Accounting
Building Business Skills

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Chapter Five:
Reporting and Analysing Inventory

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Learning Objectives

- Record purchases and sales of inventory under a periodic inventory system.
- Determine cost of goods sold under a periodic inventory system.
- Describe the steps in determining inventory quantities.
- Identify the unique features of the statement of financial performance for a merchandising business under a periodic inventory system.
- Explain the basis of accounting for inventories and apply the inventory cost flow methods under a periodic inventory system.

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Learning Objectives

- Explain the financial statement effects of each of the inventory cost flow methods.
- Explain the lower of cost and market basis of accounting for inventories.
- Calculate and interpret the inventory turnover ratio.
- Apply the inventory cost flow methods to perpetual inventory records.
- Indicate the effects of inventory errors on the financial statements.

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Classifying Inventory

- Raw materials: materials used that have not yet been placed in the production process
- Work in process: manufactured inventory not yet completed in the production process
- Finished goods: completed manufactured items ready for sale

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Periodic Inventory system

- Sales recorded when the sale is made
  Cost of the goods sold not recorded at date of sale
- Quantity on hand & Cost of Goods Sold determined by stock take at end of period

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Periodic vs Perpetual system

Key difference between periodic and perpetual inventory is the point at which the costs of goods sold is computed

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Recording Purchases of inventory

Example:

Sauk Stereo purchases inventory for $3,800 from PW Audio Supply Ltd.

May	5	Purchases	3800	
		Accounts Payable		3800
		(To record goods purchased on account, terms 2/7, n/30)		

- Purchases account used to record cost of all inventory purchased

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Purchase returns & allowances

Example:

Sauk Stereo returns goods valued at $300 to PW Audio Supply as are incorrect

May	8	Accounts Payable	300	
		Purchase Returns and Allowances		300
		(To record return of incorrect goods purchased from PW Audio Supply Ltd)		

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Freight costs

Example:

Freight costs incurred by purchaser:

Sauk Stereo pays We Deliver Freight Co. $150 for freight charges on purchases

May	6	Freight-in (Transportation-in)	150	
		Cash		150
		(To record payment of freight on goods purchased)		

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Purchase discounts

Example:

Sauk Stereo pays PW Audio Supply Ltd balance outstanding receiving a 2% discount

May	12	Accounts Payable ($3800 – $300)	3 500	
		Discount Received ($3500 × 0.02)		70
		Cash		3 430
		(To record payment to PW Audio Supply Ltd within the discount period)		

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Recording Sales of Inventory

Example:

Sale of inventory to Sauk Stereo by PW Audio Supply Ltd

May	5	Accounts Receivable	3 800	
		Sales		3 800
		(To record credit sales per invoice no. 731 to Sauk Stereo)		

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Sales Returns & allowances

Example:

Goods returned to PW Audio Supply Ltd by Sauk Stereo

May	8	Sales Returns and Allowances	300	
		Accounts Receivable		300
		(To record return of goods from Sauk Stereo)		

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Sales Discounts

PW Audio Supply Ltd. Receives cash of $3,430 from Sauk Stereo after allowing 2% discount

May 12	Cash		3 430	
	Discount Allowed ($3500 × 0.02)		70	
	Accounts Receivable ($3800 – $300)			3 500
	(To record collection from Sauk Stereo within 2/7, n/30 discount period)			

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Comparison of Entries – Perpetual vs. Periodic

ENTRIES IN SAUK STEREO'S RECORDS

	Transaction	Perpetual inventory system			Periodic inventory system		
May 5	Purchase of inventory on credit.	Inventory	3 800		Purchases	3800	
		Accounts Payable		3 800	Accounts Payable		3800
May 8	Purchases returns and allowances.	Accounts Payable	300		Accounts Payable	300	
		Inventory		300	Purchase Returns and Allowances		300
May 6	Freight costs on purchases.	Freight-in/Inventory	150		Freight-in	150	
		Cash		150	Cash		150
May 12	Payment on account with a discount.	Accounts Payable	3500		Accounts Payable	3500	
		Cash		3430	Cash		3430
		Discount Received		70	Discount Received		70

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Comparison of Entries – Perpetual vs. Periodic (cont.)

ENTRIES IN PW AUDIO SUPPLY LTD'S RECORDS

	Transaction	Perpetual inventory system			Periodic inventory system		
May 5	Sale of inventory on credit.	Accounts Receivable	3800		Accounts Receivable	3800	
		Sales		3800	Sales		3800
		Cost of Goods Sold	2400		No entry for cost of goods sold		
		Inventory		2400			
May 8	Return of inventory sold.	Sales Returns and Allowances	300		Sales Returns and Allowances	300	
		Accounts Receivable		300	Accounts Receivable		300
		Inventory	140		No entry for cost of goods sold		
		Cost of Goods Sold		140			
May 12	Cash received on account with a discount.	Cash	3430		Cash	3430	
		Discount Allowed	70		Discount Allowed	70	
		Accounts Receivable		3500	Accounts Receivable		3500

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Determining Cost of Goods Sold

Periodic inventory system

- Record the purchase of inventory
- Determine cost of goods purchased
- Determine cost of goods on hand at beginning and end of period

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Determining Cost of Goods on hand

Steps:

- Undertake a physical inventory count
- Apply costs to items counted in the inventory

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Determining cost of goods purchased

- Accounts used to record purchases

Item	Periodic account title	Debit or credit entry	Effect on cost of goods purchased
Invoice price	Purchases	Debit	Increase
Freight charges paid by purchaser	Freight-in	Debit	Increase
Purchase returns and allowances granted by seller	Purchase Returns and Allowances	Credit	Decrease

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Determining cost of goods purchased

- Calculation of net purchases

	Purchases	$ 325 000
(1)	Less: Purchase returns and allowances	17 200
	Net purchases	**307 800**
(2)	Add: Freight-in	12 200
	Cost of goods purchased	**$320 000**

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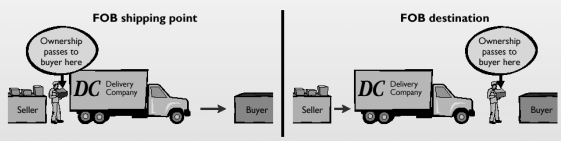
Determining inventory quantities

- Count the physical inventory on hand (stock-take)
- Determine ownership of the goods
  - Goods in transit



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Calculating Cost of Goods Sold

Example:
PW Audio Supply Ltd.

	Beginning inventory	$ 36 000
(1)	Add: cost of goods purchased	320 000
	Cost of goods available for sale	**356 000**
(2)	Less: Ending inventory	40 000
	Cost of goods sold	**$316 000**

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Statement of Financial Performance presentation

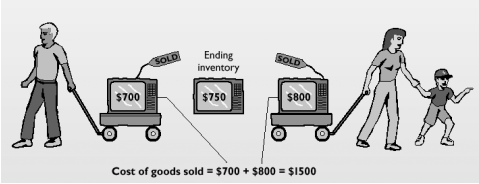
PW AUDIO SUPPLY LTD
Statement of Financial Performance
for the year ended 30 June 2003

Sales revenue			
Gross sales revenue			$ 480 000
Less: Sales returns and allowances			20 000
Net sales			460 000
Cost of goods sold			
Inventory, 1 July 2002		$ 36 000	
Purchases	$325 000		
Less: Purchase returns and allowances	17 200		
Net purchases	307 800		
Add: Freight-in	12 200		
Cost of goods purchased		320 000	
Cost of goods available for sale		356 000	
Inventory, 30 June 2003		40 000	
Cost of goods sold			316 000
Gross profit			144 000
Other operating revenue			24 000
			168 000
Operating expenses			125 000
Profit before income tax			43 000
Less: Income tax expense			12 900
Net profit after tax			$ 30 100

Inventory Cost Flow methods

Specific identification

- items sold specifically identified



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Cost Flow assumptions

- First-in, first-out (F.I.F.O.)
- Last-in, last-out (L.I.F.O.)
- Average cost

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Cost Flow assumptions

Example:
Dubbo Electronics

DUBBO ELECTRONICS
Astro condensers

Date	Explanation	Units	Unit cost	Total cost
Jan. 1	Beginning inventory	100	$10	$ 1 000
Apr. 15	Purchase	200	11	2 200
Aug. 24	Purchase	300	12	3 600
Nov. 27	Purchase	400	13	5 200
	Total	1000		$12 000

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First-in, first-out

assumption: first goods purchased are first goods sold

- Cost of goods available for sale

COST OF GOODS AVAILABLE FOR SALE

Date	Explanation	Units	Unit cost	Total cost
Jan. 1	Beginning inventory	100	$10	$ 1 000
Apr. 15	Purchase	200	11	2 200
Aug. 24	Purchase	300	12	3 600
Nov. 27	Purchase	400	13	5 200
	Total	1000		**$ 12 000**

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First-in, first-out (F.I.F.O)

- 1. Ending inventory
  2. Cost of Goods Sold

STEP 1: ENDING INVENTORY				STEP 2: COST OF GOODS SOLD	
Date	Units	Unit cost	Total cost		
Nov. 27	400	$13	$ 5200	Cost of goods available for sale	$12 000
Aug. 24	50	12	600	Less: Ending inventory	5 800
Total	450		**$ 5800**	Cost of goods sold	**$ 6 200**

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First-in, First-out (F.I.F.O)

Proof of Cost of Goods Sold

Date	Units	Unit cost	Total cost
Jan. 1	100	$10	$ 1000
Apr. 15	200	11	2200
Aug. 24	250	12	3000
Total	550		$6200

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Last-in, First-out (L.I.F.O.)

assumption: last goods purchased are first goods sold

- Cost of goods available for sale

COST OF GOODS AVAILABLE FOR SALE				
Date	Explanation	Units	Unit cost	Total cost
Jan. 1	Beginning inventory	100	$10	$ 1 000
Apr. 15	Purchase	200	11	2 200
Aug. 24	Purchase	300	12	3 600
Nov. 27	Purchase	400	13	5 200
	Total	1000		$12 000

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Last-in, First-out (L.I.F.O.)

- 1. Ending inventory
  2. Cost of Goods Sold

STEP 1: ENDING INVENTORY				STEP 2: COST OF GOODS SOLD	
Date	Units	Unit cost	Total cost		
Jan 1	100	$10	$ 1000	Cost of goods available for sale	$12 000
Apr. 15	200	11	2200	Less: Ending inventory	5 000
Aug. 24	150	12	1800	Cost of goods sold	$ 7 000
Total	450		$5000		

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Last-in, last-out (F.I.F.O)

Proof of Cost of Goods Sold

Date	Units	Unit cost	Total cost
Nov. 27	400	$13	$ 5200
Aug. 24	150	12	1800
Total	550		$7000

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Average Cost

assumption: goods sold are similar in nature

Cost calculated on weighted average unit cost

Formula: weighted average unit cost

$$\frac{\text{cost of goods available for sale}}{\text{total units available for sale}}$$

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Average Cost

- Cost of Goods Available for sale

COST OF GOODS AVAILABLE FOR SALE

Date	Explanation	Units	Unit cost	Total cost
Jan. 1	Beginning inventory	100	$10	$ 1 000
Apr. 15	Purchase	200	11	2 200
Aug. 24	Purchase	300	12	3 600
Nov. 27	Purchase	400	13	5 200
	Total	1000		$12 000

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Average Cost

- 1. Ending inventory
  2. Cost of Goods Sold

STEP 1: ENDING INVENTORY				STEP 2: COST OF GOODS SOLD	
$12 000	÷ 1000	= $12.00		Cost of goods available for sale	$12 000
Units	**Unit cost**	**Total cost**		Less: Ending inventory	5 400
450	$12.00	$5400		Cost of goods sold	$ 6600

Effects of Cost flow methods

- Statement of Financial Performance
- Statement of Financial Position
- Taxation

Effects of Cost flow

DUBBO ELECTRONICS
Condensed Statements of Financial Performance

	FIFO	LIFO	Average cost
Sales	$ 11 500	$ 11 500	$ 11 500
Beginning inventory	1 000	1 000	1 000
Purchases	11 000	11 000	11 000
Cost of goods available for sale	12 000	12 000	12 000
Ending inventory	**5 800**	**5 000**	**5 400**
Cost of goods sold	6 200	7 000	6 600
Gross profit	5 300	4 500	4 900
Operating expenses	2 000	2 000	2 000
Profit before income tax	3 300	2 500	2 900
Income tax expense (30%)	990	750	870
Net profit after tax	$ **2 310**	$ **1 750**	$ **2 030**

Income Statement Effects

- In periods of increasing prices
  - FIFO reports the highest net income
  - LIFO the lowest
  - average cost falls in the middle.
- In periods of decreasing prices
  - FIFO will report the lowest net income
  - LIFO the highest
  - average cost in the middle.

Balance Sheet Effects

In a period of increasing prices costs allocated to ending inventory using:

- FIFO will approximate current costs
- LIFO will be understated

Lower of Cost and Market Value

When the value of inventory is lower than its cost, the inventory is written down to its market value by valuing the inventory at the lower of cost or market (LCM) in the period in which the price decline occurs.

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Analysis of Inventory

Inventory turnover ratio: indicates how quickly inventory is sold

$$\frac{\text{Cost of Goods Sold}}{\text{average inventory}}$$

$$\text{days in inventory} \quad \frac{365}{\text{inventory turnover ratio}}$$

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Inventory turnover ratio

$$\text{Inventory turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

$$\text{Days in inventory} = \frac{365}{\text{Inventory turnover ratio}}$$

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Inventory Cost flow methods – Perpetual system

Example: Dubbo Electronics

DUBBO ELECTRONICS
Astro condensers

Date	Explanation	Units	Unit cost	Total cost	Balance in units
Jan. 1	Beginning inventory	100	$10	$ 1 000	100
Apr. 15	Purchases	200	11	2 200	300
Aug. 24	Purchases	300	12	3 600	600
Sept. 10	Sale	550			50
Nov. 27	Purchases	400	13	5 200	450
				$12 000	

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First-in, First-out

Date	Purchases		Sales	Balance	
Jan. 1				(100 @ $10)	$1000
Apr. 15	(200 @ $11)	$2200		(100 @ $10) (200 @ $11)	$3200
Aug. 24	(300 @ $12)	$3600		(100 @ $10) (200 @ $11) (300 @ $12)	$6800
Sept. 10			(100 @ $10) (200 @ $11) (250 @ $12) $6200	(50 @ $12)	$ 600
Nov. 27	(400 @ $13)	$5200		(50 @ $12) (400 @ $13)	$5800

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Last-in, Last-out

Date	Purchases		Sales	Balance	
Jan. 1				(100 @ $10)	$1000
Apr. 15	(200 @ $11)	$2200		(100 @ $10) (200 @ $11)	$3200
Aug. 24	(300 @ $12)	$3600		(100 @ $10) (200 @ $11) (300 @ $12)	$6800
Sept. 10			300 @ $12) (200 @ $11) (50 @ $10) $6300	(50 @ $10)	$ 500
Nov. 27	(400 @ $13)	$5200		(50 @ $10) (400 @ $13)	$5700

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Average Cost

Date	Purchases		Sales	Balance	
Jan. 1				(100 @ $10)	$1000
Apr. 15	(200 @ $11)	$2200		(300 @ $10.667)	$3200
Aug. 24	(300 @ $12)	$3600		(600 @ $11.333)	$6800
Sept. 10			(550 @ $11.333) $6233	(50 @ $11.333)	$ 567
Nov. 27	(400 @ $13)	$5200		(450 @ $12.816)	$5767

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Demonstration problem

New Zealand Souvenir Shop Pty. Ltd.

Work through on your own and check your results with the suggested solution provided

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Inventory errors

Effects on profit

Inventory error	Cost of goods sold	Profit
Understate beginning inventory	Understated	Overstated
Overstate beginning inventory	Overstated	Understated
Understate ending inventory	Overstated	Understated
Overstate ending inventory	Understated	Overstated

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Inventory errors

Effects on Assets & Owners' Equity

Ending inventory error	Assets	Liabilities	Owners' equity
Overstated	Overstated	No effect	Overstated
Understated	Understated	No effect	Understated

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