		(10.1.5) Ending Balance

Journal Entry

		Debit	Credit
12/31/XX	Prepaid/Accrued Pension Cost (10.2)	(10.1.9) Ending Balance	
	Plan Assets (10.1.9)		(10.1.9) Ending Balance

10.8.2 Financial Statement Reversing Entries

After printing the financial statements, then reverse the previous closing entries.

Journal Entry

		Debit	Credit
12/31/XX	Projected Benefit Obligation (10.1.5)	(10.1.5) Ending Balance	
	Prepaid/Accrued Pension Cost (10.2)		(10.1.5) Ending Balance

Journal Entry

		Debit	Credit
12/31/XX	Prepaid/Accrued Pension Cost (10.2)	(10.1.9) Ending Balance	
	Plan Assets (10.1.9)		(10.1.9) Ending Balance

10.8.3 Unrecognized Prior Service Cost Closing Entry

Since Unrecognized Prior Service Cost (10.3.1) is not reported on the balance sheet, a closing entry is required. After the statements are finished printing, then reverse this closing entry.

Journal Entry

		Debit	Credit
12/31/XX	Prepaid/Accrued Pension Cost (10.2)	(10.3.1) Ending Balance	
	Unrecognized Prior Service Cost (10.3.1)		(10.3.1) Ending Balance

10.8.4 Unrecognized Prior Service Cost Reversing Entry

After printing the financial statements, then reverse the previous closing entry.

Journal Entry

		Debit	Credit
12/31/XX	Unrecognized Prior Service Cost (10.3.1)	(10.3.1) Ending Balance	
	Prepaid/Accrued Pension Cost (10.2)		(10.3.1) Ending Balance

10.8.5 Unrecognized Net Gain/Loss Closing Entry

Since Unrecognized Net Gain/Loss (10.6.1) is not reported on the income statement, a closing entry is required. After the statements are finished printing, then reverse this closing entry.

Journal Entry, If Debit Balance

		Debit	Credit
12/31/XX	Prepaid/Accrued Pension Costs (10.2)	(10.6.1) Ending Balance	
	Unrecognized Net Gain/Loss (10.6.1)		(10.6.1) Ending Balance

Journal Entry, If Credit Balance

		Debit	Credit
12/31/XX	Unrecognized Net Gain/Loss (10.6.1)	(10.6.1) Ending Balance	
	Prepaid/Accrued Pension Costs (10.2)		(10.6.1) Ending Balance

10.8.6 Unrecognized Net Gain/Loss Reversing Entry

After printing the financial statements, then reverse the previous closing entry.

Journal Entry, If Debit Balance

		Debit	Credit
12/31/XX	Unrecognized Net Gain/Loss (10.6.1)	(10.6.1) Ending Balance	
	Prepaid/Accrued Pension Costs (10.2)		(10.6.1) Ending Balance

Journal Entry, If Credit Balance

		Debit	Credit
12/31/XX	Prepaid/Accrued Pension Costs (10.2)	(10.6.1) Ending Balance	
	Unrecognized Net Gain/Loss (10.6.1)		(10.6.1) Ending Balance

10.9 Minimum Liability

Pension liability is subject to manipulation by providing an unrealistically high Prior Service Grant (10.3), over-estimating the Plan Assets Expected Return (10.6.3), or an unrealistically positive assessment of the Projected Benefit Obligation Variables (10.1.8). To mitigate this manipulation, a Minimum Liability is calculated and a journal entry is made such that at least this Minimum Liability is reported on the Balance Sheet for pensions. Note: Minimum Liability is also called Total Minimum Liability, Minimum Pension Liability, Net Pension Liability, and Unfunded Accumulated Benefit Obligation.

10.9.1 Additional Pension Liability

Additional Pension Liability is a Long-Term Liability account. This account is used to adjust Prepaid/Accrued Pension Cost (10.2) to become the Minimum Liability (10.9).

10.9.2 Deferred Pension Cost

Deferred Pension Cost is an Intangible Asset account. It is also called Intangible Pension Asset.

10.9.3 Unfunded Accumulated Benefit Obligation

Unfunded Accumulated Benefit Obligation = Accumulated Benefit Obligation (10.1.6) Ending Balance – Plan Assets Ending Balance (before Prepaid/Accrued Cost close) (10.8.1)

10.9.4 Additional Pension Liability Ending Balance

If Prepaid/Accrued Pension Cost (10.2) Ending Balance is a credit amount then:

Additional Pension Liability Ending Balance = Unfunded Accumulated Benefit Obligation (10.9.3) – Prepaid/Accrued Pension Cost (10.2) Ending Balance

If Prepaid/Accrued Pension Cost (10.2) Ending Balance is a debit amount then:

Additional Pension Liability Ending Balance = Unfunded Accumulated Benefit Obligation (10.9.3) + Prepaid/Accrued Pension Cost (10.2) Ending Balance

If Additional Pension Liability Ending Balance < 0 then:

Additional Pension Liability Ending Balance $= 0$

10.9.5 Additional Pension Liability Adjustment

Additional Pension Liability Adjustment = Additional Pension Liability Ending Balance (10.9.4) – Additional Pension Liability (10.9.1) Beginning Balance

Journal Entry, If Additional Pension Liability Adjustment > 0

		Debit	Credit
12/31/XX	Deferred Pension Cost (10.9.2)	(10.9.5)	
	Additional Pension Liability (10.9.1)		(10.9.5)

Journal Entry, If Additional Pension Liability Adjustment < 0

		Debit	Credit
12/31/XX	Additional Pension Liability (10.9.1)	(10.9.5)	
	Deferred Pension Cost (10.9.2)		(10.9.5)

10.9.6 Excess of Additional Liability Over Unrecognized Pension Service Cost

Excess of Additional Liability Over Unrecognized Pension Service Cost is a Contra-Equity account.

10.9.7 Excess of Additional Liability Over Unrecognized Pension Service Cost Balance

Excess of Additional Liability Over Unrecognized Pension Service Cost Balance = Additional Pension Liability (10.9.1) Ending Balance – Unrecognized Prior Service Cost (10.8.3) Ending Balance (before Prepaid/Accrued Cost close)

If Excess of Additional Liability Over Unrecognized Pension Service Cost Balance < 0 then:
Excess of Additional Liability Over Unrecognized Pension Service Cost Balance = 0

10.9.8 Excess of Additional Liability Over Unrecognized Pension Service Cost Adjustment

Excess of Additional Liability Over Unrecognized Pension Service Cost Adjustment	=	Excess of Additional Liability Over Unrecognized Pension Service Cost Balance (10.9.7) Excess of Additional Liability Over Unrecognized Pension Service Cost (10.9.6) Beginning Balance –

If Excess of Additional Liability Over Unrecognized Pension Service Cost Adjustment > 0

		Debit	Credit
12/31/XX	Excess of Additional Liability Over Unrecognized Pension Service Cost	(10.9.8)	
	Deferred Pension Cost (10.9.2)		(10.9.8)

If Excess of Additional Liability Over Unrecognized Pension Service Cost Adjustment < 0

		Debit	Credit
12/31/XX	Deferred Pension Cost (10.9.2)	(10.9.8)	
	Excess of Additional Liability Over Unrecognized Pension Service Cost		(10.9.8)

10.9.9 Funded Status Reconciliation Schedule

Vested Benefit Obligation	Vested Benefit Obligation (10.1.7)
Accumulated Benefit Obligation	Accumulated Benefit Obligation (10.1.6)
Projected Benefit Obligation	Projected Benefit Obligation (10.1.5) Balance [1] (1)
Plan Assets	Plan Assets (10.1.9) Balance [1] (2)
Funded Status	(1) – (2) (3)
Unrecognized Prior Service Cost	Unrecognized Prior Service Cost (10.3.1) Balance [1] (4)
Unrecognized Net Gain/Loss	Unrecognized Net Gain/Loss (10.6.1) Balance [1] (5)
Prepaid/Accrued Pension Cost	Prepaid/Accrued Pension Cost (10.2) Balance or (3) + (4) – (5) (6)
Additional Pension Liability	Additional Pension Liability (10.9.1) Balance (7)
Net Pension Liability	(6) – (7)

10.10 Textbook Pension Problems

Accounting textbooks typically present Defined Benefit Plan (10.1.1) problems in a form using a "Formal Record" (the general ledger) and an "Informal Record" (a spreadsheet). After all of the calculations are performed, the only journal entry to the "Formal Record" is the following:

Journal Entry

		Debit	Credit
12/31/XX	Pension Expense (10.1.10)	XX.XX	
	Prepaid/Accrued Pension Cost (10.2)	XX.XX	or XX.XX
	Cash		XX.XX

These are the steps to convert the process described in this book to the journal entry required in most accounting textbooks.

10.10.1 Textbook: Populate Retained Earnings Beginning Balance

Populate a beginning Retained Earnings balance so that debits equal credits.

10.10.2 Textbook: Close Prepaid/Accrued Pension Cost

Prepaid/Accrued Pension Cost needs to start with a zero balance.

Journal Entry, If Prepaid Pension Asset

[1] Before Pension Closing Entries (10.8).

		Debit	Credit
01/01/XX	Retained Earnings	(10.2) Balance	
	Prepaid/Accrued Pension Cost (10.2)		(10.2) Balance

Journal Entry, If Accrued Pension Cost

		Debit	Credit
01/01/XX	Prepaid/Accrued Pension Cost (10.2)	(10.2) Balance	
	Retained Earnings		(10.2) Balance

10.10.3 Textbook: Perform Pension Accounting Steps

Perform the following steps:

1. Prior Service Grants (10.3)
2. Service Cost (10.1.13)
3. Interest Cost (10.1.12)
4. Plan Assets Return (10.1.14)
5. Pension Contributions (10.1.15)
6. Benefits Paid (10.1.16)
7. Amortization of Prior Service Grants (10.4) or (10.5)
8. Smoothing Gains and Losses (10.6)

10.10.4 Textbook: Confirm Pension Identity

Setup the Pension Identity Table (10.7) to audit your work.

10.10.5 Textbook: Calculate Prepaid/Accrued Journal Entry

Textbook Prepaid/Accrued = Pension Contributions (10.1.15) –
Pension Expense (10.1.10) Ending Balance

Textbook Journal Entry, If Textbook Prepaid/Accrued < 0

		Debit	Credit
12/31/XX	Pension Expense	(10.1.10) Balance	
	Prepaid/Accrued Pension Cost		Textbook Prepaid/Accrued (10.10.5)
	Cash		Pension Contributions (10.1.15)

Textbook Journal Entry, If Textbook Prepaid/Accrued > 0

		Debit	Credit
12/31/XX	Pension Expense	(10.1.10) Balance	
	Prepaid/Accrued Pension Cost	Textbook Prepaid/Accrued (10.10.5)	
	Cash		Pension Contributions (10.1.15)

Note: This journal entry is the answer to the textbook problem. Do not perform this journal entry in your records.

10.10.6 Textbook: Calculate New Prepaid/Accrued Pension Cost (10.2) Ending Balance

If the problem calls for the new Prepaid/Accrued Pension Cost Ending Balance, perform the following:

1. Projected Benefit Obligation and Plan Assets Closing Entries (10.8.1)
2. Unrecognized Prior Service Cost Closing Entry (10.8.3)
3. Unrecognized Net Gain/Loss Closing Entry (10.8.5)

10.10.7 Textbook: Confirm Pension Identity

Setup the Pension Identity Table (10.7) to audit your work.

10.10.8 Textbook: Minimum Liability

Calculate the Minimum Liability (10.9) if needed.

10.11 Postretirement Benefits, Non-Pensions Fundamentals

Postretirement Benefits, Non-Pensions includes retirement health care, life insurance, legal and tax services, tuition, day care, and housing assistance benefits. Since health care is the largest postretirement benefit, it is used for illustration.

10.11.1 Postretirement Expense

Postretirement Expense is the amount of expense reported for Postretirement Benefits, Non-Pensions on the income statement.

10.11.2 Expected Postretirement Benefit Obligation

The Expected Postretirement Benefit Obligation is the present value of an estimate of the liability due to all postretirement-participating employees. This amount is not reported in the financial statements.

10.11.3 Accumulated Postretirement Benefit Obligation

The Accumulated Postretirement Benefit Obligation is also the present value of an estimate of the liability due to all participating employees. However, the liability due is based upon only those employees that are full vested. (Some participating employees are not fully vested because they have not work enough service-years.) This amount is closed to Prepaid/Accrued Postretirement Cost (10.11.4) and reported in the notes.

10.11.4 Prepaid/Accrued Postretirement Cost

Many postretirement accounts are not reported on the financial statements; instead, they are closed to Prepaid/Accrued Postretirement Cost and reported in the notes instead. Therefore, Prepaid/Accrued Postretirement Cost is an off-balance-sheet account that is created just before the statements are printed. After the statements are finished printing, then reverse these closing entries.

If Prepaid/Accrued Postretirement Cost has a debit balance, then report Prepaid Postretirement Cost as a Long-term Asset on the balance sheet. If it has a credit balance, then report Accrued Postretirement Cost as a Long-term Liability.

10.11.5 Unrecognized Transition Amount

Unrecognized Transition Amount is an off-balance-sheet Asset representing the value of employee morale generated by providing existing employees with Postretirement Benefits, Non-Pensions. An actuary (10.1.3) will estimate the Unrecognized Transition Amount.

The firm has the option to immediately expense the Unrecognized Transition Amount to Effect of a Change in Accounting Principal. Otherwise, the Unrecognized Transition Amount is amortized to Postretirement Expense (10.11.1) over the Average Remaining Service-Years Participating Employees (10.6.12).

Journal Entry

		Debit	Credit
01/01/XX	Unrecognized Transition Amount	(10.11.5)	
	Accumulated Postretirement Benefit Obligation		(10.11.5)

10.11.6 Postretirement Plan Assets

The Postretirement Plan Assets are the investments the Pension Trustee creates with the firm's Postretirement Contributions (10.11.11). After an employee retires, postretirement benefits are paid to the employee from these investments. Whereas Postretirement Plan Assets are held with the Pension Trustee, they are recognized as Assets with the firm. (Note: the firm reports the Postretirement Plan Assets in the financial statement notes, not the balance sheet.)

10.11.7 Postretirement Service Cost

Postretirement Service Cost is the estimated postretirement liability accumulated throughout the year as a result of each postretirement-participating employee's work. An actuary (10.1.3) provides this amount.

Journal Entry

		Debit	Credit
12/31/XX	Postretirement Expense (10.11.1)	(10.11.7)	
	Accumulated Pension Benefit Obligation		(10.11.7)

10.11.8 Discount Rate

The Discount Rate is the estimated time value of money for the year and is provided by an Actuary (10.1.3). The Discount Rate should be the same as the Settlement Rate (10.1.11).

10.11.9 Postretirement Interest Cost

Since the Accumulated Postretirement Benefit Obligation is a present value amount, each year it increases with the time value of money. Postretirement Interest Cost represents this inflationary increase. Postretirement Interest Cost is calculated by multiplying the Discount Rate (10.11.8) times the Accumulated Postretirement Benefit Obligation's beginning (January 1st) balance.

$$\text{Postretirement Interest Cost} = \text{Accumulated Postretirement Benefit Obligation (10.11.3) Beginning Balance} \times \text{Discount Rate (10.11.8)}$$

Journal Entry

		Debit	Credit
12/31/XX	Postretirement Expense (10.11.1)	(10.11.9)	
	Accumulated Postretirement Benefit Obligation		(10.11.9)

10.11.10 Postretirement Plan Assets Return

Since the Pension Trustee (10.1.2) is supposed to invest the firm's contributions responsibly, the Postretirement Plan Assets (10.11.6) should generate positive returns. These positive returns are reported by the Trustee and increase the Postretirement Plan Assets and decrease the Postretirement Expense (10.11.1). However, if market conditions decline (or Trustee irresponsibility occurs) and the Postretirement Plan Assets generate negative returns, then the Postretirement Plan Assets will decrease and Postretirement Expense will increase. The Postretirement Plan Assets Return will be provided by the Pension Trustee.

Journal Entry, If Increase

		Debit	Credit
12/31/XX	Postretirement Plan Assets	(10.11.10)	
	Postretirement Expense		(10.11.10)

Journal Entry, If Decrease

		Debit	Credit
12/31/XX	Postretirement Expense	(10.11.10)	
	Postretirement Plan Assets		(10.11.10)

10.11.11 Postretirement Contributions

Postretirement Contributions are cash payments from the firm to the Pension Trustee (10.1.2) for the Postretirement Service Cost (10.11.7) for the year.

Journal Entry

		Debit	Credit
12/31/XX	Postretirement Plan Assets (10.11.6)	(10.11.11)	
	Cash		(10.11.11)

10.11.12 Postretirement Unrecognized Transition Amortization

$$\text{Postretirement Unrecognized Transition Amortization} = \frac{\text{Unrecognized Transition Amount (10.11.5) Opening Balance}}{\text{Average Remaining Service-Years Participating Employees (10.6.12)}}$$

Journal Entry

		Debit	Credit
12/31/XX	Postretirement Expense (10.11.1)	(10.11.12)	
	Unrecognized Transition Amount		(10.11.12)

10.11.13 Postretirement Benefits Paid

Benefits Paid are the monies paid by the Pension Trustee (10.1.2) to retired employees during the year for Postretirement Benefit, Non-Pension expenses. The Trustee will provide this amount.

Journal Entry

		Debit	Credit
12/31/XX	Accumulated Postretirement Benefit Obligation	(10.11.13)	
	Postretirement Plan Assets		(10.11.13)

10.11.14 Accumulated Postretirement and Retirement Plan Assets Closing Entries

Since Accumulated Postretirement Benefit Obligation (10.11.3), Postretirement Plan Assets (10.11.6), and other items not yet mentioned are not reported on the balance sheet, a closing entry is required. After the statements are finished printing, then reverse these closing entries.

Journal Entry

		Debit	Credit
12/31/XX	Accumulated Postretirement Benefit Obligation	(10.11.3) Ending Balance	
	Prepaid/Accrued Postretirement Cost (10.11.4)		(10.11.3) Ending Balance

Journal Entry

		Debit	Credit
12/31/XX	Prepaid/Accrued Postretirement Cost (10.11.4)	(10.11.6) Ending Balance	
	Postretirement Plan Assets		(10.11.6) Ending Balance

10.11.15 Unrecognized Transition Amount Closing Entries

Journal Entry

		Debit	Credit
12/31/XX	Prepaid/Accrued Postretirement Cost (10.11.4)	(10.11.5) Ending Balance	
	Unrecognized Transition Amount		(10.11.5) Ending Balance

10.11.16 Financial Statement Reversing Entries

After printing the financial statements, then reverse the previous closing entries.

Journal Entry

		Debit	Credit
12/31/XX	Accumulated Postretirement Benefit Obligation	(10.11.3) Ending Balance	
	Prepaid/Accrued Postretirement Cost (10.11.4)		(10.11.3) Ending Balance

Journal Entry

		Debit	Credit
12/31/XX	Prepaid/Accrued Postretirement Cost (10.11.4)	(10.11.6) Ending Balance	
	Postretirement Plan Assets		(10.11.6) Ending Balance

Journal Entry

		Debit	Credit
12/31/XX	Prepaid/Accrued Postretirement Cost (10.11.4)	(10.11.5) Ending Balance	
	Unrecognized Transition Amount		(10.11.5) Ending Balance

10.12 Smoothing Postretirement Gains and Losses

Fluctuations in Postretirement Plan Assets Return (10.11.10) and Accumulated Postretirement Benefit Obligation Variables tend to counter-out each other. However, if an extraordinary economic event occurs, then an extreme gain or loss could follow. The FASB decided to dampen this spike with a smoothing technique.

10.12.1 Expected Rate of Postretirement Return

The Expected Rate of Postretirement Return is provided by the Pension Trustee and is multiplied by the Postretirement Plan Assets (10.11.6) beginning balance to calculate Postretirement Plan Assets Expected Return (10.12.2).

10.12.2 Postretirement Plan Assets Expected Return

Postretirement Plan Assets Expected Return = Postretirement Plan Assets (10.11.6) Beginning Balance × Expected Rate of Postretirement Return (10.12.1)

10.12.3 Postretirement Unrecognized Net Gain/Loss

Postretirement Unrecognized Net Gain/Loss is an off-balance-sheet account used to smooth out extraordinary gains and losses in postretirement accounting. It is off-balance-sheet in that its balance is closed to Prepaid/Accrued Postretirement Cost (10.11.4) just before statement printing. After the statements are finished printing, then reverse this closing entry.

10.12.4 Postretirement Unexpected Net Gain/(Loss)

Postretirement Unexpected Net Gain/(Loss) = Postretirement Plan Assets Return (10.11.10) – Postretirement Plan Assets Expected Return (10.12.2)

Journal Entry, If Unexpected Net Gain

		Debit	Credit
12/31/XX	Postretirement Expense (10.11.1)	(10.12.4)	
	Postretirement Unrecognized Net Gain/Loss (10.12.3)		(10.12.4)

Journal Entry, If Unexpected Net (Loss)

		Debit	Credit
12/31/XX	Postretirement Unrecognized Net Gain/Loss (10.12.3)	(10.12.4)	
	Postretirement Expense (10.11.1)		(10.12.4)

10.12.5 Postretirement Liability Gain/(Loss)

Changes in Accumulated Postretirement Benefit Obligation Variables cause either a postretirement liability gain or loss.

Journal Entry, If Postretirement Liability Gain

		Debit	Credit
12/31/XX	Accumulated Postretirement Benefit Obligation	(10.12.5)	
	Postretirement Unrecognized Net Gain/Loss (10.12.3)		(10.12.5)

Journal Entry, If Postretirement Liability (Loss)

		Debit	Credit
12/31/XX	Postretirement Unrecognized Net Gain/Loss (10.12.3)	(10.12.5)	
	Accumulated Postretirement Benefit Obligation		(10.12.5)

10.12.6 Accumulated Postretirement Benefit Obligation Corridor

Accumulated Postretirement Benefit Obligation Corridor = Accumulated Postretirement Benefit Obligation Beginning Balance × 0.10

10.12.7 Postretirement Plan Assets Corridor

Postretirement Plan Assets Corridor = Postretirement Plan Assets Beginning Balance × 0.10

10.12.8 Postretirement Corridor Amount

If Accumulated Postretirement Benefit Obligation Corridor (10.12.6) > Postretirement Plan Assets Corridor (10.12.7) then:
Postretirement Corridor Amount = Accumulated Postretirement Benefit Obligation Corridor (10.12.6)

If Postretirement Plan Assets Corridor (10.12.7) > Accumulated Postretirement Benefit Obligation Corridor (10.12.6) then:
Postretirement Corridor Amount = Postretirement Plan Assets Corridor (10.12.7)

10.12.9 Possible Postretirement Corridor Amortization

Possible Postretirement Corridor Amortization = Postretirement Unrecognized Net Gain/Loss Beginning Balance (10.12.3) – Postretirement Corridor Amount (10.12.8)

If Possible Postretirement Corridor Amortization < 0 then no amortization.

10.12.10 Postretirement Corridor Amortization

$$\text{Postretirement Corridor Amortization} = \frac{\text{Possible Postretirement Corridor Amortization (10.12.9)}}{\text{Average Remaining Service-Years Participating Employees (10.6.12)}}$$

10.12.11 Journal Entry, If Possible Postretirement Corridor Amortization (10.12.9) > 0 then:

Journal Entry, If Postretirement Corridor Amount (10.12.8) = Accumulated Postretirement Corridor (10.12.6)

		Debit	Credit
12/31/XX	Postretirement Expense (10.11.1)	(10.12.10)	
	Postretirement Unrecognized Net Gain/Loss		(10.12.10)

Journal Entry, If Postretirement Corridor Amount (10.12.8) = Postretirement Plan Assets Corridor (10.12.7)

		Debit	Credit
12/31/XX	Postretirement Unrecognized Net Gain/Loss	(10.12.10)	
	Postretirement Expense (10.11.1)		(10.12.10)

10.12.12 Postretirement Unrecognized Net Gain/Loss Closing Entry

Since Postretirement Unrecognized Net Gain/Loss (10.12.3) is not reported on the income statement, a closing entry is required. After the statements are finished printing, then reverse this closing entry.

Journal Entry, If Debit Balance

		Debit	Credit
12/31/XX	Prepaid/Accrued Postretirement Costs (10.11.4)	(10.12.3) Ending Balance	
	Postretirement Unrecognized Net Gain/Loss		(10.12.3) Ending Balance

Journal Entry, If Credit Balance

		Debit	Credit
12/31/XX	Postretirement Unrecognized Net Gain/Loss	(10.12.3) Ending Balance	
	Prepaid/Accrued Postretirement Costs (10.11.4)		(10.12.3) Ending Balance

10.12.13 Postretirement Unrecognized Net Gain/Loss Reversing Entry

After printing the financial statements, then reverse the previous closing entry.

Journal Entry, If Debit Balance

		Debit	Credit
12/31/XX	Postretirement Unrecognized Net Gain/Loss	(10.12.3) Ending Balance	
	Prepaid/Accrued Postretirement Costs (10.11.4)		(10.12.3) Ending Balance

Journal Entry, If Credit Balance

		Debit	Credit
12/31/XX	Prepaid/Accrued Postretirement Costs (10.11.4)	(10.12.3) Ending Balance	
	Postretirement Unrecognized Net Gain/Loss		(10.12.3) Ending Balance

Chapter 11

Interperiod Tax

Interperiod Tax accounting is applying accrual accounting to the cash-based, income tax accounting. The difference is either a future tax liability (more taxes in the future) or a future tax asset (less taxes in the future). For example, if a firm receives cash at the end of the year for work to be performed next year, then the firm will prepay the income tax on the cash collected this year. Next year when the revenue is earned, the firm will have already paid taxes on the cash collected last year. The result is a difference between income tax payable and income tax expense. This chapter will calculate this difference and show where it is reported.

11.1 Tax Calculation

Before covering Interperiod Tax, some Tax Calculation is covered to provide context of the process.

11.1.1 Tax Base Category

The Tax Base Category is an asset or flow subject to taxes. The Tax Base Category is one of either: [1]

1. Transactions.
   (a) Sale of goods.
   (b) Purchase of goods.
   (c) Transfers of wealth.
2. Property or wealth. This includes ownership of specific kinds of property.
3. Rights.
   (a) The right to do business.
   (b) The right to work in a certain profession.
   (c) The right to move goods between countries.
4. Income.
   (a) Gross income.
   (b) Gross income net of expenses.

11.1.2 Tax Base Amount

The Tax Base Amount is the amount of a Tax Base Category (11.1.1) that is subject to taxes.

11.1.3 Tax Rate

The Tax Rate is the proportion of the Tax Base Amount (11.1.2) that is subject to the Tax Liability Amount (11.1.4).

[1] *Taxation of Business Entities*; 2008 edition; Smith, Raabe, and Maloney; page 1-4.

11.1.4 Tax Liability Amount

The Tax Liability Amount is the amount of taxes due based upon the Tax Base Amount (11.1.2). The Tax Liability Amount is calculated as an algorithm depending upon the Tax Base Category (11.1.1).

11.1.5 Average Tax Rate

$$\text{Average Tax Rate} = \frac{\text{Tax Liability Amount (11.1.6) or (11.1.7)}}{\text{Tax Base Amount (11.1.2)}}$$

11.1.6 Proportional Tax Liability Amount

The Proportional Tax Liability Amount is the Tax Liability Amount (11.1.4) applied when the Average Tax Rate (11.1.5) is constant over all Tax Base Amounts (11.1.2).

$$\text{Proportional Tax Liability Amount} = \text{Purchase Price (11.1.2)} \times \text{Sales Tax Rate (11.1.3)}$$

11.1.7 Progressive or Regressive Tax Liability Amount

A tax is progressive or regressive if the Tax Rate (11.1.3) increases (progressive) or decreases (regressive) as the Tax Base (11.1.2) increases. The Progressive or Regressive Tax Liability Amount is the Tax Liability Amount (11.1.4) applied when the Average Tax Rate (11.1.5) increases (progressive) or decreases (regressive) over all Tax Base Amounts (11.1.2).

11.1.8 Progressive or Regressive Tax Rate Schedule

Build the following tax table to calculate the Progressive or Regressive Tax Liability Amount (11.1.7). The Minimum and Maximum are Taxable Income (11.6.1).

Tax Rate Schedule					
Minimum (exclusive)	Maximum (inclusive)	Marginal Rate	Difference	Layer Amount	Tax Amount

11.1.9 Corporate 2007 Progressive or Regressive Tax Rate Schedule

Build the following tax table to calculate the Corporate 2007 Progressive or Regressive Tax Liability Amount (11.1.7).

Corporate 2007 Tax Rate Schedule					
Minimum (exclusive)	Maximum (inclusive)	Marginal Rate	Difference	Layer Amount	Tax Amount
0	50,000	15%	50,000		
50,000	75,000	25%	25,000		
75,000	100,000	34%	25,000		
100,000	335,000	39%	235,000		
335,000	10,000,000	34%	9,665,000		
10,000,000	15,000,000	35%	5,000,000		
15,000,000	18,333,333	38%	3,333,333		
18,333,333	Infinity	35%	Infinity		
					$\sum$ = (11.1.7)

11.1.10 Progressive or Regressive Tax Liability Algorithm

1 Remaining = Tax Base Amount (11.1.2)
2 For L in each layer from top to bottom:
2.1 If Remaining <= Difference_L then:
2.2 Layer Amount_L = Remaining
2.3 Tax Amount_L = Layer Amount_L × Marginal Rate_L
2.4 Remaining = 0
2.5 Goto step 3
2.6 If Remaining > Difference_L then:
2.7 Layer Amount_L = Difference_L
2.8 Tax Amount_L = Layer Amount_L × Marginal Rate_L
2.9 Remaining = Remaining - Difference_L
3 For L in each layer from top to bottom:
3.1 Tax Liability Amount (11.1.7) = Tax Liability Amount + Tax Amount_L

11.2 Permanent Differences

A Permanent Difference occurs when a transaction enters into the computation of either Pretax Accounting Income (11.3.3) or Taxable Income (11.6.1), but not both.

11.2.1 Nontaxable Revenues

Nontaxable Revenues = Muni-bond interest +
85% of dividends receivable or received +
Benefits from life insurance policies

11.2.2 Nondeductible Expenses

Nondeductible Expenses = Fines and penalties +
Premiums on life insurance policies +
Other expenses never deductible

11.2.3 Net Permanent Difference

Net Permanent Difference = Nontaxable Revenues (11.2.1) –
Nondeductible Expenses (11.2.2)

11.3 Pretax Accounting Income

11.3.1 Income Statement Revenues

Income Statement Revenues = Revenues Same GAAP and Tax +
Nontaxable Revenue (11.2.1) +
Credit Sales +
Service Performed But Not Collected +
Revenue Recognized on Previous Collections

11.3.2 Income Statement Expenses

Income Statement Expenses = Expenses Same GAAP and Tax +
Nondeductible Expenses (11.2.2) +
Estimated Warranty Costs +
Estimated Bad Debt Expense +
Accrued Wages +
Depreciation Expense

11.3.3 Pretax Accounting Income

Pretax Accounting Income = Income Statement Revenues (11.3.1) –
Income Statement Expenses (11.3.2)

11.4 Temporary Differences

A Temporary Difference occurs when the timing of a transaction enters into the computation of the Pretax Accounting Income (11.3.3) differently from the computation of the Taxable Income (11.6.1). For example, a late-term credit sale might be recorded as a revenue in the current year's financial statements, but the cash receipts will be taxed next year.

11.4.1 Temporary Difference Current Asset

$$\begin{aligned}\text{Temporary Difference Current Asset} = {} & (\text{Estimated Warranty Expense} - \text{Warranty Claims}) + \\ & (\text{Estimated Bad Debt Expense} - \text{Bad Debt Write Offs}) + \\ & (\text{Estimated Expense} - \text{Cash Paid On Previous Estimations}) + \\ & (\text{Accrued Wages} - \text{Accrued Wages Paid}) + \\ & (\text{Estimated Discontinued Operations} - \text{Discontinued Operations Realized}) + \\ & (\text{Litigation Loss Estimate} - \text{Litigation Loss Realized}) + \\ & (\text{Cash Collected In Advance} - \text{Deliveries From Cash Collected In Advance}) + \\ & (\text{Loss Recording Inventory at LCM} - \text{Realized Loss}) + \\ & [\text{Loss Carryforward} - (\text{Net Income} - \text{Loss Carryforward Balance})]\end{aligned}$$

11.4.2 Temporary Difference Noncurrent Asset

$$\text{Temporary Difference Noncurrent Asset} = \text{Unrealized Holding Loss (7.3.2)} - \text{Realized Loss}$$

11.4.3 Temporary Difference Current Liability

$$\begin{aligned}\text{Temporary Difference Current Liability} = {} & (\text{Credit Sales} - \text{Cash Collected On Credit Sales}) + \\ & (\text{Prepaid Expenses} - \text{Prepaid Consumed})\end{aligned}$$

11.4.4 Temporary Difference Noncurrent Liability

$$\begin{aligned}\text{Temporary Difference Noncurrent Liability} = {} & (\text{MACRS} - \text{Depreciation Expense}) + \\ & [\text{Unrealized Holding Gain (7.3.2)} - \text{Realized Gain}]\end{aligned}$$

11.4.5 Temporary Difference Asset

$$\begin{aligned}\text{Temporary Difference Asset} = {} & \text{Temporary Difference Current Asset (11.4.1)} + \\ & \text{Temporary Difference Noncurrent Asset (11.4.2)}\end{aligned}$$

11.4.6 Temporary Difference Liability

$$\begin{aligned}\text{Temporary Difference Liability} = {} & \text{Temporary Difference Current Liability (11.4.3)} + \\ & \text{Temporary Difference Noncurrent Liability (11.4.4)}\end{aligned}$$

11.5 Deferred Taxes

11.5.1 Deferred Tax Current Asset

$$\begin{aligned}\text{Deferred Tax Current Asset} = {} & \text{Temporary Difference Current Asset (11.4.1)} \times \\ & \text{Enacted Marginal Tax Rate (11.1.8)}\end{aligned}$$

11.5.2 Deferred Tax Noncurrent Asset

$$\begin{aligned}\text{Deferred Tax Noncurrent Asset} = {} & \text{Temporary Difference Noncurrent Asset (11.4.2)} \times \\ & \text{Enacted Marginal Tax Rate (11.1.8)}\end{aligned}$$

11.5.3 Deferred Tax Current Liability

$$\begin{aligned}\text{Deferred Tax Current Liability} = {} & \text{Temporary Difference Current Liability (11.4.3)} \times \\ & \text{Enacted Marginal Tax Rate (11.1.8)}\end{aligned}$$

11.5.4 Deferred Tax Noncurrent Liability

Deferred Tax Noncurrent Liability = Temporary Difference Noncurrent Liability (11.4.4) × Enacted Marginal Tax Rate (11.1.8)

11.5.5 Deferred Tax Asset

Deferred Tax Asset = Deferred Tax Current Asset (11.5.1) + Deferred Tax Noncurrent Asset (11.5.2)

11.5.6 Deferred Tax Liability

Deferred Tax Liability = Deferred Tax Current Liability (11.5.3) + Deferred Tax Noncurrent Liability (11.5.4)

11.6 Statement Calculations

The Taxable Income (11.6.1) is the amount the IRS uses to calculate a firm's (or individual's) income taxes due.

11.6.1 Taxable Income

Taxable Income = + Pretax Accounting Income (11.3.3)
+ Temporary Difference Asset (11.4.5)
– Temporary Difference Liability (11.4.6)
– Net Permanent Difference (11.2.3)

11.6.2 Income Tax Payable

The Income Tax Payable is also known as the Current Portion of Income Tax Expense.
Income Tax Payable = Taxable Income (11.6.1) × Current Average Tax Rate (11.1.5)

11.6.3 Deferred Portion of Income Tax Expense

Deferred Portion of Income Tax Expense = [Deferred Tax Liability (11.5.6) – Deferred Tax Asset (11.5.5)]

11.6.4 Income Tax Expense

Income Tax Expense = Current Portion of Income Tax Expense (11.6.2) + Deferred Portion of Income Tax Expense (11.6.3)

11.6.5 Interperiod Tax Journal Entry

		Debit	Credit
12/31/XX	Income Tax Expense	(11.6.4)	
	Deferred Tax Current Asset	(11.5.1)	
	Deferred Tax Noncurrent Asset	(11.5.2)	
	Deferred Tax Current Liability		(11.5.3)
	Deferred Tax Noncurrent Liability		(11.5.4)
	Income Tax Payable		(11.6.2)

11.6.6 Net Income

Net Income = Pretax Accounting Income (11.3.3) – Income Tax Expense (11.6.4)

11.7 Alternative Tax Rates

11.7.1 Nondeductibility Effective Tax Offset

$$\text{Nondeductibility Effective Tax Offset} = \frac{\text{Nondeductible Expenses (11.2.2)}}{\text{Pretax Accounting Income (11.3.3)} \times \text{Current Average Tax Rate (11.1.5)}}$$

11.7.2 Future Tax Rate Effective Tax Offset

$$\text{Future Tax Rate Effective Tax Offset} = \frac{\text{Temporary Difference Asset (11.4.5)} - \text{Temporary Difference Liability (11.4.6)}}{\{\text{Pretax Accounting Income (11.3.3)} \times [\text{Enacted Marginal Tax Rate (11.1.8)} - \text{Current Average Tax Rate (11.1.5)}]\}}$$

11.7.3 Effective Tax Rate

$$\text{Effective Tax Rate} = \frac{\text{Income Tax Expense (11.6.4)}}{\text{Pretax Accounting Income (11.3.3)}}$$

–OR–

$$\begin{aligned}\text{Effective Tax Rate} = {} & \text{Current Average Tax Rate (11.1.5)} + \\ & \text{Nondeductibility Effective Tax Offset (11.7.1)} + \\ & \text{Future Tax Rate Effective Tax Offset (11.7.2)}\end{aligned}$$

11.8 Loss Carryback/Carryforward

11.8.1 Loss Carryback Tax Benefit

$$\text{Loss Carryback Tax Benefit} = \text{Tax Paid}_{year_2} + \text{Tax Paid}_{year_1}$$

Journal Entry

		Debit	Credit
12/31/XX	Income Tax Refund Receivable	(11.8.1)	
	Benefit Due to Loss Carryback ← (Contra-Income Tax Expense)		(11.8.1)

11.8.2 Loss Carryforward, if Loss Carryback

$$\begin{aligned}\text{Loss Carryforward} = {} & \left|\text{Current Year Taxable Income}\right| \leftarrow \text{(Should be negative)} - \\ & (\text{Taxable Income}_{year_2} + \text{Taxable Income}_{year_1})\end{aligned}$$

11.8.3 Deferred Tax on Loss Carryforward

$$\begin{aligned}\text{Deferred Tax on Loss Carryforward} = {} & \text{Loss Carryforward (11.8.2) or } \left|\text{Current Year Taxable Income}\right| \times \\ & \text{Future Marginal Tax Rate (11.1.8)}\end{aligned}$$

Journal Entry

		Debit	Credit
12/31/XX	Deferred Tax Current Asset	(11.8.3)	
	Benefit Due to Loss Carryforward ← (Contra-Income Tax Expense)		(11.8.3)

Chapter 12

Foreign Transactions

When a firm buys or sells products from a foreign firm, the local currency may need to be converted to a foreign currency. Adding to the complexity, during the time between the transaction date and the settlement date, the exchange rate between the two currencies will likely have fluctuated. This chapter shows how to account for foreign currency differentials and fluctuations.

12.1 Foreign Transactions Overview

12.1.1 Denomination

The Denomination is the monetary unit the foreign currency transaction is contracted to take place in.

12.1.2 Exchange Rate

The Exchange Rate is the ratio at which one currency can be converted to another currency.

12.1.3 Indirect Exchange Rate

The Indirect Exchange Rate is an Exchange Rate (12.1.2) that maps one domestic monetary unit (like the Dollar) to X foreign units (like the Euro).

For example:
1 Dollar = 0.65 Euros
Note:
$$\text{Indirect Exchange Rate} = \frac{1}{\text{Direct Exchange Rate (12.1.4)}}$$

12.1.4 Direct Exchange Rate

The Direct Exchange Rate is an Exchange Rate (12.1.2) that maps one foreign monetary unit (like the Euro) to X domestic units (like the Dollar).

For example:
1 Euro = 1.54 Dollars
Note:
$$\text{Direct Exchange Rate} = \frac{1}{\text{Indirect Exchange Rate (12.1.3)}}$$

Note: this chapter uses the Direct Exchange Rate and the Dollar as the monetary unit. The Direct Exchange Rate and the Dollar are used because the transaction is assumed to take place from the U.S. perspective and be in the Denomination (12.1.1) of a foreign currency.

12.1.5 Transaction Date

The Transaction Date is the date the transaction takes place.

12.1.6 Settlement Date

The Settlement Date is the date the account payable is due to the vendor.

12.1.7 Balance Sheet Date

The Balance Sheet Date is an optional, intermediary date used if the firm needs to produce financial statements before the Settlement Date (12.1.6).

12.1.8 Spot Rate

The Spot Rate is the Direct Exchange Rate (12.1.4) available for an immediate transaction. Businesses, like individuals at airports traveling abroad, use brokers to convert one currency to another at the Spot Rate. The Spot Rate is higher for purchasing a foreign currency (the ask) than the Spot Rate for selling the same currency (the bid). The spread is the profit the currency broker earns. The size of the spread is a function of supply and demand of the currency.

12.1.9 Forward Contract

A Forward Contract is an agreement with the currency broker to use the Direct Exchange Rate (12.1.2) at the time of the Settlement Date (12.1.6) instead of the Spot Rate (12.1.8). The currency broker then charges a premium for the assumed risk.

12.1.10 Forward Rate

The Forward Rate is rate used if a Forward Contract (12.1.9) agreement is signed with the currency broker. The Forward Rate approaches the Spot Rate (12.1.8) as time approaches the Settlement Date (12.1.6).

12.1.11 Transaction Exchange Rate

The Transaction Exchange Rate is the Direct Exchange Rate (12.1.4) used at the Transaction Date (12.1.5). It will equal the Spot Rate (12.1.8) for that day.

12.1.12 Transaction Forward Exchange Rate

The Transaction Forward Exchange Rate is the Forward Exchange Rate (12.1.10) at the Transaction Date (12.1.5).

12.1.13 Settlement Exchange Rate

The Settlement Exchange Rate is the Direct Exchange Rate (12.1.4) at the Settlement Date (12.1.6). It will equal both the Spot Rate (12.1.8) and the Forward Rate (12.1.10) for that day.

12.1.14 Balance Exchange Rate

The Balance Exchange Rate is the Direct Exchange Rate (12.1.4) at the Balance Sheet Date (12.1.7). It will equal the Spot Rate (12.1.8) for that day.

12.1.15 Balance Forward Exchange Rate

The Balance Forward Exchange Rate is the Forward Exchange Rate (12.1.10) at the Balance Sheet Date (12.1.7).

12.1.16 Hedging

Hedging is an additional transaction used to transfer the Transaction Date (12.1.5) to Settlement Date (12.1.6), Exchange Rate (12.1.2) fluctuation risk to a professional risk-taker for a fee.

12.1.17 Transaction Amount

$$\begin{aligned}\text{Transaction Amount} = {} & \text{Quantity} \times \\ & \text{Cost Per Unit In Foreign Denomination (12.1.1)}\end{aligned}$$

12.1.18 Purchase Dollar Equivalent

Purchase Dollar Equivalent = Transaction Amount (12.1.17) ×
Transaction Exchange Rate (12.1.11)

12.2 Foreign Transactions Without Hedging

12.2.1 Immediate Payment Purchase Transaction

		Debit	Credit
XX/XX/XX	Inventory	Purchase Dollar Equivalent (12.1.18)	
	Cash		Purchase Dollar Equivalent (12.1.18)

12.2.2 Delayed Payment Purchase Transaction

		Debit	Credit
XX/XX/XX	Inventory	Purchase Dollar Equivalent (12.1.18)	
	Accounts Payable		Purchase Dollar Equivalent (12.1.18)

12.2.3 Purchase Exchange Gain/(Loss) Amount

If No Intermediary Balance Sheet Date (12.1.7) then:
Purchase Exchange Gain/(Loss) Amount = Transaction Amount (12.1.17) ×
[Transaction Exchange Rate (12.1.11) – Settlement Exchange Rate (12.1.13)]
If Exists Intermediary Balance Sheet Date (12.1.7) and today is the Balance Sheet Date then:
Purchase Exchange Gain/(Loss) Amount = Transaction Amount (12.1.17) ×
[Transaction Exchange Rate (12.1.11) – Balance Exchange Rate (12.1.14)]
If Exists Intermediary Balance Sheet Date (12.1.7) and today is the Settlement Date (12.1.6) then:
Purchase Exchange Gain/(Loss) Amount = Transaction Amount (12.1.17) ×
[Balance Exchange Rate (12.1.14) – Settlement Exchange Rate (12.1.13)]

12.2.4 Delayed Payment Exchange Gains and Losses Journal Entry

Apply this journal entry on the Settlement Date (12.1.6) and optionally as an adjusting journal entry on the Balance Sheet Date (12.1.7).

If Purchase Exchange Gain/(Loss) Amount (12.2.3) > 0 then:

		Debit	Credit
XX/XX/XX	Accounts Payable	(12.2.3)	
	Exchange Losses and Gains		(12.2.3)

If Purchase Exchange Gain/(Loss) Amount (12.2.3) < 0 then:

		Debit	Credit
XX/XX/XX	Exchange Losses and Gains	|(12.2.3)|	
	Accounts Payable		|(12.2.3)|

12.2.5 Settlement Dollar Equivalent

Settlement Dollar Equivalent = Transaction Amount (12.1.17) ×
Settlement Exchange Rate (12.1.13)

12.2.6 Delayed Payment Settlement Transaction Journal Entry

		Debit	Credit
XX/XX/XX	Accounts Payable	Settlement Dollar Equivalent (12.2.5)	
	Cash		Settlement Dollar Equivalent (12.2.5)

12.3 Forward Contract Hedging

Forward Contract (12.1.9) Hedging is a Hedging (12.1.16) technique in which the currency broker guarantees the Settlement Exchange Rate (12.1.13). In exchange for assuming the rate fluctuation risk, the currency broker charges a rate

premium.

The steps are a follows:

1. Apply the Delayed Payment Purchase Transaction (12.2.2).
2. Apply the Delayed Payment Exchange Gains and Losses Journal Entry (12.2.4) on the Balance Sheet Date (12.1.7), if needed.
3. Apply the Forward Gains and Losses Journal Entry (12.3.3) on the Balance Sheet Date (12.1.7), if needed.
4. Apply the Delayed Payment Exchange Gains and Losses Journal Entry (12.2.4) on the Settlement Date (12.1.6).
5. Apply the Forward Gains and Losses Journal Entry (12.3.3) on the Settlement Date (12.1.6).
6. Apply the Forward Settlement Transaction Journal Entry (12.3.5) on the Settlement Date (12.1.6).

12.3.1 Forward Exchange Rate Table

To help organize Forward Contract Hedging (12.3), setup the following table:

Forward Exchange Rate Table		
Date	Spot Rate	Forward Rate
Transaction		
Balance Sheet		
Settlement		

12.3.2 Forward Gain/(Loss) Amount

If No Intermediary Balance Sheet Date (12.1.7) then:
Forward Gain/(Loss) Amount = Transaction Amount (12.1.17) ×
[Settlement Exchange Rate (12.1.13) – Transaction Forward Exchange Rate (12.1.12)]
If Exists Intermediary Balance Sheet Date (12.1.7) and today is the Balance Sheet Date then:
Forward Gain/(Loss) Amount = Transaction Amount (12.1.17) ×
[Balance Forward Rate (12.1.15) – Transaction Forward Rate (12.1.12)]
If Exists Intermediary Balance Sheet Date (12.1.7) and today is the Settlement Date (12.1.6) then:
Forward Gain/(Loss) Amount = Transaction Amount (12.1.17) ×
[Settlement Exchange Rate (12.1.13) – Balance Forward Exchange Rate (12.1.15)]

12.3.3 Forward Gains and Losses Journal Entry

Apply this journal entry on the Settlement Date (12.1.6) and optionally as an adjusting journal entry on the Balance Sheet Date (12.1.7).

If Forward Gain/(Loss) Amount (12.3.2) > 0 then:

		Debit	Credit
XX/XX/XX	Foreign Currency Forward Contract (← debit balance, an Asset)	(12.3.2)	
	Forward Contract Losses and Gains		(12.3.2)

If Forward Gain/(Loss) Amount (12.3.2) < 0 then:

		Debit	Credit
XX/XX/XX	Forward Losses and Gains	|(12.3.2)|	
	Foreign Currency Forward Contract (← credit balance, a Liability)		|(12.3.2)|

12.3.4 Forward Settlement Dollar Equivalent

Forward Settlement Dollar Equivalent = Transaction Amount (12.1.17) ×
Transaction Forward Exchange Rate (12.1.12)

12.3.5 Forward Settlement Transaction Journal Entry

If Foreign Currency Forward Contract has a debit balance:

		Debit	Credit
XX/XX/XX	Accounts Payable	Credit Balance	
	Foreign Currency Forward Contract		Debit Balance
	Cash		Forward Settlement Dollar Equivalent (12.3.4)

If Foreign Currency Forward Contract has a credit balance:

		Debit	Credit
XX/XX/XX	Accounts Payable	Credit Balance	
	Foreign Currency Forward Contract	Credit Balance	
	Cash		Forward Settlement Dollar Equivalent (12.3.4)

12.4 Call Option Hedging

Call Option Hedging is a Hedging (12.1.16) technique in which the domestic purchaser buys from a foreign vendor and simultaneously buys a foreign currency call option as insurance against an unfavorable movement in exchange rates.

The steps are a follows:

1. Apply the Delayed Payment Purchase Transaction (12.2.2).
2. Apply the Call Option Purchase Transaction (12.4.1).
3. Apply the Delayed Payment Exchange Gains and Losses Journal Entry (12.2.4) on the Balance Sheet Date (12.1.7), if needed.
4. Apply the Call Option Gains and Losses Journal Entry (12.4.3) on the Balance Sheet Date (12.1.7), if needed.
5. Apply the Delayed Payment Exchange Gains and Losses Journal Entry (12.2.4) on the Settlement Date (12.1.6).
6. Apply the Call Option Gains and Losses Journal Entry (12.4.3) on the Settlement Date (12.1.6).
7. Apply the Option Call Settlement Transaction Journal Entry (12.4.6).

12.4.1 Foreign Call Option Purchase Transaction

		Debit	Credit
XX/XX/XX	Foreign Currency Option Contract (← an Asset)	Option Contract Fair Value	
	Cash		Fair Value

12.4.2 Call Option Gain/(Loss) Amount

Call Option Gain/(Loss) Amount = Option Contract Fair Value –
Foreign Currency Option Contract Debit Balance

12.4.3 Call Option Gains and Losses Journal Entry

Apply this journal entry on the Settlement Date (12.1.6) and optionally as an adjusting journal entry on the Balance Sheet Date (12.1.7).

If Call Option Gain/(Loss) Amount (12.4.2) > 0 then:

		Debit	Credit
XX/XX/XX	Foreign Currency Option Contract (← an Asset)	(12.4.2)	
	Foreign Currency Option Losses and Gains		(12.4.2)

If Call Option Gain/(Loss) Amount (12.4.2) < 0 then:

		Debit	Credit
XX/XX/XX	Foreign Currency Option Losses and Gains	|(12.4.2)|	
	Foreign Currency Option Contract (← a Liability, if Credit Balance)		|(12.4.2)|

12.4.4 Call Option Settlement Dollar Equivalent

If Strike Price < Spot Rate (12.1.8) then:

Call Option Settlement Dollar Equivalent = Transaction Amount (12.1.17) × Strike Price

If Spot Rate (12.1.8) < Strike Price then:

Call Option Settlement Dollar Equivalent = Transaction Amount (12.1.17) × Spot Rate

12.4.5 Settlement Date Call Option Contract Fair Value

Settlement Date Call Option Contract Fair Value = Transaction Amount (12.1.17) × [Spot Rate (12.1.8) – Strike Price]

12.4.6 Call Option Settlement Transaction Journal Entry

If Foreign Currency Option Contract has a Debit Balance then:

		Debit	Credit
XX/XX/XX	Accounts Payable	Credit Balance	
	Foreign Currency Option Contract		Debit Balance or (12.4.5)
	Cash		(12.4.4)

If Foreign Currency Option Contract has a Credit Balance then:

		Debit	Credit
XX/XX/XX	Accounts Payable	Credit Balance	
	Foreign Currency Option Contract	Credit Balance or |(12.4.5)|	
	Cash		(12.4.4)

Chapter 13

Partnerships

13.1 Partnership Formation

Partnerships form by having the partners contribute assets, liabilities, or talent.

13.1.1 Partner$_{partner}$ Asset$_j$

Partnership$_{partner}$ Asset$_j$ is each partner's market value of non-cash, tangible assets invested into the partnership.

13.1.2 Partner$_{partner}$ Liability$_k$

Partnership$_{partner}$ Liability$_k$ is each partner's market value of liabilities contributed into the partnership. Liabilities may be property mortgages or Accounts Payable when merging existing operations.

13.1.3 Total Investment$_{partner}$

Let n = the number of assets invested by Partner$_{partner}$.
Total Asset Investment = $\sum_{j=1}^{n}$ Partner$_{partner}$ Asset$_j$ Market Value

Let n = the number of liabilities contributed by Partner$_{partner}$.
Total Liability Contribution = $\sum_{k=1}^{n}$ Partner$_{partner}$ Liability$_k$ Market Value

Total Investment$_{partner}$ = Total Asset Investment –
Total Liability Contribution

13.1.4 Total Investment Asset$_j$

Let n = the number of Asset$_j$'s invested by all of the partners.
Total Investment Asset$_j$ = $\sum_{i=1}^{n}$ Partner$_{partner}$ Asset$_j$ Market Value

13.1.5 Total Contribution Liability$_k$

Let n = the number of Liability$_k$'s contributed by all of the partners.
Total Contribution Liability$_k$ = $\sum_{i=1}^{n}$ Partner$_{partner}$ Liability$_k$ Market Value

13.1.6 Initial Investment Table

Setup the following table to assist in the partnership formation journal entry.

Account	Partner$_1$	Partner$_2$	...	Partner$_i$	Total
Asset$_1$	Partner$_1$ Asset$_1$	Partner$_2$ Asset$_1$	...	Partner$_i$ Asset$_1$	$\sum$
...					
Asset$_j$	Partner$_1$ Asset$_j$	Partner$_2$ Asset$_j$	...	Partner$_i$ Asset$_j$	$\sum$
Liability$_1$	(Partner$_1$ Liability$_1$)	(Partner$_2$ Liability$_1$)	...	(Partner$_i$ Liability$_1$)	$\sum$
...					
Liability$_k$	(Partner$_1$ Liability$_k$)	(Partner$_2$ Liability$_k$)	...	(Partner$_i$ Liability$_k$)	$\sum$
Total	$\sum$	$\sum$		$\sum$	

13.1.7 Capital$_{partner}$

Capital$_{partner}$ is a set of Equity accounts, one for each partner.

13.1.8 Partnership Formation Journal Entry

		Debit	Credit
XX/XX/XXXX	Asset$_1$	Total Investment Asset$_1$ (13.1.4)	
	...	...	
	Asset$_j$	Total Investment Asset$_j$ (13.1.4)	
	Liability$_1$		Total Investment Liability$_1$ (13.1.5)
	...		...
	Liability$_k$		Total Investment Liability$_k$ (13.1.5)
	Capital$_1$ (13.1.7)		Total Investment Partner$_1$ (13.1.3)
	...		...
	Capital$_p$ (13.1.7)		Total Investment Partner$_p$ (13.1.3)

13.2 Partnership Contribution of Intangible Assets

A partner may contribute Intangible Assets, like special skills, prospects, or customers. These assets are awarded to the special partner's Capital (13.1.7) account.

13.2.1 Intangible Asset Value

Intangible Asset Value is the value the other partners negotiate with the special partner for the intangible added value.

13.2.2 Bonus Method

The Bonus Method may be used to award Intangible Assets (13.2.1) contributed by a special partner. The Bonus Method is to subtract the Intangible Asset Value equally from each non-bonus partner's Capital (13.1.7) account.

13.2.3 Bonus Subtracted Partner$_p$

For each non-bonus partner p:

$$\text{Bonus Subtracted Partner Partner}_p = \text{Intangible Asset Value (13.2.1)} \times \frac{\text{Compensation Rate Partner}_p \text{ (13.3.15)}}{1 - \text{Compensation Rate Partner}_{SpecialPartner}}$$

13.2.4 Bonus Method Journal Entry

For each non-bonus partner p:

		Debit	Credit
XX/XX/XXXX	Capital$_1$ (13.1.7)	Bonus Subtracted Partner$_1$ (13.2.3)	
	...	...	
	Capital$_p$ (13.1.7)	Bonus Subtracted Partner$_p$ (13.2.3)	
	Capital$_{SpecialPartner}$ (13.1.7)		Intangible Asset Value (13.2.1)

13.2.5 Goodwill Method

The Goodwill Method may be used to award Intangible Assets (13.2.1) contributed by a special partner. The Goodwill Method is to create an asset account called Goodwill (13.2.6).

13.2.6 Goodwill

Goodwill is an Asset account used to record Intangible Assets (13.2.1) contributed by a special partner. It is also used to record the loss generated when a partner withdrawals (13.7) from the partnership, receiving more cash than Capital (13.1.7) balance.

13.2.7 Goodwill Method Journal Entry

		Debit	Credit
XX/XX/XXXX	Goodwill (13.1.7)	Intangible Asset Value (13.2.1)	
	$\text{Capital}_{SpecialPartner}$ (13.1.7)		Intangible Asset Value

13.3 Partnership Operation

The partnership records revenues, expenses, gains, and losses. However, partners do not generate salary expense; instead, they make Cash Drawings (13.3.2).

13.3.1 Partnership Net Income

$$\begin{aligned}\text{Partnership Net Income} = &+ \sum \text{Revenue}_i \\ &+ \sum \text{Gain}_i \\ &- \sum \text{Expense}_i \\ &- \sum \text{Loss}_i\end{aligned}$$

13.3.2 Cash Drawing

Partners do not generate salary expense; instead, they withdraw cash from their capital account.

		Debit	Credit
XX/XX/XXXX	$\text{Capital}_{partner}$ (13.1.7)	Cash Amount	
	Cash		Cash Amount

Alternatively, the Contra-Equity account called $\text{Drawing}_{partner}$ could be used to record the withdraw. This account would then be closed to $\text{Capital}_{partner}$ at year-end.

13.3.3 Asset Investment

Partners can contibute more assets (cash) as needed.

		Debit	Credit
XX/XX/XXXX	Asset_i	Market Value	
	$\text{Capital}_{partner}$ (13.1.7)		Market Value

13.3.4 Capital Balance Time Period$_i$ for Partner$_p$

The Capital Balance Time Period$_i$ is the number of months in the year that a partner's $\text{Capital}_{partner}$ (13.1.7) Credit Balance was at a constant value. Fluctuations in value occur because of Cash Drawings (13.3.2) and Asset Investments (13.3.3).

Note:
Let n = the number of time periods for Partner$_p$.
$\sum_{i=1}^{n}$ Capital Balance Time Period$_i$ = 12

13.3.5 Capital Balance Time Period Percent$_i$ for Partner$_p$

$$\text{Capital Balance Time Period Percent}_i = \frac{\text{Capital Balance Time Period}_i \text{ (13.3.4)}}{12}$$

Note:
Let n = the number of time periods for Partner$_p$.
$\sum_{i=1}^{n}$ Capital Balance Time Period Percent$_i$ = 1.0

13.3.6 Weighted-Average Capital for Partner$_p$

The Weighted Average Capital for Partner$_p$ is this partner's weighted average Capital (13.1.7) Credit Balance.
Let n = the number of time periods for Partner$_p$.
Weighted-Average Capital for Partner$_p$ = $\sum_{i=1}^{n}$ Capital$_i$ (13.1.7) Time Period Credit Balance × Capital Balance Time Period Percent$_i$(13.3.5)

13.3.7 Weighted-Average Capital for Partner$_p$ Table

Use the following table to simplify the calculation of the Weighted-Average Capital for Partner$_p$. (13.3.6).

Invest/Draw Date	Capital Balance (1)	Time Period Percent (2)	Average Capital (1) × (2)
Date$_1$			
...			
Date$_i$			
			$\sum$ = (13.3.6)

13.3.8 Income Summary

Income Summary is a temporary account used to close each nominal account comprising Net Income (13.3.1). At year-end, debit each revenue and gain account with its account balance, and credit Income Summary of the same amount. Then credit each expense and loss account with its account balance, and debit Income Summary of the same amount. The credit balance in Income Summary will be the partnership's Net Income (13.3.1) for the year.

13.3.9 Interest Compensation Interest Rate

Typically, the partnership agreement has a stated interest rate for capital balances. This is an annual reward for each partner's intestments (13.1.3) (13.3.3). The interest rate is multiplied by each partner's Weighted-Average Capital for Partner$_p$ (13.3.6), and the resulting interest is credited to Capital$_{partner}$ (13.1.7).

13.3.10 Interest Compensation for Partner$_p$

If Income Summary (13.3.8) Credit Balance is sufficiently high then:

Interest Compensation = Weighted-Average Capital for Partner$_p$ (13.3.6) ×
Interest Compensation Interest Rate (13.3.9)

		Debit	Credit
XX/XX/XXXX	Income Summary (13.3.8)	Interest Compensation	
	Capital$_{partner}$ (13.1.7)		Interest Compensation

13.3.11 Bonus Compensation for Partner$_{manager}$

The partnership agreement may have an annual bonus credit for those partners who perform management duties. Typically, the bonus is a percentage of an excess amount of Net Income (13.3.1). However, other arrangements may be included in the partnership agreement: [1]

1. an excess amount of operating income.
2. an excess amount of revenue.
3. an excess amount of market share.
4. an improvement in income, revenue, or market share.
5. an achievement in cost control.
6. an achievement in average cost per unit.

Assuming an annual bonus of excess Net Income:

Bonus Amount = [Net Income (13.3.1) – Net Income Threshold] ×
Bonus Percent

If Bonus Amount > 0 then:

		Debit	Credit
XX/XX/XXXX	Income Summary (13.3.8)	Bonus Amount	
	Capital$_{manager}$ (13.1.7)		Bonus Amount

[1] *Advanced Accounting*; Bline, Fischer, Skekel; page 341.

13.3.12 Total Salary Compensation

Typically, the partnership agreement has an annual salary credit for each partner's labor in the partnership. However, the Total Salary Compensation must be greater than the Income Summary (13.3.8) Credit Balance in order for the entire salary credits to be awarded.

Let n = the number of partners.
Total Salary Compensation = $\sum_{i=1}^{n}$ Salary for Partner$_i$

13.3.13 Full Salary Compensation for Partner$_p$

If Total Salary Compensation (13.3.12) <= Income Summary (13.3.8) Credit Balance then:
For each partner p:

		Debit	Credit
XX/XX/XXXX	Income Summary (13.3.8)	Salary for Partner$_p$	
	Capital$_p$ (13.1.7)		Salary for Partner$_p$

13.3.14 Partial Salary Compensation for Partner$_p$

If Total Salary Compensation (13.3.12) > Income Summary (13.3.8) Credit Balance then:

Income Summary Credit Balance = Income Summary (13.3.8) Credit Balance
For each partner p:

$$\text{Partial Salary Compensation} = \text{Income Summary Credit Balance} \times \frac{\text{Salary for Partner}_p}{\text{Total Salary Compensation (13.3.12)}}$$

		Debit	Credit
XX/XX/XXXX	Income Summary (13.3.8)	Partial Salary Compensation	
	Capital$_p$ (13.1.7)		Partial Salary Compensation

Note: After all of the partners have been credited with their partial salary, Income Summary (13.3.8) should have a zero balance.

13.3.15 Residual Compensation Rate for Partner$_p$

After Net Income (13.3.1) has been distributed to the partners via Interest (13.3.10), Bonus (13.3.11), and Salary (13.3.13), then the remaining balance in Income Summary (13.3.8) is distributed to each partner based upon a predeterminded Residual Compensation Rate. Also, the Residual Compensation Rate need not be the same for Income Summary (13.3.8) Credit Balances (profitable years) vs. Income Summary debit balances (unprofitable years). In other words, some partners may bear a bigger brunt of losses than the benefit of profits.

Note 1:
Let n = the number of partners.
$\sum_{i=1}^{n}$ Residual Compensation Rate for Partner$_i$ = 1.0

Note 2: Residual Compensation Rate for Partner is also called Profit and Loss Percent.

13.3.16 Residual Compensation Distribution

If Income Summary (13.3.8) has a credit balance then:
Income Summary Credit Balance = Income Summary (13.3.8) Credit Balance
For each partner p:

$$\text{Residual Compensation} = \text{Income Summary Credit Balance} \times \text{Residual Compensation Rate for Partner}_p \text{ (13.3.15)}$$

		Debit	Credit
XX/XX/XXXX	Income Summary (13.3.8)	Residual Compensation	
	Capital$_p$ (13.1.7)		Residual Compensation

Note: After all of the partners have been credited, Income Summary (13.3.8) should have a zero balance.

13.3.17 Residual Reduction Distribution, If Loss

If Income Summary (13.3.8) has a debit balance then:
Income Summary Debit Balance = Income Summary (13.3.8) debit balance
For each partner p:
Residual Reduction = Income Summary Debit Balance ×
Residual Compensation Rate for Partner$_p$ (13.3.15)

		Debit	Credit
XX/XX/XXXX	Capital$_p$ (13.1.7)	Residual Reduction	
	Income Summary (13.3.8)		Residual Reduction

Note: After all of the partners have been debited, Income Summary (13.3.8) should have a zero balance.

13.4 Partner Addition

Adding a new partner warrants negotiating the consideration of a portion of the Residual Compensation Rate (13.3.15) in exchange for a New Investment Amount. Additionally, the new partner receives Interest Compensation for Partner$_p$ (13.3.10) and, optionally, a Salary (13.3.13) or a Bonus Compensation for Partner$_{manager}$ (13.3.11).

The existing partners also negotiate a New Investment Amount in exchange for an initial Capital (13.1.7) balance. If the New Investment Amount is less than the initial Capital balance, then the new partner is contributing special skills. On the other hand, if the New Investment Amount is greater than the initial Capital balance, then the partnership is deemed to have more value than is implied in the existing capital accounts.

13.4.1 Post-Investment Residual Compensation Rate for Partner$_p$

The Post-Investment Residual Compensation Rate for Partner$_p$ is the new Residual Compensation Rate for Partner$_p$ (13.3.15) assigned to each existing partner after a new partner is added.

For each existing partner p:
Post-Investment Residual Compensation Rate for Partner$_p$ =
Current Residual Compensation Rate$_p$ (13.3.15) –
[Current Residual Compensation Rate$_p$ (13.3.15) ×
Residual Compensation Rate for Partner$_{NewPartner}$ (13.3.15)]

13.4.2 Post-Investment Capital Total

Post-Investment Capital Total = $\sum$ Capital$_p$ (13.1.7) Credit Balance +
New Investment Amount

13.4.3 New Partner Gain/(Loss)

New Partner Gain/(Loss) = New Investment Amount –
[Post-Investment Capital Total (13.4.2) ×
Residual Compensation Rate for Partner$_{NewPartner}$ (13.3.15)]

13.4.4 New Partner Journal Entry

If New Partner Gain/(Loss) (13.4.3) = 0 then:

		Debit	Credit
XX/XX/XXXX	Cash	New Investment Amount	
	Capital$_{NewPartner}$ (13.1.7)		New Investment Amount

13.5 New Partner, Bonus Method

The Bonus Method is an option to account for adding a new partner when New Partner Gain/(Loss) (13.4.3) <> 0.

13.5.1 Capital, New Partner

Capital$_{NewPartner}$ = Post-Investment Capital Total (13.4.2) ×
Residual Compensation Rate for Partner$_{NewPartner}$ (13.3.15)

13.5.2 Capital Increase Journal Entry

If New Partner Gain/(Loss) (13.4.3) > 0 then:
For each existing partner p:
Gain Partner$_p$ = Gain/(Loss) (13.4.3) ×
Residual Compensation Rate for Partner$_p$ (13.3.15)

		Debit	Credit
XX/XX/XXXX	Cash	New Investment Amount	
	Capital$_1$ (13.1.7)		Gain Partner$_1$
	...		...
	Capital$_p$ (13.1.7)		Gain Partner$_p$
	Capital$_{NewPartner}$ (13.1.7)		Capital, New Partner (13.5.1)

13.5.3 Capital Decrease Journal Entry

If New Partner Gain/(Loss) (13.4.3) < 0 then:
For each existing partner p:
Loss Partner$_p$ = |Gain/(Loss)| (13.4.3) ×
Residual Compensation Rate for Partner$_p$ (13.3.15)

		Debit	Credit
XX/XX/XXXX	Cash	New Investment Amount	
	Capital$_1$ (13.1.7)	Loss Partner$_1$	
	...	...	
	Capital$_p$ (13.1.7)	Loss Partner$_p$	
	Capital$_{NewPartner}$ (13.1.7)		Capital, New Partner (13.5.1)

13.6 New Partner, Goodwill Method

The Goodwill Method is an option to account for adding a new partner when New Partner Gain/(Loss) (13.4.3) <> 0.

13.6.1 Goodwill Recognized

Goodwill Recognized is the debit amount to the Goodwill (13.2.6) account.

13.6.2 Goodwill Contributed

Goodwill Contributed is the value of the intangible, value-gained to the partnership contributed by the new partner.

If New Partner Gain/(Loss) (13.4.3) > 0 then:
Goodwill Contributed = 0
If the new partner is paying a premium to join, then no goodwill is contributed. However, goodwill will be recognized because the new partner is willing to pay a premium over her capital balance. The goodwill is inherent within the partnership.

If New Partner Gain/(Loss) (13.4.3) < 0 then:
Goodwill Contributed = Goodwill Recognized (13.6.1)
If the partnership is accepting a discount to entice the new partner to join, then the goodwill contributed is the goodwill recognized.

13.6.3 New Partner, Goodwill General Formula

New Investment Amount + Goodwill Contributed (13.6.2) =
Residual Compensation Rate for Partner$_{NewPartner}$ (13.3.15) ×
[Post-Investment Capital Total (13.4.2) +
Goodwill Recognized (13.6.1)]

13.6.4 Goodwill Method, Inherent Goodwill, Goodwill Recognized

If New Partner Gain/(Loss) (13.4.3) > 0 then:

New Investment Amount + Goodwill Contributed (13.6.2) =
Residual Compensation Rate for Partner$_{NewPartner}$ (13.3.15) ×
[Post-Investment Capital Total (13.4.2) +
Goodwill Recognized (13.6.1)]

Goodwill Contributed = 0

New Investment Amount + 0 =
Residual Compensation Rate for Partner$_{NewPartner}$ (13.3.15) ×
[Post-Investment Capital Total (13.4.2) +
Goodwill Recognized (13.6.1)]

Goodwill Recognized =

$$\frac{\text{New Investment Amount} - [\text{Post-Investment Total (13.4.2)} \times \text{Compensation Rate Partner}_{NewPartner} \text{ (13.3.15)}]}{\text{Compensation Rate Partner}_{NewPartner} \text{ (13.3.15)}}$$

13.6.5 Goodwill Method, Inherent Goodwill, Journal Entry

If New Partner Gain/(Loss) (13.4.3) > 0 then:
For each existing partner p:

Goodwill Partner$_p$ = Goodwill Recognized (13.6.4) ×
Residual Compensation Rate for Partner$_p$ (13.3.15)

		Debit	Credit
XX/XX/XXXX	Cash	New Investment Amount	
	Goodwill (13.1.7)	Goodwill Recognized (13.6.4) (13.6.1)	
	Capital$_{NewPartner}$ (13.1.7)		New Investment Amount
	Capital$_1$ (13.1.7)		Goodwill Partner$_1$
	...		...
	Capital$_p$ (13.1.7)		Goodwill Partner$_p$

13.6.6 Goodwill Method, Goodwill Contributed, Goodwill Recognized

If New Partner Gain/(Loss) (13.4.3) < 0 then:

New Investment Amount + Goodwill Contributed (13.6.2) =
Residual Compensation Rate for Partner$_{NewPartner}$ (13.3.15) ×
[Post-Investment Capital Total (13.4.2) +
Goodwill Recognized (13.6.1)]

Goodwill Contributed = Goodwill Recognized

New Investment Amount + Goodwill Recognized =
Residual Compensation Rate for Partner$_{NewPartner}$ (13.3.15) ×
[Post-Investment Capital Total (13.4.2) +
Goodwill Recognized]

$$\text{Goodwill Recognized} = \frac{\text{Post-Investment Capital Total (13.4.2)} - \text{New Investment Amount}}{1 - \text{Compensation Rate Partner}_{NewPartner} \text{ (13.3.15)}}$$

13.6.7 Goodwill Method, Goodwill Contributed, Journal Entry

If New Partner Gain/(Loss) (13.4.3) < 0 then:

		Debit	Credit
XX/XX/XXXX	Cash	New Investment Amount	
	Goodwill (13.1.7)	Recognized (13.6.6) (13.6.1)	
	Capital$_{NewPartner}$ (13.1.7)		New Investment Amount + (13.6.6)

13.7 Partner Withdrawal

The withdrawal of an existing partner warrants negotiating the withdrawal of all, most, or some of Capital$_{LeavingPartner}$ (13.1.7) Credit Balance. Moreover, if the remaining partners are anxious for a partner to leave, they may offer a premium over the leaving partner's capital balance as an incentive.

13.7.1 Post-Withdrawal Residual Compensation Rate for Partner$_p$

The Post-Withdrawal Residual Compensation Rate for Partner$_p$ is the new Residual Compensation Rate for Partner$_p$ (13.3.15) assigned to each remaining partner after an existing partner is withdrawn.

For each remaining partner p:

$$\text{Post-Withdrawal Residual Compensation Rate for Partner}_p = \frac{\text{Compensation Rate Partner}_p \text{ (13.3.15)}}{1 - \text{Compensation Rate Partner}_{LeavingPartner}}$$

13.7.2 Leaving Partner Gain/(Loss)

Leaving Partner Gain/(Loss) is from the leaving partner's perspective, not the partnership's.

Leaving Partner Gain/(Loss) = Leaving Amount – Capital$_{LeavingPartner}$ (13.1.7) Credit Balance

13.7.3 Leaving Partner Journal Entry

If Leaving Partner Gain/(Loss) (13.7.2) = 0 then:

		Debit	Credit
XX/XX/XXXX	Capital$_{LeavingPartner}$ (13.1.7)	Leaving Amount	
	Cash		Leaving Amount

13.8 Leaving Partner, Bonus Method

The Bonus Method is an option to account for the removal of a partner when Leaving Partner Gain/(Loss) (13.7.2) <> 0.

13.8.1 Capital Decrease Journal Entry

If the leaving partner enjoys a gain:
If Leaving Partner Gain/(Loss) (13.7.2) > 0 then:
For each existing partner p:

Loss Partner$_p$ = Gain/(Loss) (13.7.2) × Post-Withdrawal Residual Compensation Rate for Partner$_p$ (13.7.1)

		Debit	Credit
XX/XX/XXXX	Capital$_{LeavingPartner}$ (13.1.7)	Capital$_{LeavingPartner}$ Credit Balance	
	Capital$_1$ (13.1.7)	Loss Partner$_1$	
	...	...	
	Capital$_p$ (13.1.7)	Loss Partner$_p$	
	Cash		Leaving Amount

13.8.2 Capital Increase Journal Entry

If the firm enjoys a gain:
If Leaving Partner Gain/(Loss) (13.7.2) < 0 then:
For each existing partner p:

Gain Partner$_p$ = |Gain/(Loss)| (13.7.2) × Post-Withdrawal Residual Compensation Rate for Partner$_p$ (13.7.1)

		Debit	Credit
XX/XX/XXXX	Capital$_{LeavingPartner}$ (13.1.7)	Capital$_{LeavingPartner}$ Credit Balance	
	Capital$_1$ (13.1.7)		Gain Partner$_1$
	...		...
	Capital$_p$ (13.1.7)		Gain Partner$_p$
	Cash		Leaving Amount

13.9 Leaving Partner, Partial Goodwill Method

The Partial Goodwill Method is an option to account for the removal of a partner when Leaving Partner Gain/(Loss) (13.7.2) <> 0.

13.9.1 Goodwill Increase Journal Entry

If Leaving Partner Gain/(Loss) (13.7.2) $<$ 0 then:

		Debit	Credit
XX/XX/XXXX	Goodwill	|Leaving Gain/(Loss)| (13.7.2)	
	Capital$_{LeavingPartner}$		|Leaving Gain/(Loss)| (13.7.2)

		Debit	Credit
XX/XX/XXXX	Capital$_{LeavingPartner}$ (13.1.7)	Capital$_{LeavingPartner}$ Credit Balance	
	Cash		Leaving Amount

Chapter 14

Accounting Changes and Error Corrections

14.1 Retrospective Approach: Change In Accounting Principle

The Retrospective Approach refers to going back to the firm's beginning and assuming the firm began with the new Accounting Principle.

A Change in Accounting Principle is a change from one generally accepted accounting principle to another. Examples include changing:

1. an inventory item's costing method (e.g. from Average Cost to FIFO).

2. a construction project's revenue method (e.g. from Completed-Contract to Precentage-Of-Completion).

However, a change from an unacceptable principle or an incorrectly applied principle to a generally accepted accounting principle is not a Change in Accounting Principle (14.1); instead, it is a Prior-Period Error Correction (14.4). Also, changing an inventory item's costing method to LIFO requires its own section (14.7). And changing an asset's Depreciation Method (e.g. from SYD to straight-line) would seem like a Change in Accounting Principle; however, it has recently been reclassified as a Change In Accounting Estimate (14.2).

To apply the Retrospective Approach of changing an Accounting Principle, calculate the following:

14.1.1 Calculate Pretax Income

Pretax Income = Revenues – (Cost of Goods Sold + Operating Expenses)

14.1.2 New Method Total Pretax Income Prior To Previous Year

Calculate the total pretax income (14.1.1) from the firm's inception until the end of two years ago, assuming the firm used the new accounting principle.

14.1.3 Old Method Total Pretax Income Prior To Previous Year

Calculate the total pretax income (14.1.1) from the firm's inception until the end of two years ago. Note: the firm used the old accounting principle.

14.1.4 New Method Pretax Income Previous Year

Calculate the pretax income (14.1.1) for the previous year, assuming the firm used the new accounting principle.

14.1.5 Old Method Pretax Income Previous Year

Calculate the pretax income (14.1.1) for the previous year. Note: the firm used the old accounting principle.

14.1.6 New Method Pretax Income Current Year

Calculate the pretax income (14.1.1) for the current year. Note: the firm used the new accounting principle.

14.1.7 New Method Total Pretax Income At Beginning Current Year

New Method Total Pretax Income At Beginning Current Year =
New Method Total Pretax Income Prior To Previous Year (14.1.2) +
New Method Pretax Income Previous Year (14.1.4)

14.1.8 Old Method Total Pretax Income At Beginning Current Year

Old Method Total Pretax Income At Beginning Current Year =
Old Method Total Pretax Income Prior To Previous Year (14.1.3) +
Old Method Pretax Income Previous Year (14.1.5)

14.1.9 Total Pretax Income Difference

Total Pretax Income Difference =
New Method Total Pretax Income At Beginning Current Year (14.1.7) –
Old Method Total Pretax Income At Beginning Current Year (14.1.8)

14.1.10 Income Difference Tax Effect

Income Difference Tax Effect =
Total Pretax Income Difference (14.1.9) ×
Effective Tax Rate

14.1.11 Income Effect Net Of Tax

Income Effect Net Of Tax =
Total Pretax Income Difference (14.1.9) –
Income Difference Tax Effect (14.1.10)

Journal Entry, If Construction Project and Total Pretax Income Difference > 0

		Debit	Credit
01/01/XX	Construction in Process	Total Pretax Income Difference (14.1.9)	
	Deferred Tax Liability		Income Difference Tax Effect (14.1.10)
	Retained Earnings		Income Effect Net Of Tax (14.1.11)

Journal Entry, If Construction Project and Total Pretax Income Difference < 0

		Debit	Credit
01/01/XX	Deferred Tax Asset	Income Difference Tax Effect (14.1.10)	
	Retained Earnings	Income Effect Net Of Tax (14.1.11)	
	Construction in Process		Total Pretax Income Difference (14.1.9)

Journal Entry, If Inventory Costing and Total Pretax Income Difference > 0

		Debit	Credit
01/01/XX	Inventory	Total Pretax Income Difference (14.1.9)	
	Deferred Tax Liability		Income Difference Tax Effect (14.1.10)
	Retained Earnings		Income Effect Net Of Tax (14.1.11)

Journal Entry, If Inventory Costing and Total Pretax Income Difference < 0

		Debit	Credit
01/01/XX	Deferred Tax Asset	Income Difference Tax Effect (14.1.10)	
	Retained Earnings	Income Effect Net Of Tax (14.1.11)	
	Inventory		Total Pretax Income Difference (14.1.9)

14.1.12 Previous Year New Net Income

Previous Year New Net Income =
New Method Pretax Income Previous Year (14.1.4) –
[New Method Pretax Income Previous Year (14.1.4) ×
Effective Tax Rate]

14.1.13 Previous Year New Earnings Per Share

Previous Year New Earnings Per Share =
Previous Year New Net Income (14.1.12) ÷
Shares Outstanding

14.1.14 Current Year Net Income

Current Year Net Income =
New Method Pretax Income Current Year (14.1.6) –
[New Method Pretax Income Current Year (14.1.6) ×
Effective Tax Rate]

14.1.15 Current Year Earnings Per Share

Current Year Earnings Per Share =
Current Year Net Income (14.1.14) ÷
Shares Outstanding

14.1.16 Retrospective Approach: Income Statement Summary Presentation

	Current Year	Previous Year
Net Income	Current Year Net Income (14.1.14)	Previous Year New Net Income (14.1.12)
Earnings Per Share	Current Year Earnings Per Share (14.1.15)	Previous Year New Earnings Per Share (14.1.13)

14.1.17 Prior To Previous Year Difference

Prior To Previous Year Difference =
New Method Total Pretax Income Prior To Previous Year (14.1.2) –
Old Method Total Pretax Income Prior To Previous Year (14.1.3)

14.1.18 Prior To Previous Year Difference Tax Effect

Prior To Previous Year Difference Tax Effect =
Prior To Previous Year Difference (14.1.17) ×
Effective Tax Rate

14.1.19 Prior To Previous Year Difference Net Of Tax

Prior To Previous Year Difference Net Of Tax =
Prior To Previous Year Difference (14.1.17) –
Prior To Previous Year Difference Tax Effect (14.1.18)

14.1.20 Retrospective Approach: Statement of Retained Earnings Presentation

	Current Year	Previous Year
Retained Earnings, Beginning		Retained Earnings Beginning Balance (A)
Cumulative Effect of New Accounting Method		Prior To Previous Year Difference Net Of Tax (14.1.19) (B)
Adjusted Retained Earnings, Beginning	(F)	[(A) – (B)] (C)
Add: Net Income	Current Year Net Income (14.1.14) (G)	Previous Year New Net Income (14.1.12) (D)
Deduct: Dividends	Current Year Dividends (H)	Previous Year Dividends (E)
Retained Earnings, Ending	(F) + (G) – (H)	[(C) + (D) – (E)] (F)

14.2 Prospective Approach: Change In Accounting Estimate

The Prospective Approach refers to not going back to the firm's beginning and changing prior accounting periods. Only the current period and (maybe) future periods are affected. Estimate changes are normal and common. Describe in the Notes the effect on:

1. Income Before Extraordinary Items (IBEI).
2. Net Income.
3. per-share amounts of IBEI and Net Income.

14.2.1 Change In Accounting Estimate: Current Period Only

A change in an estimate that affects the current accounting period only (e.g. adjusting the Allowance for Doubtful Accounts) is accounted for in the usual manner.

14.2.2 Change In Accounting Estimate: Current and Future Periods

Examples of changes in estimates that affect both the current accounting period and future periods are:

1. changing the Estimated Life of an Asset.
2. changing the Estimated Residual Value of an Asset.
3. changing the Depreciation Method of an Asset.

The process to change the Depreciation Method is to start a new Depreciation Schedule using the current Book Value. Describe in the Notes the effect on:

1. Income Before Extraordinary Items (IBEI).
2. Net Income.
3. per-share amounts of IBEI and Net Income.

14.2.3 Ambiguous Change In Accounting Principle or Estimate

If it is not clear whether an accounting change is a change in principle or a change in estimate, treat it as a change in estimate. For example, it is a change in estimate if the purchase of tools have always been expensed, and it now seems prudent to start capitalizing these tools.

14.3 Prior-Period Error Corrections: Not Affecting Net Income

If a prior-period error was the misclassification of an account (e.g. Accounts Receivable instead of Notes Receivable), then the remedy is:

1. Journal Entry the correction.
2. Have the Comparative Balance Sheet reflect the correction.
3. Disclose the error in the Notes, acknowledging no impact on Net Income.

14.4 Prior-Period Error Corrections: Under-Reporting an Expense

If an expense went under-reported in a prior period:

1. Make the Retained Earnings Correction (14.4.2) and the Deferred Tax Liability Correction (14.4.3).
2. Retrospectively restate up to the last three Income Statements and the last two Balance Sheets comparatively.
3. Include the Prior Period Adjustment in the Statement of Retained Earnings.
4. Describe in the Notes the effect on:
   (a) Cost of Goods Sold
   (b) Income Before Extraordinary Items (IBEI).
   (c) Net Income.
   (d) per-share amounts of IBEI and Net Income.

14.4.1 Contra-Asset/Liability$_{item}$

Contra-Asset/Liability$_{item}$ refers to the Balance Sheet account credited in an expense transaction (most likely an Asset's Accumulated Depreciation).

14.4.2 Retained Earnings Correction

Retained Earnings Correction =
Expense Omission × (1 – Effective Tax Rate)

14.4.3 Deferred Tax Liability Correction

Deferred Tax Liability Correction =
Expense Omission × Effective Tax Rate

Retained Earnings Journal Entry

		Debit	Credit
XX/XX/XX	Retained Earnings	Retained Earnings Correction (14.4.2)	
	Deferred Tax Liability	Deferred Tax Liability Correction (14.4.3)	
	Contra-Asset/Liability$_{item}$ (14.4.1)		Expense Omission

14.4.4 Error Correction Method, Statement of Retained Earnings Presentation

Retained Earnings, 1/1/XX		Retained Earnings Beginning Balance (A)
Prior Period Adjustment	Expense Omission (1)	
Less: Tax Reduction	Deferred Tax Liability Correction (14.4.3) (2)	[(1) – (2)] (B)
Adjusted Retained Earnings, 1/1/XX		[(A) – (B)] (C)
Add: Net Income		Net Income
Deduct: Dividends		Dividends
Retained Earnings, 12/31/XX		(C) + Net Income – Dividends

14.5 Error Correction: Ending Inventory Misstatement

If the periodic inventory system is used, then the ending Inventory count affects Cost Of Goods Sold and subsequently Retained Earnings for the following year. However, following years after next will be correct because of the counter-balancing self-correction.

14.5.1 Inventory Overstated

Here is the chain of events if ending Inventory is overstated:

		Revenue
	Beginning Inventory	– Cost of Goods Sold ⇓
+	Purchases	Gross Margin ⇑
	Goods Available	– Operating Expenses
–	Ending Inventory ⇑	Pretax Income ⇑
	Cost of Goods Sold ⇓	∴ Net Income ⇑
		∴ Retained Earnings ⇑

14.5.2 Inventory Overstated: Retained Earnings Correction

Retained Earnings Correction =
Inventory Overstated × (1 – Effective Tax Rate)

14.5.3 Inventory Overstated: Income Tax Payable Correction

Income Tax Payable Correction =
Inventory Overstated × Effective Tax Rate

Retained Earnings Journal Entry

		Debit	Credit
01/01/XX	Retained Earnings	Retained Earnings Correction (14.5.2)	
	Income Tax Payable	Income Tax Payable Correction (14.5.3)	
	Inventory		Inventory Overstated

14.5.4 Inventory Understated

Here is the chain of events if ending Inventory is understated:

			Revenue
	Beginning Inventory	–	Cost of Goods Sold ⇑
+	Purchases		Gross Margin ⇓
	Goods Available	–	Operating Expenses
–	Ending Inventory ⇓		Pretax Income ⇓
	Cost of Goods Sold ⇑	∴	Net Income ⇓
		∴	Retained Earnings ⇓

14.5.5 Inventory Understated: Retained Earnings Correction

Retained Earnings Correction =
Inventory Understated × (1 – Effective Tax Rate)

14.5.6 Inventory Understated: Income Tax Payable Correction

Income Tax Payable Correction =
Inventory Understated × Effective Tax Rate

Retained Earnings Journal Entry

		Debit	Credit
01/01/XX	Inventory	Inventory Understated	
	Retained Earnings		Retained Earnings Correction (14.5.5)
	Income Tax Payable		Income Tax Payable Correction (14.5.6)

14.6 Change In Reporting Entity

14.7 Inventory Costing To LIFO Approach

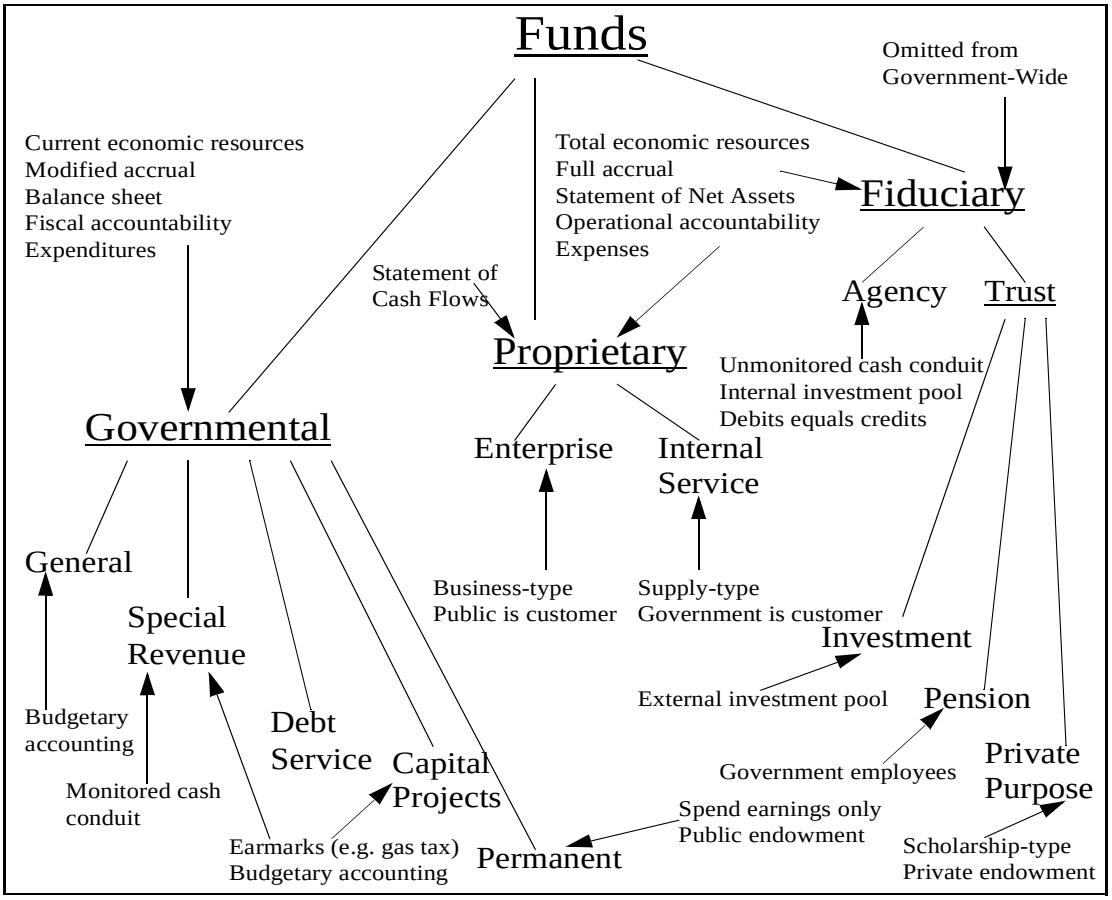
Changing to LIFO, by proclaimation, is reported Prospectively. The beginning inventory becomes the base for subsequent Cost Of Goods Sold calculations. Describe in the Notes a justification of the change.

Chapter 15

State and Local General Governmental Fund Accounting

15.1 Funds Characteristics Tree

The three broad categories of funds are Governmental, Proprietary, and Fiduciary. The Fiduciary category contains Agency funds and a subcategory of funds called Trust. Each of the funds — General, Special Revenue, Debt Service, Capital Projects, Permanent, Enterprise, Internal Service, Investment, Pension, and Private Purpose — are in one of the broad categories. Moreover, Investment, Pension, and Private Purpose funds are in the Trust subcategory. The diagram below maps out the relationships between the funds and their categories. In the diagram, the fund's distinguishing characteristics are noted with an arrow. This chapter explores the General Governmental Fund.



15.2 General Terms and Accounts

15.2.1 Fund

A Fund is an accounting entity. A Fund is managed with a general ledger — assets, liabilities, equity, etc. A Fund is used to segregate governmental activities.

15.2.2 Legislature

The Legislature is the branch of government that mandates the Governmental Executive (15.2.3) to make improvements or solve problems by spending money.

15.2.3 Governmental Executive

The Governmental Executive is in charge of the Executive branch. The Legislature passes Appropriations (15.4.1) mandating the Governmental Executive to make improvements or solve problems by spending money. The Governmental Executive is either the State Governor or the City or County Mayor.

15.2.4 General Governmental Fund

Every Governmental Entity accounts for major operations by using the General Governmental Fund. The General Governmental Fund is managed with a general ledger.

15.2.5 Special Revenue Fund

Optionally, specific revenues could be earmarked for specific expenditures (15.4.3). If so, a Special Revenue Fund is created. A Special Revenue Fund is managed with a general ledger.

15.2.6 Internal Service Fund

An Internal Service Fund is used to account for products or services supplied to other agencies or departments within the Governmental Entity.

15.2.7 Fund Balance

Fund Balance is the General Governmental Fund's (15.2.4) or Special Revenue Fund's (15.2.5) estimated current balance. The Fund Balance is either reserved for special purposes or available for Appropriations (15.4.1). Fund Balance is accounted for in an account called Fund Balance. The account Fund Balance is an Equity account; therefore, it carries a credit balance.

15.3 Inflows

15.3.1 Estimated Revenues

Estimated Revenues is an account which appears on the Budgetary Comparison Schedule.

15.3.2 Estimated Non-Property Tax Revenue Amount

Every year the Governmental Entity estimates non-property tax revenues for the following year.

Estimated Non-Property Tax Revenue Amount =
+ Estimated Interest/Penalties on Delinquencies
+ Estimated Sales Taxes
+ Estimated Corporate Taxes
+ Estimated Licenses
+ Estimated Permits
+ Estimated Fines
+ Estimated Forfeits
+ Estimated Intergovernmental Revenue
+ Estimated Fees for Services
+ Estimated Miscellaneous Revenue

		Debit	Credit
01/01/XX	Estimated Revenues (15.3.1)	(15.3.2)	
	Fund Balance (15.2.7)		(15.3.2)

15.3.3 Estimated Other Financing Sources

Estimated Other Financing Sources is an account used to estimate:

1. Transfers into (15.3.15) the General Governmental Fund (15.2.4) or a Special Revenue Fund (15.2.5) from other funds.

2. Proceeds from bonds expected to be issued.

Estimated Other Financing Sources appears on the Budgetary Comparison Schedule.

15.3.4 Actual Revenues

Actual Revenues is a Revenue account which appears on the Statement of Revenues, Expenditures, and Changes in Fund Balance.

15.3.5 Non-Exchange Revenue

A Non-Exchange Revenue is a Revenue in which the Governmental Entity does not exchange an equal value of goods or services. Taxes comprise most of the Non-Exchange Revenue.

15.3.6 Property Taxes Receivable Amount

$$\text{Property Taxes Receivable Amount} = \frac{\text{Property Tax Revenue Needed}}{1 - \text{Estimated Uncollectible Percent}}$$

—or—

Let n = the number of taxable property parcels.

$$\text{Property Taxes Receivable Amount} = \sum_{i=1}^{n} \text{Property Parcel Tax Assessment}_i$$

15.3.7 Taxes Receivable—Current

Taxes Receivable—Current is an Asset account.

15.3.8 Estimated Uncollectible—Current

Estimated Uncollectible—Current is a contra-Taxes Receivable—Current (15.3.7) account. It is also known as Deferred Revenues.

15.3.9 Property Taxes Revenue Amount

Property taxes are an Imposed, Non-Exchange Revenue (15.3.5). Being Imposed, the Governmental Entity has a legal claim for collection. Therefore, the Property Taxes Revenue Amount equals the Property Taxes Receivable Amount (15.3.6) expected to be collected.

$$\begin{aligned}\text{Property Taxes Revenue Amount} = {} & \text{Property Taxes Receivable Amount (15.3.6)} \times \\ & (1 - \text{Estimated Uncollectible Percent})\end{aligned}$$

15.3.10 Property Taxes Estimated Revenue Journal Entry

		Debit	Credit
01/01/XX	Estimated Revenues (15.3.1)	(15.3.9)	
	Fund Balance (15.2.7)		(15.3.9)

15.3.11 Uncollectible Property Taxes Amount

$$\begin{aligned}\text{Uncollectible Property Taxes Amount} = {} & \text{Property Taxes Receivable Amount (15.3.6)} \times \\ & \text{Estimated Uncollectible Percent}\end{aligned}$$

15.3.12 Property Taxes Actual Revenue Journal Entry

Because property taxes are an Imposed, Non-Exchange Revenue (15.3.5), revenue for property taxes is recognized at the beginning of the year for which the tax was levied, before cash is received.

		Debit	Credit
01/01/XX	Taxes Receivable—Current (15.3.7)	(15.3.6)	
	Estimated Uncollectible—Current (15.3.8)		(15.3.11)
	Actual Revenues (15.3.4)		(15.3.9)

15.3.13 Property Tax Collection

		Debit	Credit
XX/XX/XX	Cash	Amount	
	Taxes Receivable—Current		Amount

15.3.14 Non-Property Tax/Fee Collection

Non-Property Taxes or Fees received are recorded upon cash collection:

		Debit	Credit
XX/XX/XX	Cash	Amount	
	Actual Revenues (15.3.4)		Amount

15.3.15 Other Financing Sources—Interfund Transfer In

The account Interfund Transfer In is reported on the Statement of Revenues, Expenditures, and Changes in Fund Balance. Use Interfund Transfer In to transfer assets from another fund into this fund. Note: the asset transfer is within the same Governmental Entity.

15.3.16 Other Financing Sources—Bond Proceeds

The account Bond Proceeds is reported on the Statement of Revenues, Expenditures, and Changes in Fund Balance. Use Bond Proceeds to record the proceeds from bonds issued.

15.3.17 Estimating Transfers In From Other Funds

Every year the governmental entity estimates transfers in from other funds for the following year. This estimation is recorded as follows:

		Debit	Credit
XX/XX/XX	Estimated Other Financing Sources (15.3.3)	Estimation	
	Fund Balance (15.2.7)		Estimation

15.3.18 Estimating Bonds To Be Issued

Every year the governmental entity estimates bonds to be issued for the following year. This estimation is recorded as follows:

		Debit	Credit
XX/XX/XX	Estimated Other Financing Sources (15.3.3)	Estimation	
	Fund Balance (15.2.7)		Estimation

15.3.19 Proceeds from Other Funds

		Debit	Credit
XX/XX/XX	Cash	Proceeds	
	Other Financing Sources—Interfund Transfer In (15.3.15)		Proceeds

15.3.20 Proceeds from Bonds Issued

		Debit	Credit
XX/XX/XX	Cash	Proceeds	
	Other Financing Sources—Bond Proceeds (15.3.16)		Proceeds

15.4 Outflows

15.4.1 Appropriations

Appropriations are Legislative mandates for the Governmental Executive (15.2.3) to spend money for a specific purpose over a specified time. Appropriations are accounted for in an account called Appropriations.

15.4.2 Encumbrances$_{year}$

Encumbrances are financial commitments to vendors to purchase goods and/or services. An Encumbrance is initiated by the Governmental Executive (15.2.3) with either a contract or a purchase order. An Encumbrance does not generate a liability; a liability is generated when the goods and/or services are received by the government. Encumbrances are accounted for in an annual account called Encumbrances$_{year}$.

15.4.3 Expenditures$_{year}$

An Expenditure is the cost to purchase a good or service. Expenditures are accounted for in an account called Expenditures$_{year}$. Expenditures contrast with Expenses in that Expenses are the costs of assets consumed during a period.

15.4.4 Estimated Other Financing Uses

Estimated Other Financing Uses is an account used to estimate transfers out of the General Governmental Fund (15.2.4) or a Special Revenue Fund (15.2.5) to other funds. Estimated Other Financing Uses appears on the Budgetary Comparison Schedule.

		Debit	Credit
XX/XX/XX	Fund Balance (15.2.7)	Estimation	
	Estimated Other Financing Uses (15.4.4)		Estimation

15.4.5 Other Financing Uses—Interfund Transfer Out

Interfund Transfer Out is reported on the Statement of Revenues, Expenditures, and Changes in Fund Balance. Use Interfund Transfer Out to transfer assets out of a fund. Note: the asset transfer is within the same Governmental Entity.

		Debit	Credit
XX/XX/XX	Other Financing Uses—Interfund Transfer Out	Amount	
	Cash		Amount

Note: also see Supplies Internal Service Fund (15.5.1).

15.4.6 Reserve Account

A Reserve Account is an account that records a portion of equity that must be segregated for some future use. Reserve Accounts carry a credit balance and appear on the Fund Balance Sheet.

15.4.7 Reserve for Encumbrances

Reserve for Encumbrances is a Reserve Account (15.4.6) used to balance the Encumbrances (15.4.2) journal entry. It represents the amount of Encumbrances (15.4.2) outstanding.

15.4.8 Reserve for Supplies

Reserve for Supplies is a Reserve Account (15.4.6) used to prevent the Inventory of Supplies (15.4.9) from being Appropriated (15.4.1).

15.4.9 Inventory of Supplies

Inventory of Supplies is an Inventory account.

15.4.10 Estimating Transfers Out To Other Funds

Every year the governmental entity estimates transfers out to other funds for the following year. This estimation is recorded as follows:

		Debit	Credit
XX/XX/XX	Fund Balance (15.2.7)	Estimation	
	Estimated Other Financing Uses (15.4.4)		Estimation

15.4.11 Recognizing Appropriations

The Legislature's budgetary authorization is recorded as follows:

		Debit	Credit
XX/XX/XX	Fund Balance (15.2.7)	Budget Total	
	Appropriations (15.4.1)		Budget Total

15.4.12 Making a Purchase from a Vendor: Purchase Total

Let n = the number of line-items purchased.
Purchase Total = $\sum_{i=1}^{n}$ line-item estimated cost$_i$

15.4.13 Make a Purchase: Journal Entry

A signed contract or purchase order submission is recorded as follows:

		Debit	Credit
XX/XX/XX	Encumbrances$_{year}$ (15.4.2)	(15.4.12)	
	Reserve for Encumbrances (15.4.7)		(15.4.12)

15.4.14 Received Items Purchased; Reverse the Encumbrance

If Invoice Total = Purchase Total (15.4.12) then:
Encumbrance Reversal = Invoice Total
If Invoice Total <> Purchase Total (15.4.12) because of a partial shipment then:
Let n = the number of line-items received.
Encumbrance Reversal = $\sum_{i=1}^{n}$ line-item received estimated cost$_i$
If Invoice Total <> Purchase Total (15.4.12) because of a price fluctuation then:
Let n = the number of line-items purchased.
Encumbrance Reversal = $\sum_{i=1}^{n}$ line-item purchased estimated cost$_i$
If Invoice Total <> Purchase Total (15.4.12) because of a partial shipment and a price fluctuation then:
Let n = the number of line-items received.
Encumbrance Reversal = $\sum_{i=1}^{n}$ line-item received estimated cost$_i$

		Debit	Credit
XX/XX/XX	Reserve for Encumbrances (15.4.7)	Encumbrance Reversal	
	Encumbrances$_{year}$ (15.4.2)		Encumbrance Reversal

Note: If the total cost of the order exceeds (or is expected to exceed) the Purchase Total (15.4.12), then request from the Legislature (15.2.2) a Supplemental Appropriation (15.4.1).

15.4.15 Received Items Purchased; Record the Expenditure

		Debit	Credit
XX/XX/XX	Expenditures$_{year}$ (15.4.3)	Invoice Total	
	Vouchers/Other Funds/Federal Government Payable		Invoice Total

15.4.16 Paying the Vendor

		Debit	Credit
XX/XX/XX	Vouchers/Other Funds/Federal Government Payable	Invoice Total	
	Cash		Invoice Total

15.4.17 Make an Emergency Purchase

An Emergency Purchase bypasses the Encumbrance (15.4.2) process.

		Debit	Credit
XX/XX/XX	Expenditures$_{year}$ (15.4.3)	Emergency Amount	
	Cash		Emergency Amount

15.5 Internal Service Funds

15.5.1 Supplies Internal Service Fund

To create a Supplies Internal Service Fund (15.2.6):

		Debit	Credit
XX/XX/XX	Other Financing Uses—Interfund Transfer Out (15.4.5)	Amount	
	Inventory of Supplies (15.4.9)		Amount

		Debit	Credit
XX/XX/XX	Reserve for Supplies (15.4.8)	Amount	
	Fund Balance (15.2.7)		Amount

15.6 Accruals

15.6.1 Delinquent Property Taxes Amount

Delinquent Property Taxes Amount = Taxes Receivable—Current (15.3.7) Year-end Balance

15.7 Reporting

15.7.1 Unencumbered Unexpended Appropriations

Unencumbered Unexpended Appropriations is the amount of money the Governmental Executive (15.2.3) has available to spend. This is also called Available Appropriations.

Unencumbered Unexpended Appropriations = + Appropriations (15.4.1) credit balance
– Encumbrances$_{year}$ (15.4.2) debit balance
– Expenditures$_{year}$ (15.4.3) debit balance

15.7.2 Appropriations Reconciliation

+ Encumbrances$_{year}$ (15.4.2) debit balance
+ Expenditures$_{year}$ (15.4.3) debit balance
+ Available Appropriations (15.7.1)
= Appropriations (15.4.1) credit balance

15.8 Closing Entries

15.8.1 Close Taxes Receivable—Current

Close Taxes Receivable—Current at year-end, but before statement printing.

		Debit	Credit
12/31/XX	Taxes Receivable—Delinquent	(15.6.1)	
	Taxes Receivable—Current		(15.6.1)

15.8.2 Close Estimated Uncollectible—Current

Close Estimated Uncollectible—Current at year-end, but before statement printing.

		Debit	Credit
12/31/XX	Estimated Uncollectible—Current (15.3.8)	(15.3.8) Balance	
	Estimated Uncollectible—Delinquent		(15.3.8) Balance

15.8.3 Close Budgetary Accounts

Close the budgetary accounts at year-end, but before statement printing.

		Debit	Credit
12/31/XX	Appropriations (15.4.1)	(15.4.1) Balance	
	Fund Balance (15.2.7)		(15.4.1) Balance

		Debit	Credit
12/31/XX	Estimated Other Financing Uses (15.4.4)	(15.4.4) Balance	
	Fund Balance (15.2.7)		(15.4.4) Balance

		Debit	Credit
12/31/XX	Fund Balance (15.2.7)	(15.4.2) Balance	
	Encumbrances$_{year}$ (15.4.2)		(15.4.2) Balance

		Debit	Credit
12/31/XX	Fund Balance (15.2.7)	(15.3.1) Balance	
	Estimated Revenues (15.3.1)		(15.3.1) Balance

		Debit	Credit
12/31/XX	Fund Balance (15.2.7)	(15.3.3) Balance	
	Estimated Other Financing Sources (15.3.3)		(15.3.3) Balance

15.8.4 Close Nominal Accounts

Close the nominal accounts after statement printing.

		Debit	Credit
12/31/XX	Actual Revenues (15.3.4)	(15.3.4) Balance	
	Fund Balance (15.2.7)		(15.3.4) Balance

		Debit	Credit
12/31/XX	Fund Balance (15.2.7)	(15.4.5) Balance	
	Other Financing Uses—Interfund Transfer Out (15.4.5)		(15.4.5) Balance

		Debit	Credit
12/31/XX	Fund Balance (15.2.7)	(15.4.3) Balance	
	Expenditures$_{year}$ (15.4.3)		(15.4.3) Balance

		Debit	Credit
12/31/XX	Other Financing Sources—Interfund Transfer In (15.3.15)	(15.3.15) Balance	
	Fund Balance (15.2.7)		(15.3.15) Balance

		Debit	Credit
12/31/XX	Fund Balance (15.2.7)	(15.3.16) Balance	
	Other Financing Sources—Bond Proceeds (15.3.16)		(15.3.16) Balance

15.8.5 Reverse the Encumbrances Account

After statement printing, reverse the Encumbrance Account Closing Entry (15.8.3). This will prevent unfulfilled purchase orders from affecting next year's budget. When unfulfilled goods and services are finally received, record the Expenditure$_{year}$ using the previous year.

		Debit	Credit
01/01/XX	Encumbrances$_{year}$ (15.4.2)	(15.4.2) Balance [1]	
	Fund Balance (15.2.7)		(15.4.2) Balance [1]

[1] Before Close Budgetary Accounts (15.8.3).

Chapter 16

State and Local Government Capital Project Fund Accounting

A Governmental Capital Project Fund is used to account for current assets and liabilities used to build or purchase a fixed asset. The fund exists only for the time period of construction or acquisition. Use a Governmental Capital Project Fund if any of the following financing sources are earmarked for a capital project: [1]

1. long-term debt to be repaid from tax revenues.
2. special assessments against property deemed to benefit.
3. grants from other governments.
4. transfers from other funds.
5. gifts from individuals or organizations.

16.1 Inflows

16.1.1 Revenues

Revenues for a Governmental Capital Project Fund include: [2]

1. taxes raised specifically for the project.
2. special assessments to property owners deemed to benefit.
3. grants, entitlements, or shared revenues received by a capital projects fund from another government.
4. interest earned on investments from bond issue proceeds, if not earmarked for debt service.

		Debit	Credit
XX/XX/XX	Cash	Revenue Amount	
	Revenues		Revenue Amount

16.1.2 Proceeds from Other Governments

		Debit	Credit
XX/XX/XX	Cash	Proceeds	
	Other Financing Sources—Interfund Transfers In (15.3.15)		Proceeds

16.1.3 Proceeds from Bonds Issued

		Debit	Credit
XX/XX/XX	Cash	Proceeds	
	Other Financing Sources—Bond Proceeds (15.3.16)		Proceeds

[1] *Accounting for Governmental & Nonprofit Entities*; 14th edition; Wilson, Kattelus, Reck; page 163.
[2] ibid page 179.

16.1.4 Short-term Financing

		Debit	Credit
XX/XX/XX	Cash	Proceeds	
	Short-term Notes Payable		Proceeds

16.2 Outflows

16.2.1 Make a Purchase: Journal Entry

		Debit	Credit
XX/XX/XX	Encumbrances (15.4.2)	Purchase Total (15.4.12)	
	Reserve for Encumbrances (15.4.7)		Purchase Total (15.4.12)

Note: since capital projects are not restricted to a fiscal period, it is unnecessary to include the year of the encumbrance.

16.2.2 Received Items Purchased; Reverse the Encumbrance

		Debit	Credit
XX/XX/XX	Reserve for Encumbrances (15.4.7)	Encumbrance Reversal (15.4.14)	
	Encumbrances (15.4.2)		Encumbrance Reversal (15.4.14)

16.2.3 Received Items Purchased; Record the Expenditure

		Debit	Credit
XX/XX/XX	Construction Expenditures (15.4.3)	Invoice Total	
	Cash or Vouchers Payable		Invoice Total

Note: since capital projects are not restricted to a fiscal period, it is unnecessary to include the year of the expenditure.

16.2.4 Paying the Vendor

		Debit	Credit
XX/XX/XX	Vouchers Payable	Invoice Total	
	Cash		Invoice Total

16.2.5 Make an Interest Payment

		Debit	Credit
XX/XX/XX	Interest Expenditures (15.4.3)	Interest Payment	
	Cash		Interest Payment

16.2.6 Unexpected/Miscellaneous/Insignificant Unencumbered Expenditures

		Debit	Credit
XX/XX/XX	Construction Expenditures (15.4.3)	Amount	
	Cash		Amount

16.2.7 Retire the Short-term Note

		Debit	Credit
XX/XX/XX	Short-term Notes Payable	Principal	
	Cash		Principal

16.3 Closing Entries

16.3.1 Close Nominal Accounts

Upon completion of the project, close the nominal accounts to Fund Balance.

		Debit	Credit
XX/XX/XX	Revenues (16.1.1)	(16.1.1) Balance	
	Fund Balance (15.2.7)		(16.1.1) Balance

		Debit	Credit
XX/XX/XX	Other Financing Sources—Interfund Transfers In (15.3.15)	(15.3.15) Balance	
	Fund Balance (15.2.7)		(15.3.15) Balance

		Debit	Credit
XX/XX/XX	Other Financing Sources—Bond Proceeds (15.3.16)	(15.3.16) Balance	
	Fund Balance (15.2.7)		(15.3.16) Balance

		Debit	Credit
XX/XX/XX	Fund Balance (15.2.7)	(15.4.3) Balance	
	Construction Expenditures (15.4.3)		(15.4.3) Balance

		Debit	Credit
XX/XX/XX	Fund Balance (15.2.7)	(15.4.3) Balance	
	Interest Expenditures (15.4.3)		(15.4.3) Balance

16.3.2 Transfer Out the Residual Equity

Residual Equity is the leftover cash in the Capital Projects Fund. After the closing entries, Fund Balance (15.2.7) equals Cash Balance. Transfer this cash to the Debt Service Fund or another contractually obligated fund.

		Debit	Credit
XX/XX/XX	Other Financing Uses—Interfund Transfers Out (15.4.5)	(15.2.7) Balance	
	Cash		(15.2.7) Balance

		Debit	Credit
XX/XX/XX	Fund Balance	(15.4.5) Balance	
	Other Financing Uses—Interfund Transfers Out (15.4.5)		(15.4.5) Balance

Chapter 17

State and Local Government Debt Service Fund Accounting

17.1 Regular Serial Bonds

17.1.1 Total Face Value

Total Face Value = Bond Issue Quantity × $1,000

17.1.2 Bond Principal Amount

If Bond Issue Year = Current Year then:
Bond Principal Amount = 0
If Bond Issue Year < Current Year then:
$$\text{Bond Principal Amount} = \frac{\text{Total Face Value (17.1.1)}}{\text{Bond Term Years}}$$

17.1.3 Estimated Non-Property Tax Revenues

A portion of non-property tax revenues may be earmarked for bond principal and interest payments.

		Debit	Credit
01/01/XX	Estimated Revenues (15.3.1)	(17.1.3)	
	Fund Balance (15.2.7)		(17.1.3)

17.1.4 Estimated Property Tax Revenues

A portion of property tax revenues may be earmarked for bond principal and interest payments. Apply the Property Taxes Receivable Amount (15.3.6) and the Uncollectible Property Taxes Amount (15.3.11) algorithms:

		Debit	Credit
01/01/XX	Taxes Receivable—Current (15.3.7)	(15.3.6)	
	Estimated Uncollectible—Current (15.3.8)		(15.3.11)
	Actual Revenues (15.3.4)		(17.1.4)

17.1.5 Estimating Other Financing Sources

For Debt Service Funds, Estimated Other Financing Sources (15.3.3) is used to estimate:

1. Transfers into (15.3.15) the Debt Service Fund from other funds.

2. Residual Equity (16.3.2) in a Capital Project.

		Debit	Credit
01/01/XX	Estimated Other Financing Sources	Estimation	
	Fund Balance (15.2.7)		Estimation

17.1.6 Estimated First Interest Payment Amount

$$\text{Estimated First Interest Payment Amount} = [\text{Total Face Value (17.1.1)} - \text{Principal Payment Table Total (17.1.12)}] \times \frac{\text{Coupon Rate}}{2}$$

17.1.7 Estimated Second Interest Payment Amount

If Bond Issue Year = Current Year and less than 6 months remain in fiscal year:

Estimated Second Interest Payment Amount = 0

If Bond Retirement Year = Current Year and less than 6 months remain in fiscal year:

Estimated Second Interest Payment Amount = 0

If Bond Issue Year > Current Year:

$$\text{Estimated Second Interest Payment Amount} = [\text{Total Face Value (17.1.1)} - (\text{Principal Payment Table Total (17.1.12)} + \text{Bond Principal Amount (17.1.2)})] \times \frac{\text{Coupon Rate}}{2}$$

17.1.8 Appropriations

$$\text{Anticipated Principal Plus Interest} = \text{Bond Principal Amount (17.1.2)} + \text{Estimated First Interest Payment Amount (17.1.6)} + \text{Estimated Second Interest Payment Amount (17.1.7)}$$

Journal Entry

		Debit	Credit
01/01/XX	Fund Balance (15.2.7)	(17.1.8)	
	Appropriations (15.4.1)		(17.1.8)

17.1.9 Interest Payment Amount

$$\text{Interest Payment Amount} = [\text{Total Face Value (17.1.1)} - \text{Principal Payment Table Total (17.1.12)}] \times \frac{\text{Coupon Rate}}{2}$$

17.1.10 Make an Interest Payment

Twice a year, on each Coupon Date, make an Interest Payment.

		Debit	Credit
XX/XX/XX	Expenditure—Bond Interest	(17.1.9)	
	Cash or Interest Payable		(17.1.9)

17.1.11 Make a Principal Payment

On the anniversity of the Bond Issue Date, make a Principal Payment.

		Debit	Credit
XX/XX/XX	Expenditure—Bond Principal	(17.1.2)	
	Cash		(17.1.2)

Note: add this payment to the Principal Payment Table (17.1.12).

17.1.12 Principal Payment Table

Future Interest Payments (17.1.9) are lessened as the Bond Principal Amounts (17.1.2) are paid. Therefore, record each Annual Bond Principal payment in a table:

Year	Principal Payment	Total

17.1.13 Receive Property Tax Revenues

		Debit	Credit
XX/XX/XX	Cash	Amount	
	Taxes Receivable—Current		Amount

17.1.14 Receive Non-Property Tax Revenues

		Debit	Credit
XX/XX/XX	Cash	Amount	
	Actual Revenues (15.3.4)		Amount

17.1.15 Receive Interfund Transfer In

		Debit	Credit
XX/XX/XX	Cash	Amount	
	Other Financing Sources—Interfund Transfer In (15.3.15)		Amount

17.2 Term Bonds

17.2.1 Sinking Fund

A Sinking Fund is an investment account used to make the deposits necessary to pay off a Term Bond (17.2) when it matures.

17.2.2 Sinking Fund Rate

The Sinking Fund Rate is the estimated return the Sinking Fund (17.2.1) deposits will generate.

17.2.3 Future Value One Sinking Fund Dollar

$$\text{Future Value One Sinking Fund Dollar} = \text{fva}\left[\ \$1,\ \frac{\text{Sinking Fund Rate (17.2.2)}}{2},\ \text{Bond Term Years} \times 2\ \right]$$

17.2.4 Semi-Annual Sinking Fund Deposit Amount

$$\text{Semi-Annual Sinking Fund Deposit Amount} = \frac{\text{Total Face Value (17.1.1)}}{\text{Future Value One Sinking Fund Dollar (17.2.3)}}$$

17.2.5 Semi-Annual Interest Payment Amount

$$\text{Semi-Annual Interest Payment Amount} = \text{Total Face Value (17.1.1)} \times \frac{\text{Coupon Rate}}{2}$$

17.2.6 Sinking Fund Deposit/Interest Table

Required Sinking Fund Earnings (17.2.9) are dependent upon the Sinking Fund (17.2.1) account balance. Therefore, record each Semi-Annual Sinking Fund Deposit (17.2.17) and Semi-Annual Required Earnings (17.2.19) in a table:

Date	Deposit	Interest	Total

17.2.7 Required Earnings First Half Year

$$\text{Required Earnings First Half Year} = \text{Sinking Fund Deposit/Interest Table (17.2.6) Total} \times \frac{\text{Sinking Fund Rate (17.2.2)}}{2}$$

17.2.8 Required Earnings Second Half Year

$$\text{Required Earnings Second Half Year} = \left[\ \text{Sinking Fund Deposit/Interest Table (17.2.6) Total} + \text{Semi-Annual Sinking Fund Deposit Amount (17.2.4)} + \text{Required Earnings First Half Year (17.2.7)}\ \right] \times \frac{\text{Sinking Fund Rate (17.2.2)}}{2}$$

17.2.9 Required Sinking Fund Earnings

Required Sinking Fund Earnings = Required Earnings First Half Year (17.2.7) +
Required Earnings Second Half Year (17.2.8)

Journal Entry

		Debit	Credit
01/01/XX	Estimated Revenues (15.3.1)	(17.2.9)	
	Fund Balance (15.2.7)		(17.2.9)

17.2.10 Necessary Annual Tax Revenues

Necessary Annual Tax Revenues = [Semi-Annual Sinking Fund Deposit Amount (17.2.4) × 2] +
[Semi-Annual Interest Payment (17.2.18) × 2]

17.2.11 Appropriations

Expected Interest Payments = Semi-Annual Interest Payment Amount (17.2.5) × 2

Journal Entry

		Debit	Credit
01/01/XX	Fund Balance (15.2.7)	(17.2.11)	
	Appropriations (15.4.1)		(17.2.11)

17.2.12 Estimated Non-Property Tax Revenues

A portion of non-property tax revenues may be earmarked for bond principal and interest payments.

		Debit	Credit
01/01/XX	Estimated Revenues (15.3.1)	(17.2.10)	
	Fund Balance (15.2.7)		(17.2.10)

17.2.13 Estimated Property Tax Revenues

Let Property Tax Revenue Needed = Necessary Annual Tax Revenues (17.2.10)

Using Property Tax Revenue Needed, apply the Property Taxes Receivable Amount (15.3.6) and the Uncollectible Property Taxes Amount (15.3.11) algorithms:

		Debit	Credit
01/01/XX	Taxes Receivable—Current (15.3.7)	(15.3.6)	
	Estimated Uncollectible—Current (15.3.8)		(15.3.11)
	Actual Revenues (15.3.4)		(17.2.10)

17.2.14 Receive Property Tax Revenues

		Debit	Credit
XX/XX/XX	Cash	Amount	
	Taxes Receivable—Current		Amount

17.2.15 Receive Non-Property Tax Revenues

		Debit	Credit
XX/XX/XX	Cash	Amount	
	Actual Revenues (15.3.4)		Amount

17.2.16 Recognize Investment Earnings

		Debit	Credit
XX/XX/XX	Sinking Fund Investments (17.2.1)	Amount	
	Revenues—Investment Earnings		Amount

17.2.17 Semi-Annual Sinking Fund Deposit

Twice a year, make a Sinking Fund Deposit:

		Debit	Credit
XX/XX/XX	Sinking Fund Investments (17.2.1)	(17.2.4)	
	Cash		(17.2.4)

Note: add this payment to the Sinking Fund Deposit/Interest Table (17.2.6).

17.2.18 Semi-Annual Interest Payment

Twice a year, make an Interest Payment:

		Debit	Credit
XX/XX/XX	Expenditures—Bond Interest (15.4.3)	(17.2.5)	
	Cash		(17.2.5)

17.2.19 Semi-Annual Required Earnings

$$\text{Semi-Annual Required Earnings} = \text{Sinking Fund Deposit/Interest Table (17.2.6) Total} \times \frac{\text{Sinking Fund Rate (17.2.2)}}{2}$$

Note: add this payment to the Sinking Fund Deposit/Interest Table (17.2.6).

17.3 Bond Closing Entries

17.3.1 Close Taxes Receivable—Current

Close Taxes Receivable—Current at year-end, but before statement printing.

		Debit	Credit
12/31/XX	Taxes Receivable—Delinquent	(15.6.1)	
	Taxes Receivable—Current		(15.6.1)

17.3.2 Close Estimated Uncollectible—Current

Close Estimated Uncollectible—Current at year-end, but before statement printing.

		Debit	Credit
12/31/XX	Estimated Uncollectible—Current (15.3.8)	(15.3.8) Balance	
	Estimated Uncollectible—Delinquent		(15.3.8) Balance

17.3.3 Close Budgetary Accounts

Close the budgetary accounts at year-end, but before statement printing.

		Debit	Credit
12/31/XX	Appropriations (15.4.1)	(15.4.1) Balance	
	Fund Balance (15.2.7)		(15.4.1) Balance

		Debit	Credit
12/31/XX	Estimated Other Financing Uses (15.4.4)	(15.4.4) Balance	
	Fund Balance (15.2.7)		(15.4.4) Balance

		Debit	Credit
12/31/XX	Fund Balance (15.2.7)	(15.3.1) Balance	
	Estimated Revenues (15.3.1)		(15.3.1) Balance

		Debit	Credit
12/31/XX	Fund Balance (15.2.7)	(15.3.3) Balance	
	Estimated Other Financing Sources (15.3.3)		(15.3.3) Balance

17.3.4 Close Nominal Accounts

Close the nominal accounts after statement printing.

		Debit	Credit
12/31/XX	Actual Revenues (15.3.4)	(15.3.4) Balance	
	Fund Balance (15.2.7)		(15.3.4) Balance

		Debit	Credit
12/31/XX	Revenues—Investment Earnings	Revenue Balance	
	Fund Balance (15.2.7)		Revenue Balance

		Debit	Credit
12/31/XX	Other Financing Uses—Interfund Transfers Out (15.4.5)	(15.4.5) Balance	
	Fund Balance (15.2.7)		(15.4.5) Balance

		Debit	Credit
12/31/XX	Fund Balance (15.2.7)	(15.4.3) Balance	
	Expenditures—Bond Principal (15.4.3)		(15.4.3) Balance

		Debit	Credit
12/31/XX	Fund Balance (15.2.7)	(15.4.3) Balance	
	Expenditures—Bond Interest (15.4.3)		(15.4.3) Balance

		Debit	Credit
12/31/XX	Other Financing Sources—Interfund Transfer In (15.3.15)	(15.3.15) Balance	
	Fund Balance (15.2.7)		(15.3.15) Balance

		Debit	Credit
12/31/XX	Fund Balance (15.2.7)	(15.3.16) Balance	
	Other Financing Sources—Bond Proceeds (15.3.16)		(15.3.16) Balance

Chapter 18

State and Local Government Proprietary Fund Accounting

18.1 Internal Service Funds

An Internal Service Fund is used to centralize purchasing, storing, and issuing of goods and/or services to the many governmental divisions. Examples include supplies, motor pools, information technology, and custodial services.

18.1.1 Net Assets—Unrestricted

Net Assets—Unrestricted is an Equity account.
Net Assets—Unrestricted = Assets – Liabilities

18.1.2 Departments

An Internal Service Fund (18.1) is managed by many Departments. Typical Departments include Administrative, Purchasing, Warehousing, and Delivery.

18.1.3 Open an Internal Service Fund: Cash Transfer In

		Debit	Credit
XX/XX/XX	Cash	Cash Amount	
	Interfund Transfers In (15.3.15)		Cash Amount

18.1.4 Open an Internal Service Fund: Inventory Transfer In

		Debit	Credit
XX/XX/XX	Inventory_{item}	Item Amount	
	Interfund Transfers In (15.3.15)		Item Amount

18.1.5 Borrow Funds From Another Fund

Internal Service Funds typically borrow money from other funds and pay them back in equal annual installments.

		Debit	Credit
XX/XX/XX	Cash	Interfund Loan Amount	
	$\text{Interfund Loan}_{department}$—Non Current		Interfund Loan Amount

18.1.6 Interfund Loan Annual Payback Amount

$$\text{Loan Annual Payback Amount} = \frac{\text{Interfund Loan Amount (18.1.5)}}{\text{Loan Years}}$$

18.1.7 Record the Current Portion Due of an Interfund Loan

		Debit	Credit
XX/XX/XX	$\text{Interfund Loan}_{department}$—Non Current	Payback Amount (18.1.6)	
	$\text{Interfund Loan}_{department}$—Current		Payback Amount (18.1.6)

18.1.8 Pay the Current Portion Due of an Interfund Loan

		Debit	Credit
XX/XX/XX	Interfund Loan$_{department}$—Current	Payback Amount (18.1.6)	
	Cash		Payback Amount (18.1.6)

18.1.9 Property, Plant, and Equipment (PP&E$_{item}$)

An Internal Service Fund (18.1) needs Property, Plant, and Equipment (Chapter 3) to support its function. A single piece of PP&E may be used exclusively by a single Department (18.1.2), or a single piece of PP&E may be shared by many Departments.

18.1.10 PP&E[$item$][$department$]

If a Department (18.1.2) is responsible for a single piece of Property, Plant, or Equipment (18.1.9), then it is designated PP&E[$item$][$department$]. If many Departments share a single piece of Property, Plant, or Equipment, then it is designated PP&E$_{item}$.

18.1.11 PP&E[$item$][$department$] Percent

If many Departments (18.1.2) share a single piece of Property, Plant, and Equipment (18.1.9), then PP&E[$item$][$department$] Percent is this Department's proportional responsibility for Depreciation Amount (18.1.27) of a single piece of PP&E.

18.1.12 Allowance For Depreciation—Building

Allowance For Depreciation—Building is a Contra-Building (18.1.9) account. If a Department (18.1.2) is solely responsible for a building, then Allowance For Depreciation—Building$_{department}$ is used.

18.1.13 Allowance For Depreciation—Equipment

Allowance For Depreciation—Equipment is a Contra-Equipment (18.1.9) account. If a Department (18.1.2) is solely responsible for a piece of equipment, then Allowance For Depreciation—Equipment$_{department}$ is used.

18.1.14 Purchase Property, Plant, and Equipment

		Debit	Credit
XX/XX/XX	PP&E[$item$][$department$] (18.1.10)	Cost (3.1.6) or (3.2.1) or (3.3.1)	
	Cash and/or Debt		Cost (3.1.6) or (3.2.1) or (3.3.1)

18.1.15 Purchase Inventory

		Debit	Credit
XX/XX/XX	Inventory$_{item}$	Invoice Amount	
	Vouchers Payable		Invoice Amount

18.1.16 Pay Inventory Vendors

		Debit	Credit
XX/XX/XX	Vouchers Payable	Invoice Amount	
	Cash		Invoice Amount

18.1.17 Markup Percent

An Internal Service Fund budgets anticipated overhead expenses for the year. Using this estimate, fund administrators calculate a Markup Percent over inventory cost. Using the Markup Percent, a Markup Amount (18.1.18) is added to the cost of each inventory item, then the cost-plus-markup-amount is charged to the department for each inventory item issued.

18.1.18 Markup Amount

$$\text{Markup Amount} = \text{Inventory}_{item}\ \text{Cost} \times \text{Markup Percent (18.1.17)}$$

18.1.19 Billings To Departments

Billings To Departments is a Revenue account. It is reported in the Statement of Revenues, Expenses, and Changes in Fund Assets (18.1.30).

18.1.20 Cost of Items Issued

Cost of Items Issued is a Cost of Goods Sold (1.1.14) account. It is subtracted from Billings To Departments (18.1.19) to produce Gross Margin.

18.1.21 Gross Margin

Gross Margin = Billings To Departments (18.1.19) – Cost of Items Issued (18.1.20)

18.1.22 Inventory Retail Amount

Inventory Retail Amount = Inventory$_{item}$ Cost + Markup Amount (18.1.18)

18.1.23 Issue Inventory

		Debit	Credit
XX/XX/XX	Cost of Items Issued (18.1.20)	Inventory Cost	
	Inventory$_{item}$		Inventory Cost
	Due from *Fund*	Retail Amount (18.1.22)	
	Billings To Departments (18.1.19)		Retail Amount (18.1.22)

18.1.24 Receive Cash For Inventory

		Debit	Credit
XX/XX/XX	Cash	Retail Amount (18.1.22)	
	Due from *Fund*		Retail Amount (18.1.22)

18.1.25 *Department* Expenses

Each Department (18.1.2) accumulates expenses for its costs and depreciation in its *Department* Expenses account. Each of the departmental expense accounts are reported in the Statement of Revenues, Expenses, and Changes in Fund Net Assets (18.1.30).

18.1.26 Pay Cash For Expenses

		Debit	Credit
XX/XX/XX	*Department* Expenses (18.1.25)	Expense Amount	
	Cash		Expense Amount

18.1.27 Depreciation Amount

If a single Department uses PP&E$_{item}$ then:
Depreciation Amount = Total Period Depreciation for PP&E$_{item}$
If many Departments share PP&E$_{item}$ then:
Depreciation Amount = Total Period Depreciation for PP&E$_{item}$ × PP&E$_{department}$ Percent (18.1.11)

18.1.28 Accumulate Building and Equipment Depreciation

Each Department (18.1.2) is responsible for its own PP&E depreciation.

		Debit	Credit
XX/XX/XX	*Department* Expenses (18.1.25)	(18.1.27)	
	Allowance for Depreciation—Building$_{department}$ (18.1.12)		(18.1.27)

		Debit	Credit
XX/XX/XX	*Department* Expenses (18.1.25)	(18.1.27)	
	Allowance for Depreciation—Equipment$_{department}$ (18.1.13)		(18.1.27)

18.1.29 Inventory Shrinkage

		Debit	Credit
XX/XX/XX	Warehousing Expenses (18.1.2)	Shrinkage Amount	
	Inventory_{item}		Shrinkage Amount

18.1.30 Statement of Revenues, Expenses, and Changes In Fund Net Assets

18.1.31 Statement of Net Assets

18.1.32 Closing Entries

Close the Internal Service Fund accounts at year-end.

		Debit	Credit
12/31/XX	Billings To Departments (18.1.19)	(18.1.19) Balance	
	Net Assets—Unrestricted (18.1.1)		(18.1.19) Balance

		Debit	Credit
12/31/XX	Net Assets—Unrestricted (18.1.1)	(18.1.20) Balance	
	Cost of Items Issued (18.1.20) Balance		(18.1.20)

		Debit	Credit
12/31/XX	Net Assets—Unrestricted (18.1.1)	(18.1.25) Balance	
	Department Expenses (18.1.25)		(18.1.25) Balance

Chapter 19

State and Local Government Fiduciary Fund Accounting

19.1 Property Tax Agency Funds

A Property Tax Agency Fund is an Agency Fund used to collect property taxes due to many governments. It is convenient to citizens if one government collects all the property taxes and then distributes those taxes due to other governments.

19.1.1 Collecting Government

The Collecting Government is the government that owns the Property Tax Agency Fund (19.1) that is collecting the taxes.

19.1.2 Due To Other Funds and Governments

Due To Other Funds and Governments is a liability account.

19.1.3 Property Tax Agency Fund: Property Taxes Receivable

		Debit	Credit
01/01/XX	Taxes Receivable For Other Funds and Governments—Current	(15.3.6)	
	Due To Other Funds and Governments (19.1.2)		(15.3.6)

19.1.4 Other Governments

The Other Governments are the governments or districts that the Collecting Government (19.1.1) is collecting taxes for.

19.1.5 Agency Fee Collection Percent

Agency Fee Collection Percent is the percentage of tax collection due to Other Governments (19.1.4) that the Collecting Government (19.1.1) keeps. For the Collecting Government (19.1.1), the Agency Fee Collection Percent is zero.

19.1.6 Taxing Authority

A Taxing Authority is a government (19.1.1) or (19.1.4) with the authority to levy property taxes on a parcel of property. Multiple Taxing Authorities could levy property taxes on a single parcel (A.K.A. overlapping).

19.1.7 Annual Property Tax Amount

The Annual Property Tax Amount is the total amount of annual property taxes that a property owner owes to one or more overlapping Taxing Authorities (19.1.6).

19.1.8 Property Assessment Value

The Property Assessment Value is the value the government places on a parcel of property for determining its Annual Property Tax Amount (19.1.7). The Property Assessment Value usually represents a property's fair market value.

19.1.9 Taxing Authority$_i$'s Fund$_j$ Tax Rate

Each Taxing Authority (19.1.6) maintains one or more funds that levy property taxes on a parcel of property. The Taxing Authority$_i$'s Fund$_j$ Tax Rate is the percentage of Property Assessment Value (19.1.8) that Taxing Authority$_i$'s Fund$_j$ annually charges for a parcel of property. The rate is often expressed in units of money per \$100 in Assessment Value.

19.1.10 Taxing Authority$_i$ Tax Rate

Let n = the number of property tax revenue funds for Taxing Authority$_i$ (19.1.6).
Taxing Authority$_i$ Tax Rate = $\sum_{j=1}^{n}$ Taxing Authority$_i$'s Fund$_j$ Tax Rate (19.1.9)

19.1.11 Total Tax Rate

Let n = the number of Taxing Authorities.
Total Tax Rate = $\sum_{i=1}^{n}$ Taxing Authority$_i$ Tax Rate (19.1.10)

19.1.12 Gross Property Tax Percent Due To Taxing Authority$_i$

Agency Funds allow many Taxing Authorities (19.1.6) to share in the property taxes of a single parcel of property. The Gross Property Tax Percent Due To Taxing Authority$_i$ is the percentage of property taxes due to Taxing Authority$_i$, before the Governmental Agency Fee (19.1.14) is subtracted.

$$\text{Gross Property Tax Percent Due To Taxing Authority}_i = \frac{\text{Taxing Authority Tax Rate (19.1.10)}}{\text{Total Tax Rate (19.1.11)}}$$

Note the identity:
Let n = the number of taxing authorities.
$\sum_{i=1}^{n}$ Gross Property Tax Percent Due To Taxing Authority$_i$ = 1.00

19.1.13 Property Tax Collection

		Debit	Credit
XX/XX/XX	Cash	Amount	
	Taxes Receivable For Other Funds and Government—Current		Amount

19.1.14 Governmental Agency Fee Withheld From Other Government (19.1.4)

The Collecting Government (19.1.1) withholds a fee from the Other Government's (19.1.4)'s cash collections.

Governmental Agency Fee = Property Tax Collection (19.1.13) ×
Gross Property Tax Percent Due To Taxing Authority$_i$ (19.1.12) ×
Agency Fee Collection Percent (19.1.5)

Note: for the Collecting Government (19.1.1), the Governmental Agency Fee is zero.

19.1.15 Due To Taxing Authority$_i$

Due To Taxing Authority$_i$ is a liability account.

19.1.16 Due To Taxing Authority$_i$ Amount

Due To Taxing Authority$_i$ Amount = [Property Tax Collection (19.1.13) ×
Gross Property Tax Percent Due To Taxing Authority$_i$ (19.1.12)] –
Governmental Agency Fee (19.1.14)

Journal Entry

		Debit	Credit
XX/XX/XX	Due To Other Funds and Governments (19.1.2)	(19.1.16)	
	Due To Taxing Authority$_i$ (19.1.15)		(19.1.16)

19.1.17 Cash Paid To Taxing Authority$_i$

		Debit	Credit
XX/XX/XX	Due To Taxing Authority$_i$	(19.1.15) Balance	
	Cash		(19.1.15) Balance

19.1.18 Total Agency Fee Withheld

Let n = the number of Other Governments (19.1.4).
Total Agency Fee Withheld = $\sum_{i=1}^{n}$ Governmental Agency Fee Withheld From Other Government$_i$ (19.1.14)

19.1.19 Agency Fee Due To Collecting Government

		Debit	Credit
XX/XX/XX	Due To Other Funds and Governments (19.1.2)	(19.1.18)	
	Due To *Collecting Government* (19.1.1)		(19.1.18)

19.1.20 Tax Agency Fund Participants

Each government or fund that receives a distribution from a Property Tax Agency Fund (19.1) records a revenue and:

1. if Other Government (19.1.4), records a Tax Agency Fee Expenditure.
2. if Collecting Government (19.1.1), records a Tax Agency Fee Revenue.

19.1.21 Fund$_j$ Percentage

$$\text{Fund}_j \text{ Percentage} = \frac{\text{Taxing Authority Fund}_j \text{ Tax Rate (19.1.9)}}{\text{Total Tax Rate (19.1.11)}}$$

19.1.22 Fund$_j$ Receivable Amount

Fund$_j$ Receivable Amount = Property Tax Receivable Amount (15.3.6) ×
Fund$_j$ Percentage (19.1.21)

Journal Entry

		Debit	Credit
01/01/XX	Taxes Receivable—Current	(19.1.22)	
	Actual Revenues		(19.1.22)

19.1.23 Fund Agency Fee Withheld From Other Government$_i$ (19.1.4)

Fund Agency Fee = Property Tax Collection (19.1.13) ×
Fund$_j$ Percentage (19.1.21) ×
Agency Fee Collection Percent (19.1.5)

19.1.24 Participating Fund$_j$ Fee Expenditure

If fund belongs to Collecting Government (19.1.1) then:
Participating Fund$_j$ Fee Expenditure = 0.00
If fund belongs to Other Government (19.1.4) then:
Participating Fund$_j$ Fee Expenditure = Property Tax Collection (19.1.13) ×
Fund$_j$ Percentage (19.1.21) ×
Agency Fee Collection Percent (19.1.5)

Journal Entry, if Other Government (19.1.4):

		Debit	Credit
XX/XX/XX	Expenditures	(19.1.24)	
	Taxes Receivable—Current		(19.1.24)

19.1.25 Participanting Fund$_j$ Cash Collected

Participanting Fund$_j$ Cash Collected = [Property Tax Collection (19.1.13) ×
Fund$_j$ Percentage (19.1.21)] –
Participating Fund$_j$ Fee Expenditure (19.1.24)

Journal Entry

		Debit	Credit
XX/XX/XX	Cash	(19.1.25)	
	Taxes Receivable—Current		(19.1.25)

19.1.26 Collecting Government's General Fund Fee Collection

		Debit	Credit
XX/XX/XX	Cash	Total Agency Fee Withheld (19.1.18)	
	Revenues		(19.1.18)

19.2 Investment Trust Funds

An Investment Trust Fund is a Fund (15.2.1) used to invest the excess cash and other securities held by governments and agencies of governments. Better financial leverage and risk diversification are achieved if investments are pooled together.

19.2.1 Sponsoring Government

The Sponsoring Government is the (usually higher) government with the financial expertise to create an Investment Trust Fund (19.2) for its own Funds (15.2.1) and Participating Government's (19.2.2) Funds.

19.2.2 Participating Government

A Participating Government is a non-Sponsoring Government (19.2.1) that is investing into an Investment Trust Fund (19.2).

19.2.3 Participating Fund

A Participating Fund is a Fund (15.2.1) that is participating in an Investment Trust Fund (19.2).

19.2.4 Sponsoring Government's Participating Fund

A Sponsoring Government's Participating Fund is a Participating Fund (19.2.3) owned by the Sponsoring Government (19.2.1).

19.2.5 Participating Government's Participating Fund

A Participating Government's Participating Fund is a Participating Fund (19.2.3) owned by a Participating Government (19.2.2).

19.2.6 Equity in Pooled Investments

Equity in Pooled Investments is an asset account used to record the Participating Fund's (19.2.3) investment in an Investment Trust Fund (19.2).

19.2.7 Partipating Fund's (19.2.3) Cash Transfer Out

		Debit	Credit
XX/XX/XX	Equity in Pooled Investments (19.2.6)	Cash Amount	
	Cash		Cash Amount

19.2.8 Participating Fund's (19.2.3) Mark-To-Market

Securities being transfered out to an Investment Trust Fund (19.2) need to be marked to market before being transfered out.

If increase in value:

		Debit	Credit
XX/XX/XX	Investment—*Investment Title*	Increase Amount	
	Revenues—Change in Fair Value of Investments		Increase Amount

If decrease in value:

		Debit	Credit
XX/XX/XX	Revenues—Change in Fair Value of Investments	Decrease Amount	
	Investment—*Investment Title*		Decrease Amount

19.2.9 Participating Fund's (19.2.3) Accrued Interest

Debt securities being transfered out to an Investment Trust Fund (19.2) will probably have accrued interest. Recognize this accrued interest as a revenue before transfering the debt security out.

		Debit	Credit
XX/XX/XX	Investment—*Investment Title*	Accrued Interest Amount	
	Revenues—Investment Earnings		Accrued Interest Amount

19.2.10 Participating Fund's (19.2.3) Accrued Dividends

Equity securities being transfered out to an Investment Trust Fund (19.2) might have accrued dividends. Recognize this accrued dividend as a revenue before transfering the equity security out.

		Debit	Credit
XX/XX/XX	Investment—*Investment Title*	Accrued Dividend Amount	
	Revenues—Investment Earnings		Accrued Dividend Amount

19.2.11 Participating Fund's (19.2.3) Security Transfer Out

		Debit	Credit
XX/XX/XX	Equity in Pooled Investments (19.2.6)	Book Value	
	Investment—*Investment Title*		Book Value

19.2.12 Due To *Sponsoring Government's Source Fund*

Due To *Sponsoring Government's Source Fund* is an Investment Trust Fund (19.2) liability account. It is used to store the deposits of cash and securities from the Sponsoring Government's (19.2.1) source fund.

19.2.13 Investment Trust Fund's Cash Transfer In From Sponsoring Government (19.2.1)

		Debit	Credit
XX/XX/XX	Cash	Amount	
	Due To *Sponsoring Government's Source Fund* (19.2.12)		Amount

19.2.14 Net Assets

Net Assets = Assets – Liabilities.

19.2.15 Held in Trust For Participant—*Participating Government*

Held in Trust For Participant—*Participating Government* is a Net Assets (19.2.14) account. It represents this Participating Government's (19.2.2) previous-end-of-year balance in the Investment Trust Fund (19.2).

19.2.16 Additions

Additions are reported in the Investment Trust Fund Statement of Changes in Net Assets (19.2.46). The additions only affect Participating Governments' (19.2.2) transactions and include:

1. Deposits of participants' cash and investments
2. Participants' investment earnings
3. Participants' increase (decrease) in fair value of investments

19.2.17 Deductions

Deductions are reported in the Investment Trust Fund Statement of Changes in Net Assets (19.2.46). The deductions only affect Participating Governments' (19.2.2) transactions and include:

1. Withdrawals of participants' cash

19.2.18 Additions—Deposits in Pooled Investments—*Participating Government*

Additions—Deposits in Pooled Investments—*Participating Government* is an Investment Trust Fund (19.2) Additions (19.2.16) account. It is used to store the deposits of cash and securities from each Participating Government (19.2.2).

19.2.19 Investment Trust Fund's Cash Transfer In From Participating Government (19.2.2)

		Debit	Credit
XX/XX/XX	Cash	Amount	
	Additions—Deposits in Pooled Investments—*Participating Government* (19.2.18)		Amount

19.2.20 Participating Fund's Security Book Value

The Participating Fund's Security Book Value is the book value of a security being transfered in to an Investment Trust Fund (19.2). It also includes any Accrued Interest or Accrued Dividends.

19.2.21 Investment Trust Fund's Security Book Value

The Investment Trust Fund's Security Book Value excludes any accrued interest or accrued dividends.

$$\text{Investment Trust Fund's Security Book Value} = \text{Participating Fund's Security Book Value (19.2.20)} - \text{Accrued Amount}$$

19.2.22 Accrued Interest Receivable

Accrued Interest Receivable is a receivable account used to store the interest or dividends either already accrued when a security is deposited into an Investment Trust Fund (19.2) or accrued after the deposit date.

19.2.23 Investment Trust Fund's Security Transfer In From Sponsoring Government

		Debit	Credit
XX/XX/XX	Investment—*Investment Title*	(19.2.21)	
	Accrued Interest Receivable (19.2.22)	Accrued Amount	
	Due To *Sponsoring Government's Source Fund* (19.2.12)		(19.2.20)

19.2.24 Investment Trust Fund's Security Transfer In From Participating Government

		Debit	Credit
XX/XX/XX	Investments—*Investment Title*	(19.2.21)	
	Accrued Interest Receivable (19.2.22)	Accrued Amount	
	Additions—Deposits in Pooled Investments—*Participating Government*		(19.2.20)

19.2.25 Additions—Change in Fair Value of Investments—*Participating Government*

Additions—Change in Fair Value of Investments—*Participating Government* is an Additions (19.2.16) account used to record each Participating Government's (19.2.2) share of increases or (decreases) in fair value. Note: the Sponsoring Government's (19.2.1) share of increases or (decreases) in fair value are posted to the liability account: Due To *Sponsoring Government's Source Fund* (19.2.12).

19.2.26 Additions—Investment Earnings—*Participating Government*

Additions—Investment Earnings—*Participating Government* is an Additions (19.2.16) account used to record each Participating Government's (19.2.2) share of dividends or interest. Note: the Sponsoring Government's (19.2.1) share of dividends or interest is posted to the liability account: Due To *Sponsoring Government's Source Fund* (19.2.12).

19.2.27 Total Fund Equity

Let m = the number of Sponsoring Government's Funds (19.2.4).
Let n = the number of Participating Government's Funds (19.2.5).
Total Fund Equity = $\sum_{j=1}^{m}$ Due To Sponsoring Government Source Fund$_j$ (19.2.12) Credit Balance
+ $\sum_{k=1}^{n}$ Held in Trust For Participant$_k$ (19.2.15) Credit Balance
+ $\sum_{k=1}^{n}$ Additions—Deposits in Pooled Investments$_k$ (19.2.18) Credit Balance
– $\sum_{k=1}^{n}$ Deductions—Withdrawals from Pooled Investments$_k$ (19.2.38) Debit Balance
+ $\sum_{k=1}^{n}$ Additions—Change in Fair Value of Investments$_k$ (19.2.25) Credit Balance
+ $\sum_{k=1}^{n}$ Additions—Investment Earnings$_k$ (19.2.26) Credit Balance

19.2.28 Participating Government Fund$_k$ Proportional Equity Numerator

Participating Government Fund$_k$ Proportional Equity Numerator =
+ Held in Trust For Participant$_k$ (19.2.15) Credit Balance
+ Additions—Deposits in Pooled Investments$_k$ (19.2.18) Credit Balance
– Deductions—Withdrawals from Pooled Investments$_k$ (19.2.38) Debit Balance
+ Additions—Change in Fair Value of Investments$_k$ (19.2.25) Credit Balance
+ Additions—Investment Earnings$_k$ (19.2.26) Credit Balance

19.2.29 Fund Proportional Equity

Calculate each Participating Fund's (19.2.3) Proportional Equity after a Transfer In (19.2.13) (19.2.19) (19.2.23) (19.2.24) or Transfer Out (19.2.37) (19.2.39).

for i in each Sponsoring Government's Participating Fund (19.2.4):
Sponsoring Government Fund$_i$ Proportional Equity =
$$\frac{\text{Due To Sponsoring Government Source Fund (19.2.12) Credit Balance}}{\text{Total Fund Equity (19.2.27)}}$$

for k in each Participating Government's Participating Fund (19.2.5):
Participating Government Fund$_k$ Proportional Equity =
$$\frac{\text{Participating Government Fund Proportional Equity Numerator (19.2.28)}}{\text{Total Fund Equity (19.2.27)}}$$

19.2.30 Investment Gain or (Loss)

Investment Gain or (Loss) = *Security* Fair Value –
Investment—*Security* Debit Balance

19.2.31 Proportional Gain or (Loss)

for k in each Participating Fund (19.2.3):
Proportional Gain or (Loss)$_k$ = Investment Gain or (Loss) (19.2.30) ×
Sponsoring Government Fund$_k$ Proportional Equity (19.2.29) or
Participating Government Fund$_k$ Proportional Equity (19.2.29)

19.2.32 Distribute The Gains or Losses

Before any deposits to or withdrawals from the Investment Trust Fund (19.2) (or before statement printing), distribute the gains or losses.

If Gain then:

		Debit	Credit
XX/XX/XX	Investments—*Investment Title*	(19.2.30)	
	Due To *Sponsoring Government Source Fund*		(19.2.31)
	Additions—Change in Fair Value of Investments—*Participating Government*		(19.2.31)

If (Loss) then:

		Debit	Credit
XX/XX/XX	Due To *Sponsoring Government Source Fund*	(19.2.31)	
	Additions—Change in Fair Value of Investments—*Participating Government*	(19.2.31)	
	Investments—*Investment Title*		(19.2.30)

Note: Adjust the liability account, Due To *Sponsoring Government's Source Source Fund* (19.2.12), for each of the Sponsoring Governments' (19.2.1) fund. Adjust the Additions (19.2.16) account, Additions—Change in Fair Value of Investments—*Participating Government* (19.2.25), for each Participating Governments' (19.2.2) fund.

19.2.33 Proportional Interest or Dividend

for k in each Participating Fund (19.2.3):

$$\text{Proportional Interest or Dividend}_k = \begin{array}{l}\text{Interest Accrued or Dividend Declared} \times \\ \text{Sponsoring Government Fund}_k \text{ Proportional Equity (19.2.29)} \quad \text{or} \\ \text{Participating Government Fund}_k \text{ Proportional Equity (19.2.29)}\end{array}$$

19.2.34 Distribute The Interest or Dividend

		Debit	Credit
XX/XX/XX	Accrued Interest (or Dividend) Receivable	Amount	
	Due To *Sponsoring Government Source Fund*		(19.2.33)
	Additions—Investment Earnings—*Participating Government*		(19.2.33)

Note: Adjust the liability account, Due To *Sponsoring Government's Source Source Fund* (19.2.12), for each of the Sponsoring Governments' (19.2.1) fund. Adjust the Additions (19.2.16) account, Additions—Investment Earnings—*Participating Government* (19.2.26), for each Participating Governments' (19.2.2) fund.

19.2.35 Purchase Securities

After a Cash Transfer In (19.2.13) (19.2.19), the Investment Trust Fund might need to purchase securities.

		Debit	Credit
XX/XX/XX	Investments—*Investment Title*	Amount	
	Cash		Amount

19.2.36 Sell Securities

To help fulfill a Transfer Out (19.2.37) (19.2.39), the Investment Trust Fund might need to sell securities.

		Debit	Credit
XX/XX/XX	Cash	Amount	
	Investments—*Investment Title*		Amount

19.2.37 Investment Trust Fund's Cash Transfer Out To Sponsoring Government (19.2.1)

		Debit	Credit
XX/XX/XX	Due To *Sponsoring Government's Source Fund* (19.2.12)	Amount	
	Cash		Amount

19.2.38 Deductions—Withdrawals from Pooled Investments—*Participating Government*

Deductions—Withdrawals from Pooled Investments—*Participating Government* is an Investment Trust Fund (19.2) Deductions (19.2.17) account. It is used to store the withdrawals of cash from each Participating Government (19.2.2).

19.2.39 Investment Trust Fund's Cash Transfer Out To Participating Government (19.2.2)

		Debit	Credit
XX/XX/XX	Deductions—Withdrawals from Pooled Investments—*Participating Government*	Amount	
	Cash		Amount

19.2.40 Additions—Deposits of Participants

Additions—Deposits of Participants is reported in the Additions section of the Investment Trust Fund Statement of Changes in Net Assets (19.2.46).

Let n = the number of Participating Government's Funds (19.2.5).

Additions—Deposits of Participants = $\sum_{k=1}^{n}$ Additions—Deposits in Pooled Investments$_k$ (19.2.18) Credit Balance

19.2.41 Additions—Investment Earnings

Additions—Investment Earnings is reported in the Additions section of the Investment Trust Fund Statement of Changes in Net Assets (19.2.46).

Let n = the number of Participating Government's Funds (19.2.5).

Additions—Investment Earnings = $\sum_{k=1}^{n}$ Additions—Investment Earnings$_k$ (19.2.26) Credit Balance

19.2.42 Additions—Increase in Fair Value of Investments

Additions—Increase in Fair Value of Investments is reported in the Additions section of the Investment Trust Fund Statement of Changes in Net Assets (19.2.46).

Let n = the number of Participating Government's Funds (19.2.5).

Additions—Increase in Fair Value of Investments =
$\sum_{k=1}^{n}$ Additions—Change in Fair Value of Investments$_k$ (19.2.25) Credit Balance

19.2.43 Additions—Total Additions

Additions—Total Additions is reported in the Additions section of the Investment Trust Fund Statement of Changes in Net Assets (19.2.46).

Additions—Total Additions = Additions—Deposits of Participants (19.2.40) +
Additions—Investment Earnings (19.2.41) +
Additions—Increase in Fair Value of Investments (19.2.42)

19.2.44 Deductions—Total Deductions

Deductions—Total Deductions is reported in the Deductions section of the Investment Trust Fund Statement of Changes in Net Assets (19.2.46).

Let n = the number of Participating Government's Funds (19.2.5).

Deductions—Total Deductions = $\sum_{k=1}^{n}$ Deductions—Withdrawals from Pooled Investments$_k$ (19.2.38) Debit Balance

19.2.45 Investment Trust Fund Change In Net Assets

Investment Trust Fund Change In Net Assets is reported in the Investment Trust Fund Statement of Changes in Net Assets (19.2.46).

Investment Trust Fund Change In Net Assets = Additions—Total Additions (19.2.43) –
Deductions—Total Deductions (19.2.44)

19.2.46 Investment Trust Fund Statement of Changes in Net Assets

Additions	
Deposits of participants	(19.2.40)
Investment earnings	(19.2.41)
Increase in fair value of investments	(19.2.42)
Total additions	(19.2.43)
Deductions	
Total deductions	(19.2.44)
Change in net assets	(19.2.45)

19.2.47 Closing Entries

		Debit	Credit
12/31/XX	Additions—Deposits of Participants—*Participating Government*	(19.2.40) Credit Balance	
	Held in Trust For Participant—*Participating Government*		(19.2.40)

		Debit	Credit
12/31/XX	Additions—Investment Earnings—*Participating Government*	(19.2.41) Credit Balance	
	Held in Trust For Participant—*Participating Government*		(19.2.41)

		Debit	Credit
12/31/XX	Additions—Change in Fair Value—*Participating Government*	(19.2.25) Credit Balance	
	Held in Trust For Participant—*Participating Government*		(19.2.25)

		Debit	Credit
12/31/XX	Held in Trust For Participant—*Participating Government*	(19.2.25) Debit Balance	
	Deductions—Total Deductions—*Participating Government*		(19.2.44)

Chapter 20

Individual Federal Income Taxes

20.1 Taxable Income

Taxable Income = + Adjusted Gross Income (20.3)
– Deduction Amount (20.6)
– Exemption Amount (20.14)

20.1.1 Rounded Taxable Income

The Tax Liability Amount (20.2) is not based upon the Taxable Income (20.1); instead, Taxable Income is rounded to the nearest $25 or $75. Note: cents are ignored.

If the last two digits of Taxable Income (20.1) is >= 0 and < 25 then:
Rounded Taxable Income = Taxable Income rounded up to 25
If the last two digits of Taxable Income (20.1) is = 25 then:
Rounded Taxable Income = Taxable Income
If the last two digits of Taxable Income (20.1) is > 25 and < 50 then
Rounded Taxable Income = Taxable Income rounded down to 25
If the last two digits of Taxable Income (20.1) is >= 50 and < 75 then:
Rounded Taxable Income = Taxable Income rounded up to 75
If the last two digits of Taxable Income (20.1) is = 75 then:
Rounded Taxable Income = Taxable Income
If the last two digits of Taxable Income (20.1) is > 75 and <= 99 then
Rounded Taxable Income = Taxable Income rounded down to 75

20.2 Tax Liability Amount

Tax Liability Amount is the amount calculated using the Tax on Rounded Taxable Income Algorithm (20.15.14) based upon the taxpayer's Filing Status (20.13) and Rounded Taxable Income (20.1.1), less Tax Credits (20.12).

Tax Liability Amount = + Tax on Rounded Taxable Income (20.15.14)
+ Dividend Tax Liability Amount (20.4.5)
– Tax Credits (20.12)

20.2.1 Taxes Due/(Refund)

Taxes Due/(Refund) = + Tax Liability Amount (20.2)
– Employer Withholdings
– Quarterly Prepayments

20.3 Adjusted Gross Income

Adjusted Gross Income = + Gross Income (20.4)
– Adjustments (20.5)

20.4 Gross Income

Gross Income = + Employment Income (20.4.1)
+ Passive Income (20.4.2)
+ Business Income (20.4.3)
+ Hobby Income
+ Unemployment Compensation
+ Qualified Social Security Benefits
+ Unqualified Student Scholarships (20.4.6)
+ Unreimbursed Employee Expenditures (20.10.1) Allowance
+ Other Income (20.4.4)

20.4.1 Employment Income

Employment Income = Income from Employers
–OR–
Employment Income = + Wages
+ Salary
+ Commissions
+ Bonuses
+ Tips

20.4.2 Passive Income

Passive Income = + Rents received from real estate property owned
+ Income from limited partnerships

20.4.3 Business Income

Business Income = + Income from conducting a business, trade, farm, or mine
+ Professional fees
–OR–
Business Income = + Income from Customers
+ Income from Clients
+ Income from Patients

20.4.4 Other Income

Other Income = + Interest Income
+ Prizes
+ Embezzled Funds
+ Illegal Activity Income
+ [Gambling Winnings – Gambling Losses] (← if positive)
+ Other Income (vaguely defined)

20.4.5 Dividend Tax Liability Amount

Dividend Tax Liability Amount = Dividend Income × 0.15

20.4.6 Unqualified Student Scholarships

Qualified Student Scholarships are cash inflows for the purpose of mitigating school tuition, books, fees, supplies, and equipment. Qualified Student Scholarships are excluded from Earned Income (20.12.6). Unqualified Student Scholarships, however, are included in Earned Income.

Unqualified Student Scholarships = + Tuition Waivers for Graduate Assistants
+ Scholarships for student housing
+ Scholarships for student meals

20.5 Adjustments

Adjustment are also known as Deductions For Adjusted Gross Income (20.3).

Adjustments = + Business Expenses (20.5.1)
+ Self-Employment Tax $\times \frac{1}{2}$
+ Alimony paid
+ Qualified Individual Retirement Account deposits
+ Qualified Health Savings Account deposits
+ Qualified Capital Losses
+ Qualified Student Loan Interest (20.5.2)
+ Qualified Hobby Expenditures

20.5.1 Business Expenses

Business Expenses = + Ordinary and Necessary Cash Outflows to Produce Business Income
+ Ordinary and Necessary Cash Outflows to Collect Business Income
+ Ordinary and Necessary Cash Outflows to Manage Property Held for the Production of Business Income.
+ Ordinary and Necessary Cash Outflows to Manage Property Held for the Production of Rental Income.
+ Ordinary and Necessary Cash Outflows to Manage Assets Held for the Production of Royalty Income.
+ Ordinary and Necessary Capital Asset Cost Recovery (depreciation)
+ State and Local Taxes and Fees

20.5.2 Qualified Student Loan Interest

Student Loan Interest Ceiling = 2,500 (for 2007)

Modified Adjusted Gross Income = Adjusted Gross Income (20.3) + Interest earned from U.S. Educational Savings Bonds

If Filing Status (20.13) = Single then:

Modified AGI Phaseout Floor = 55,000 (for 2007)

Modified AGI Phaseout Ceiling = 70,000 (for 2007)

Phase-out Range = Modified AGI Phaseout Ceiling – Modified AGI Phaseout Floor = 15,000 (for 2007)

If Filing Status (20.13) = Married, Filing Jointly then:

Modified AGI Phaseout Floor = 110,000 (for 2007)

Modified AGI Phaseout Ceiling = 140,000 (for 2007)

Phase-out Range = Modified AGI Phaseout Ceiling – Modified AGI Phaseout Floor = 30,000 (for 2007)

Calculate Denied Deduction Rate

$$\text{Denied Deduction Rate} = \frac{\text{Modified Adjusted Gross Income} - \text{Modified AGI Phaseout Floor}}{\text{Phase-out Range}}$$

If Denied Deduction Rate <= 0 (← nothing is denied) And
If Student Loan Interest Paid or Accrued <= Student Loan Interest Ceiling then:

Qualified Student Loan Interest = Student Loan Interest Paid or Accrued

If Denied Deduction Rate <= 0 (← nothing is denied) And
If Student Loan Interest Paid or Accrued > Student Loan Interest Ceiling then:

Qualified Student Loan Interest = Student Loan Interest Ceiling

If Denied Deduction Rate > 0 then:

Qualified Student Loan Interest = Student Loan Interest Ceiling × (1 – Denied Deduction Rate)

If Qualified Student Loan Interest < 0 (← if made more than the maximum Modified AGI) then:

Qualified Student Loan Interest = 0

20.6 Deduction Amount

If Standard Deduction (20.6.1) >= Itemized Deductions (20.7) then:

Deduction Amount = Standard Deduction (20.6.1)

If Itemized Deductions (20.7) > Standard Deduction (20.6.1) then:

Deduction Amount = Itemized Deductions (20.7)

20.6.1 Standard Deduction

Standard Deduction = Basic Standard Deduction (20.6.2) + Additional Standard Deduction (20.6.4)

20.6.2 Basic Standard Deduction

For year = 2007:
If Filing Status (20.13) = Single and Taxpayer does not have a Claimant (20.14.1) then:
Basic Standard Deduction = 5,350
If Filing Status (20.13) = Married, Filing Jointly then:
Basic Standard Deduction = 10,700
If Filing Status (20.13) = Surviving Spouse then:
Basic Standard Deduction = 10,700
If Filing Status (20.13) = Head of Household then:
Basic Standard Deduction = 7,850
If Filing Status (20.13) = Married, Filing Separately then:
Basic Standard Deduction = 5,350
If Filing Status (20.13) = Single and Taxpayer has a Claimant (20.14.1) then:
Expanded Earned Income = Earned Income (20.12.6) + 300
If Expanded Earned Income >= 5,350 then:
Basic Standard Deduction = 5,350
If Expanded Earned Income >= 850 then:
Basic Standard Deduction = Expanded Earned Income
If Expanded Earned Income < 850 then:
Basic Standard Deduction = 850

20.6.3 Additional Standard Deduction Count

Additional Standard Deduction Count = 0
If Taxpayer's Age >= 65 on January 1 then:
Additional Standard Deduction Count = Additional Standard Deduction Count + 1
If Taxpayer is blind then:
Additional Standard Deduction Count = Additional Standard Deduction Count + 1
If Taxpayer Spouse's Age >= 65 on January 1 then:
Additional Standard Deduction Count = Additional Standard Deduction Count + 1
If Taxpayer's Spouse is blind then:
Additional Standard Deduction Count = Additional Standard Deduction Count + 1

20.6.4 Additional Standard Deduction

For year = 2007:
If Filing Status (20.13) = Single then:
Additional Standard Deduction = 1,300 × Additional Standard Deduction Count (20.6.3)
If Filing Status (20.13) = Married, Filing Jointly then:
Additional Standard Deduction = 1,050 × Additional Standard Deduction Count (20.6.3)
If Filing Status (20.13) = Surviving Spouse then:
Additional Standard Deduction = 1,050 × Additional Standard Deduction Count (20.6.3)
If Filing Status (20.13) = Head of Household then:
Additional Standard Deduction = 1,300 × Additional Standard Deduction Count (20.6.3)
If Filing Status (20.13) = Married, Filing Separately then:
Additional Standard Deduction = 1,050 × Additional Standard Deduction Count (20.6.3)

20.7 Itemized Deductions

Itemized Deductions = + Itemized Personal Expenditures (20.7.1)
+ Qualified Charity Donations (20.8)
+ Miscellaneous Itemized Deductions, 2% Floor (20.10)
+ Other Miscellaneous Itemized Deductions, no 2% Floor (20.11)

20.7.1 Itemized Personal Expenditures

Itemized Personal Expenditures = + Qualified Medical Expenditures (20.7.2)
+ State and Local Income Taxes or State and Local Sales Taxes
+ State and Local Individual Ad Valorem Taxes (20.7.5)
+ Home Mortgage Interest, Paid or Accrued

20.7.2 Qualified Medical Expenditures

Medical Deduction Floor = Adjusted Gross Income (20.3) × 0.075
Qualified Medical Expenditures = Total Medical Expenditures (20.7.3) –
Medical Deduction Floor
If Qualified Medical Expenditures < 0 then:
Qualified Medical Expenditures = 0

20.7.3 Total Medical Expenditures

Total Medical Expenditures apply to those expenditures incurred by the taxpayer, spouse, or dependents. Medical care includes the diagnosis, cure, mitigation, treatment, or prevention of disease. Medical care also includes the professional treatment of body structure or body function. Medical Expenditures are potentially deductible (subject to the 2% floor constraint) in the year paid, regardless of the year of treatment.

Total Medical Expenditures = + Medical Care: Doctor Visits
+ Medical Care: Operations
+ Medical Care: Rehabilitation
+ Dental Care
+ Mental Care
+ Hospital Care
+ Qualified Nursing Home Care
+ Necessary Cosmetic Surgery
+ Lodging while away from home for Medical Care
+ Prescription Drugs
+ Nonprescription Insulin
+ Wheelchairs
+ Crutches
+ Artifical Limbs
+ Eyeglasses
+ Contact Lenses
+ Hearing Aids
+ Medical Transportation
+ Alcohol and Drug Rehabilitation
+ Qualified Costs to Stop Smoking
+ Qualified Costs to Mitigate Obesity
+ Medical Capital Acquisition Depreciation (20.7.4)
+ Medical Insurance Premiums (cash outflow)
– Medical Insurance Proceeds (cash inflow)

20.7.4 Medical Capital Acquisition Depreciation

Medical Capital Acquisition Depreciation is the depreciation of a Medical Capital Acquisition that is prescribed by a physician and used by the patient alone.

Medical Capital Acquisition = + Swimming Pool
+ Air Conditioner
+ Dust Eliminator
+ Elevator
+ Iron Lung Room
+ Other Medical Capital Acquisitions

$$\text{Medical Capital Acquisition Depreciation} = \frac{\text{Medical Capital Acquisition}}{\text{Useful Life}}$$

20.7.5 State and Local Individual Ad Valorem Taxes

State and Local Individual Ad Valorem Taxes are taxes levied on individual taxpayers (not businesses) by state and local governments. The taxpayer must own the real estate or personal property being taxed. Also, the tax must be based upon the asset's value. Excluded from Itemized Personal Expenditures (20.7.1) are:

1. taxes on personal property based on weight, model, year, or horsepower.
2. excise taxes based upon the purchase of a specific product, like gasoline, tobacco, or spirits.
3. fees, such as licenses, inspection, titles, registration, and tolls.
4. special assessments for public improvement.
5. business ad valorem taxes. Instead, they are Business Expenses (20.5.1).

$$\begin{aligned}\text{State and Local Individual Ad Valorem Taxes} = &+ \sum \text{Personal Property Ad Valorem Tax} \\ &+ \sum \text{Real Estate Ad Valorem Tax}\end{aligned}$$

20.8 Qualified Charity Donations

Generally, donations that relieve the government of the cost of providing aid or services are Itemized Personal Expenditures (20.7.1). Qualified donations require:

1. a Qualified Charitable Organization (20.8.9) or (20.8.10).
2. donative intent.
3. the acceptance by the charitable organization.
4. any consideration received to be subtracted. If consideration is received, then the donation amount is the premium over the fair value of the consideration received.

Excluded are:

1. expenditures for travel if a significant element of the travel is personal pleasure.
2. dues to clubs or similar groups.
3. games of chance.
4. the value of blood donated.
5. donations to homeowners associations.
6. donations to individuals.
7. services.

$$\text{Sum of Charity Donations} = \sum (\text{Qualified Donation} - \text{Fair Value of Consideration Received})$$

If Sum of Charity Donations <= Adjusted Gross Income (20.3) × 0.20 then:

$$\text{Qualified Charity Donations} = \text{Sum of Charity Donations}$$

If Sum of Charity Donations > Adjusted Gross Income (20.3) × 0.20 then:

$$\begin{aligned}\text{Qualified Charity Donations} = &\text{ Ordinary Income Donated Property Amount (20.8.1)} + \\ &\text{Capital Gain Donated Property Amount (20.8.4)}\end{aligned}$$

20.8.1 Ordinary Income Donated Property Amount

$$\begin{aligned}&\text{Ordinary Income Donated Property Amount} = \\ &\quad \text{Ordinary Income Property To Fifty Percent Organization At Basis or FMV (20.8.2)} + \\ &\quad \text{Ordinary Income Property To Thirty Percent Organization At Basis or FMV (20.8.3)}\end{aligned}$$

20.8.2 Ordinary Income Property To Fifty Percent Organization At Basis or FMV

Deduction Ceiling = Adjusted Gross Income (20.3) × 0.50
Sum Possible Deduction = 0
For all ordinary income property donated to a Qualified Fifty Percent Charitable Organization (20.8.9):
If Cost Basis <= Fair Market Value then:
Sum Possible Deduction = Sum Possible Deduction + Cost Basis
If Fair Market Value < Cost Basis then:
Sum Possible Deduction = Sum Possible Deduction + Fair Market Value
If Sum Possible Deduction >= Deduction Ceiling then:
Ordinary Income Property To Fifty Percent Organization At Basis or FMV = Deduction Ceiling
If Possible Deduction < Deduction Ceiling then:
Ordinary Income Property To Fifty Percent Organization At Basis or FMV = Sum Possible Deduction

20.8.3 Ordinary Income Property To Thirty Percent Organization At Basis or FMV

Deduction Ceiling = Adjusted Gross Income (20.3) × 0.30
Sum Possible Deduction = 0
For all ordinary income property donated to a Qualified Thirty Percent Charitable Organization (20.8.10):
If Cost Basis <= Fair Market Value then:
Sum Possible Deduction = Sum Possible Deduction + Cost Basis
If Fair Market Value < Cost Basis then:
Sum Possible Deduction = Sum Possible Deduction + Fair Market Value
If Sum Possible Deduction >= Deduction Ceiling then:
Ordinary Income Property To Thirty Percent Organization At Basis or FMV = Deduction Ceiling
If Possible Deduction < Deduction Ceiling then:
Ordinary Income Property To Thirty Percent Organization At Basis or FMV = Sum Possible Deduction

20.8.4 Capital Gain Donated Property Amount

Capital Gain Donated Property Amount =
Capital Gain Property To Fifty Percent Organization At Basis or FMV (20.8.5) +
Capital Gain Property To Thirty Percent Organization (20.8.8)

20.8.5 Capital Gain Property To Fifty Percent Organization At Basis or FMV

Capital Gain Property To Fifty Percent Organization At Basis or FMV =
Capital Gain Property To Fifty Percent Organization At FMV (20.8.6) +
Capital Gain Property To Fifty Percent Organization At Basis (20.8.6)

20.8.6 Capital Gain Property To Fifty Percent Organization At FMV

Deduction Ceiling = Adjusted Gross Income (20.3) × 0.30
Sum Possible Deduction = 0
For all capital gain property donated to a Qualified Fifty Percent Charitable Organization (20.8.9):
Sum Possible Deduction = Sum Possible Deduction + Fair Market Value
If Sum Possible Deduction >= Deduction Ceiling then:
Capital Gain Property To Fifty Percent Organization At FMV = Deduction Ceiling
If Possible Deduction < Deduction Ceiling then:
Capital Gain Property To Fifty Percent Organization At FMV = Sum Possible Deduction

20.8.7 Capital Gain Property To Fifty Percent Organization At Basis

Deduction Ceiling = Adjusted Gross Income (20.3) × 0.50
Sum Possible Deduction = 0
For all capital gain property donated to a Qualified Fifty Percent Charitable Organization (20.8.9):
Sum Possible Deduction = Sum Possible Deduction + Cost Basis
If Sum Possible Deduction >= Deduction Ceiling then:
Capital Gain Property To Fifty Percent Organization At Basis = Deduction Ceiling

If Possible Deduction < Deduction Ceiling then:
Capital Gain Property To Fifty Percent Organization At Basis = Sum Possible Deduction

20.8.8 Capital Gain Property To Thirty Percent Organization

Twenty Percent Ceiling = Adjusted Gross Income (20.3) × 0.20
Fifty Percent Ceiling = [Adjusted Gross Income (20.3) × 0.50] – $\sum$ Contribution To Qualified Fifty Percent Charitable Organization (20.8.9)
If Twenty Percent Ceiling <= Fifty Percent Ceiling then:
Deduction Ceiling = Twenty Percent Ceiling
If Fifty Percent Ceiling < Twenty Percent Ceiling then:
Deduction Ceiling = Fifty Percent Ceiling
Calculate Deduction
Sum Possible Deduction = 0
For all capital gain property donated to a Qualified Thirty Percent Charitable Organization (20.8.9):
Sum Possible Deduction = Sum Possible Deduction + Cost Basis
If Sum Possible Deduction >= Deduction Ceiling then:
Capital Gain Property To Thirty Percent Organization = Deduction Ceiling
If Possible Deduction < Deduction Ceiling then:
Capital Gain Property To Fifty Percent Organization = Sum Possible Deduction

20.8.9 Qualified Fifty Percent Charitable Organization

1. A charity
2. An organization that performs tests for public safety
3. An organization that fosters amateur sports
4. An organization that helps prevent cruelty to children
5. An organization that helps prevent cruelty to animals
6. A church or a convention of churches
7. A school with a regular faculty and curriculum
8. An organization that supports a qualified school
9. A hospital
10. The federal goverment or a state or local government
11. An organization that receives a substantial support from a government
12. A private operating foundation
13. A private nonoperating foundation with distributions within two and one-half months after the receipt of a contribution
14. A private nonoperating foundation that pools contributions to then donate them to charities

20.8.10 Qualified Thirty Percent Charitable Organization

1. A private nonoperating foundation that does not qualify as a Qualified Fifty Percent Charitable Organization (20.8.9)

20.9 Qualified Casualty and Theft Losses

Casualty Deduction Floor = Adjusted Gross Income (20.3) × 0.10
Qualified Casualty and Theft Losses = $\sum$ Casualty or Theft Loss – Casualty Deduction Floor
If Qualified Casualty and Theft Losses < 0 then:
Qualified Casualty and Theft Losses = 0

20.10 Miscellaneous Itemized Deductions, 2% Floor

Miscellaneous Itemized Deductions Floor = Adjusted Gross Income (20.3) × 0.02
Miscellaneous Itemized Deductions Amount = + Unreimbursed Employee Expenditures (20.10.1)
+ Investment Expenditures (20.10.2)
+ Unreimbursed Charity Expenditures (20.10.3)
+ Tax Return Preparation Fee
Miscellaneous Itemized Deductions = Miscellaneous Itemized Deductions Amount –
Miscellaneous Itemized Deductions Floor
If Miscellaneous Itemized Deductions < 0 then:
Miscellaneous Itemized Deductions = 0

20.10.1 Unreimbursed Employee Expenditures

Unreimbursed Employee Expenditures are some cash outflows that the taxpayer incurs as a result of being an employee. If the employeer pays the employee an allowance, that allowance is added to Gross Income (20.4). Nonetheless, Employee Expenditures, if qualified and not directly reimbursed, are a Miscellaneous Itemized Deduction, 2% Floor (20.10).

Unreimbursed Employee Expenditures = + Books, journals, and magazines
+ Computers and phones, if for the convenience of the employer
+ Union, professional, and trade association dues
+ Tools, equipment, and supplies
+ Uniforms not used for normal wear
+ Upkeep of uniforms not used for normal wear
+ Job education expenses for the same line of work
+ Job search expenses for the same line of work, even if unsuccesful
+ Job travel plane, train, or bus from/to tax home and destination
+ Job travel taxis, bus, and limousine from/to station and hotel
+ Job travel taxis, bus, and limousine from/to hotel and business
+ Job travel hotels, telephone calls, and laundry
+ Job travel meals × 0.50 (← generally)

20.10.2 Investment Expenditures

Investment Expenditures = + Accounting fees for investment tracking
+ Financial periodicals
+ Investment expenses (schedule K-1)
+ Investment fees: trust, trustee, and custodial administration
+ Safe-deposit box rental

20.10.3 Unreimbursed Charity Expenditures

Unreimbursed expenditures incurred by the taxpayer while providing charity services may be deductable as Itemized Deductions (20.7). Examples include the cost of a uniform (without general utility), lodging (reasonable), meals (while away), and 14 cents per mile (in 2007) for transportation.

20.11 Other Miscellaneous Itemized Deductions, no 2% Floor

Other Miscellaneous Itemized Deductions = + Gambling Losses – Gambling Winnings (← if positive)
+ Impairment-related work expenses
+ Others

20.12 Tax Credits

Tax Credits = + Child Tax Credit (20.12.1)
+ Adoption Expenses Credit (20.12.4)
+ Child and Dependent Care Expenses
+ Education Tax Credits
+ Earned Income Credit

20.12.1 Child Tax Credit

Credit Per Child = 1,000 (in 2007)
Child Tax Credit = [Credit Per Child × Child Tax Credit Qualifying Count (20.12.3)] –
Child Tax Credit Phaseout Amount (20.12.2)

20.12.2 Child Tax Credit Phaseout Amount

If Filing Status (20.13) = Single then:
AGI Phaseout Floor = 75,000 (for 2007)
If Filing Status (20.13) = Married, Filing Jointly then:
AGI Phaseout Floor = 110,000 (for 2007)
If Filing Status (20.13) = Married, Filing Separately then:
AGI Phaseout Floor = 55,000 (for 2007)
Calculate Phaseout Amount
Phaseout Numerator = Adjusted Gross Income (20.3) – AGI Phaseout Floor
If Phaseout Numerator <= 0 then:
Child Tax Credit Phaseout Amount = 0
If Phaseout Numerator > 0 then:
Child Tax Credit Phaseout Amount = RoundedUp($\frac{\text{Phaseout Numerator}}{1{,}000}$) × 50

20.12.3 Child Tax Credit Qualifying Count

Qualifying Count = 0
For each Dependent who passes the Dependency Exemption Decision Tree (20.15.10) and
If Age <= 16 on 12/31 and
If a U.S. Citizen or Resident:
Qualifying Count = Qualifying Count + 1

20.12.4 Adoption Expenses Credit

If adopted child's age at time of adoption <= 17 or
If adopted person is mentally or physically incapable of self care and
If Filing Status (20.13) = Married, Filing Jointly and
If Adoption Finalized Year = Tax Year (← the adoption must be finalized) then:
Credit Ceiling = 11,390 (for 2007)
Calculate Allowable Adoption Credit
Total Adoption Expenses = $\sum$ Adoption Expense Regardless of Year
If Total Adoption Expenses >= Credit Ceiling then:
Allowable Adoption Credit = Credit Ceiling
If Total Adoption Expenses < Credit Ceiling then:
Allowable Adoption Credit = Total Adoption Expenses
Calculate Adoption Expenses Credit
Adoption Expenses Credit = Allowable Adoption Credit – Adoption Credit Phaseout Amount (20.12.5)

20.12.5 Adoption Credit Phaseout Amount

Phaseout AGI Floor = 170,820 (for 2007)
Phaseout Denominator = 40,000 (for 2007)
Phaseout Difference = Adjusted Gross Income (20.3) – Phaseout AGI Floor
If Phaseout Difference <= 0 then:
Adoption Credit Phaseout Amount = 0
If Phaseout Difference > 0 then:
Adoption Credit Phaseout Amount = Allowable Adoption Credit × $\frac{\text{Phaseout Difference}}{\text{Phaseout Denominator}}$

20.12.6 Earned Income

Earned Income = + Employment Income (20.4.1)
+ Unqualified Student Scholarships (20.4.6)
+ Business Income (20.4.3)
– Business Expenses (20.5.1)

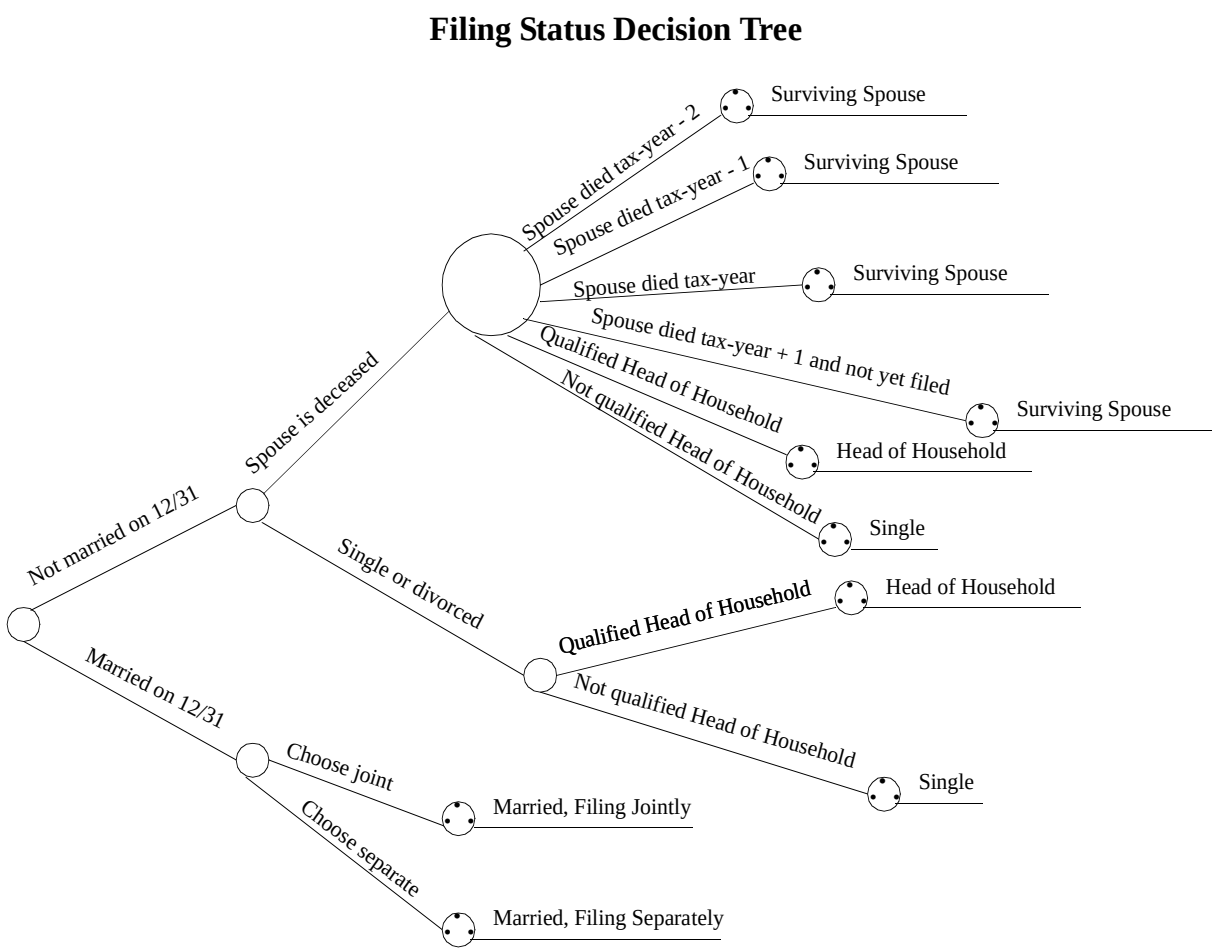
20.13 Filing Status

A taxpayer's filing status is choosen each year to minimize the Tax Liability Amount (20.2), depending upon the taxpayer's qualifying characteristics. Each filing status has its own Tax Rate Schedule (20.15.11) for the same Taxable Income (20.1).

20.13.1 Head of Household

Head of Household = Unmarried Taxpayer with one or more Dependents (20.15.10).

20.13.2 Filing Status Decision Tree



20.14 Exemption Amount

Exemption Amount Per Exemption Count (20.14.2) = 3,400 (for 2007)
Exemption Amount = Exemption Amount Per Exemption Count ×
Exemption Count (20.14.2)

20.14.1 Claimant

A taxpayer has a claimant if the taxpayer is claimed as a dependent on another taxpayer's tax return. A taxpayer may have at most one Claimant.

20.14.2 Exemption Count

Exemption Count = 0
If Taxpayer has no Claimant (20.14.1) then:
Exemption Count = Exemption Count + 1
If Taxpayer has a spouse and Filing Status (20.13) = Married, Filing Jointly then:
Exemption Count = Exemption Count + 1
For each Dependent who passes the Dependency Exemption Decision Tree (20.15.10):
Exemption Count = Exemption Count + 1

20.15 Dependency Exemption

20.15.1 Immediate Family

Immediate Family members may be considered for Dependency Exemption and help increase the taxpayer's Exemption Amount (20.14). To be considered, the Immediate Family member must declare as permanent the taxpayer's address and have been alive on January 1. The dependent need not live at the taxpayer's address. For example, she may live away at school.

Immediate Family (1) = {own child, adopted child,
foster child, step child,
half child, own grandchild,
adopted grandchild, foster grandchild,
step grandchild, half grandchild,
own sibling, half sibling,
step sibling}

20.15.2 Extended Family

Extended Family members may be considered for Dependency Exemption and help increase the taxpayer's Exemption Amount (20.14). To be considered, the Extended Family member must have been alive on January 1.

Extended Family (2) = {Immediate Family (20.15.1), parent,
grandparent, aunt/uncle,
cousin, son-inlaw,
daughter-inlaw, father-inlaw,
mother-inlaw, brother-inlaw,
sister-inlaw}

20.15.3 Child Support Test

Exclude as exemptions high-incomed children, like child sitcom stars.

Child Income = $\sum$ Child Earned Income (20.12.6)
Total Family Income = $\sum$ Family Gross Income (20.4)
Support Ratio = $\frac{\text{Child Income}}{\text{Total Family Income}}$
If Support Ratio < 0.50 then:
Child Support Test (3) Passes

20.15.4 Support Test

Only include as exemptions those dependents that receive substantial support from the claimant.

Claimant Expenditures = $\sum$ Claimant's Expenditure for Dependent

Dependent Expenditures for Self = + $\sum$ Dependent Income (excluding all scholarships, like tuition, books, housing, etc.)
+ Δ Savings

$$\text{Support Ratio} = \frac{\text{Claimant Expenditures}}{\text{Dependent Expenditures for Self} + \text{Claimant Expenditures}}$$

If Support Ratio > 0.50 then:
Support Test (4) Passes

20.15.5 Gross Income Test

Qualifying Gross Income = + Dependent's Gross Income (20.4)
+ Scholarship for room and food only, not tuition, fees, etc.

If Qualifying Gross Income < Exemption Amount Per Exemption Count (20.14.2) then:
Gross Income Test (5) Passes

20.15.6 Young Age Test

Age Years = Tax Year – Birth Year
If Birthdate = January 1 then:
Age Years = Age Years + 1
If Age Years <= 18 then:
Young Age Test (6) Passes

20.15.7 Young Student Test

Age Years = Tax Year – Birth Year
If Birthdate = January 1 then:
Age Years = Age Years + 1
If Age Years <= 23 and
If enrolled full-time for any part of the month for five months then:
Young Student Test (7) Passes

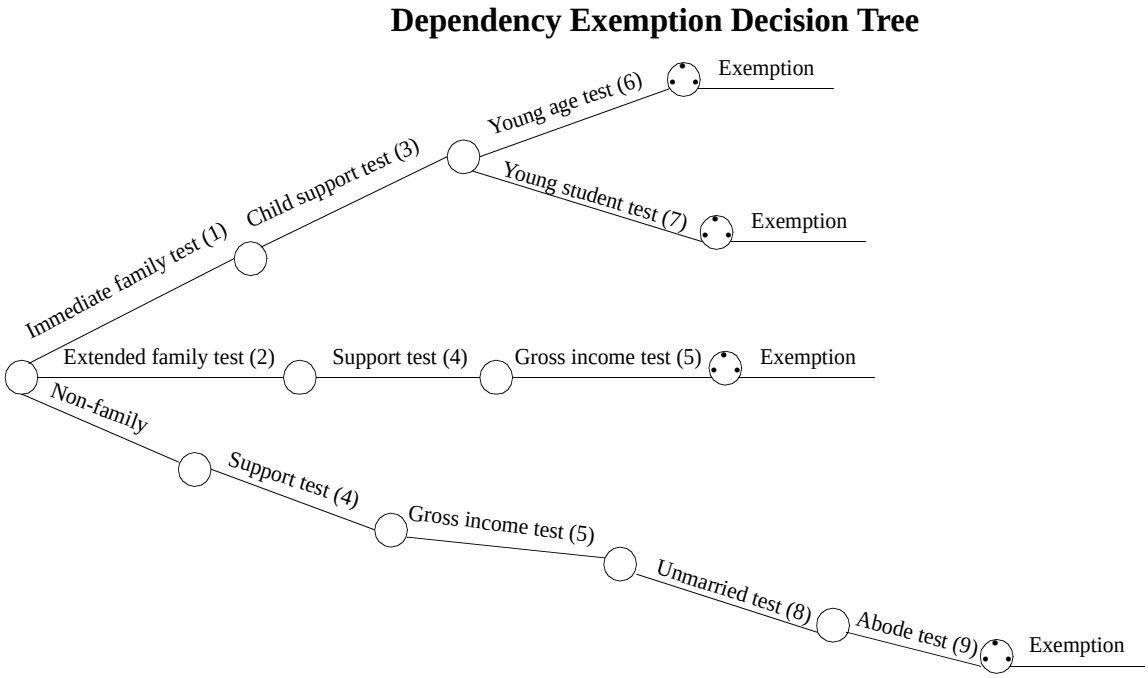
20.15.8 Unmarried Test

If the dependent did not have a spouse for the entire year, then the Unmarried Test (8) passes.

20.15.9 Abode Test

If the dependent lived at the taxpayer's address for half the year, then the Abode Test (9) passes.

20.15.10 Dependency Exemption Decision Tree



20.15.11 Tax Rate Schedule

Build the following tax table to calculate the Tax Liability Amount (20.2). The Minimum and Maximum are Taxable Income (20.1) ranges depending upon the taxpayer's Filing Status (20.13). Then execute the Tax on Rounded Taxable Income Algorithm (20.15.14).

Tax Rate Schedule					
Minimum (exclusive)	Maximum (inclusive)	Marginal Rate	Difference	Layer Amount	Tax Amount

After building the tax table, perform the Tax on Rounded Taxable Income Algorithm (20.15.14).

20.15.12 Individual 2007 Tax Rate Schedule (20.15.11)/Filing Status (20.13): Single

Build the following tax table to calculate the Individual 2007 Tax Liability Amount (20.2) for Filing Status (20.13) = Single. Then execute the Tax on Rounded Taxable Income Algorithm (20.15.14).

Individual 2007 Tax Rate Schedule/Filing Status (20.13): Single					
Minimum (exclusive)	Maximum (inclusive)	Marginal Rate	Difference	Layer Amount	Tax Amount
0	7,825	10%	7,825		
7,825	31,850	15%	24,025		
31,850	77,100	25%	45,250		
77,100	160,850	28%	83,750		
160,850	349,700	33%	188,850		
349,700	Infinity	35%	Infinity		
					$\sum$ = (20.15.14)

20.15.13 Individual 2007 Tax Rate Schedule (20.15.11)/Filing Status (20.13): Married, Filing Jointly or Surviving Spouse

Build the following tax table to calculate the Individual 2007 Tax Liability Amount (20.2) for Filing Status (20.13) = Married, Filing Jointly or Surviving Spouse. Then execute the Tax on Rounded Taxable Income Algorithm (20.15.14).

Individual 2007 Tax Rate Schedule/Filing Status (20.13): Married, Filing Jointly or Surviving Spouse					
Minimum (exclusive)	Maximum (inclusive)	Marginal Rate	Difference	Layer Amount	Tax Amount
0	15,650	10%	15,650		
15,650	63,700	15%	48,050		
63,700	128,500	25%	64,800		
128,500	195,850	28%	67,350		
195,850	349,700	33%	153,850		
349,700	Infinity	35%	Infinity		
					$\sum$ = (20.15.14)

20.15.14 Tax on Rounded Taxable Income

Build the Tax Rate Schedule (20.15.11) depending upon the taxpayer's Filing Status (20.13).

1 Remaining = Rounded Taxable Income (20.1.1)
2 For L in each layer from top to bottom:
2.1 If Remaining <= Difference_L then:
2.2 Layer Amount_L = Remaining
2.3 Tax Amount_L = Layer Amount_L × Marginal Rate_L
2.4 Remaining = 0
2.5 Goto step 3
2.6 If Remaining > Difference_L then:
2.7 Layer Amount_L = Difference_L
2.8 Tax Amount_L = Layer Amount_L × Marginal Rate_L
2.9 Remaining = Remaining - Difference_L
3 Tax on Rounded Taxable Income = 0
4 For L in each layer from top to bottom:
4.1 Tax on Rounded Taxable Income = Tax on Rounded Taxable Income + Tax Amount_L