MBA in Food & Agribusiness
Financial Management

Inventories (IAS2) Perpetual System

Perpetual vs. Periodic

Perpetual versus Periodic Systems

Perpetual
....

- ✓ Continuous record of quantities and costs is maintained as purchases and sales are made
- ✓ Every purchase is recorded on the balance sheet as inventory
- ✓ Cost of goods sold is accumulated as sales are made; costs are transferred from the Merchandise Inventory account to the Cost of Goods Sold account
- ✓ Cost of ending inventory is the balance of the Merchandise Inventory account

Periodic
....

- ✓ Only ending inventory is counted and priced
- ✓ Every purchase is recorded in the income statement
- ✓ Cost of goods sold is determined by deducting the cost of the ending inventory from the cost of goods available for sale

Journal entries Summary for Inventory under Perpetual and Periodic Systems

	Perpetual system	Periodic system
Sales	DR Accounts receivable CR Sales + DR Cost of Goods Sold CR Merchandise Inventory	DR Accounts receivable CR Sales
Purchase	DR Merchandise Inventory (B/S) CR Accounts Payable	DR Purchases (I/S) CR Accounts Payable

Journal entries Summary for Inventory under Perpetual and Periodic Systems

	Perpetual system	Periodic system
y/e ad just		DR Inventory CR COGS
COGS	Maintained for every sale	Calculated once a year as: Inventory op. pos. + net purchases – Inventory clos. pos. = COGS.

Inventories (periodic vs perpetual)

Example

•On 1 July 2008 the balance of inventory for ABC Ltd was $6,700, comprising 10 units @ $670 each.

•Purchases during the year. 354 units @ $670 each .

•Sales during the year: 352 units for $975 each.

•Returned 4 units to the supplier.

•7 units were returned by customers.

•A physical count confirmed 15 units on hand at year end.

Required:

•Prepare the journal entries to record the above transactions under both the periodic and perpetual inventory systems.

•Determine the gross profit for the year under each method.

Journal entries: Perpetual vs. Periodic

Transaction	Perpetual system	Periodic system

Purchases
354 x $670 = $237,180
	Dr Inventory 237,180
	   Cr Payables 237,180
		Dr Purchases 237,180
		   Cr Payables 237,180

Sales
352 x $975 = $343,200
(COGS: 352 x $670
= $235,840)
	Dr Receivables 343,200
	   Cr Sales 343,200
	Dr COGS 235,840
	   Cr Inventory 235,840
		Dr Receivables 343,200
		   Cr Sales 343,200

Supplier returns
4 x $670 = $2,680
	Dr Payables 2,680
	   Cr Inventory 2,680
		Dr Payables 2,680
		   Cr Purch. returns 2,680

Sales returns
7 x $975 = $6,825
(COGS: 7 x $670
= $4,690)
	Dr Sales returns 6,825
	   Cr Receivables 6,825
	Dr Inventory 4,690
	   Cr COGS 4,690
		Dr Sales returns 6,825
		   Cr Receivables 6,825

Gross profit – perpetual inventory system

Sales revenue	343, 200
Less: Sales returns	6,825
Net sales revenue	336,375
Cost of goods sold (235,840 − 4,690)	231,150
Gross profit	105,225

Gross profit – periodic inventory system

Sales revenue		343, 200
Less: Sales returns		6,825
Net sales revenue		336,375
Cost of goods sold		
- Opening inventory	6,700	
- Add: purchases	237,180	
- Less: purchase returns	(2,680)	
- Less: closing inventory (15 x $670)	(10,050)	231,150
Gross profit		105,225

End of year entry Periodic system

End of year entry: Reversal of Assumption that all the inventory was expensed and adjustment of the expense (reduction of the expense and carrying of the unsold amount in the Balance Sheet as the closing balance for the period)

(Closing - Opening position of periodic inventory = 15 x 670 – 10 x 670 = 10050 – 6700 = 3350)

Inventory	3.350
Purchases/COS (I/S)	3.350

Inventory cost under the Perpetual Inventory System

Inventory <u>cost</u> is determined using one of the following generally accepted methods, each *based on a different assumption of cost flow*:

1. Specific identification method

2. Average-cost method

3. First-in, first-out (FIFO) method

4. Last-in, first-out (LIFO) method

Basic Data

Inventory Data				
June 1	Inventory	80 units	@ $10.00	$ 800
June 6	Purchase	220 units	@ $12.50	2,750
June 25	Purchase	200 units	@ $14.00	2,800
Goods available for sale		500 units		$6,350
Sales		280 units		
On hand June 30		**220 units**		

Average-Cost Under the Perpetual Inventory System: Example

An average is computed after <mark>each</mark> purchase or series of purchases

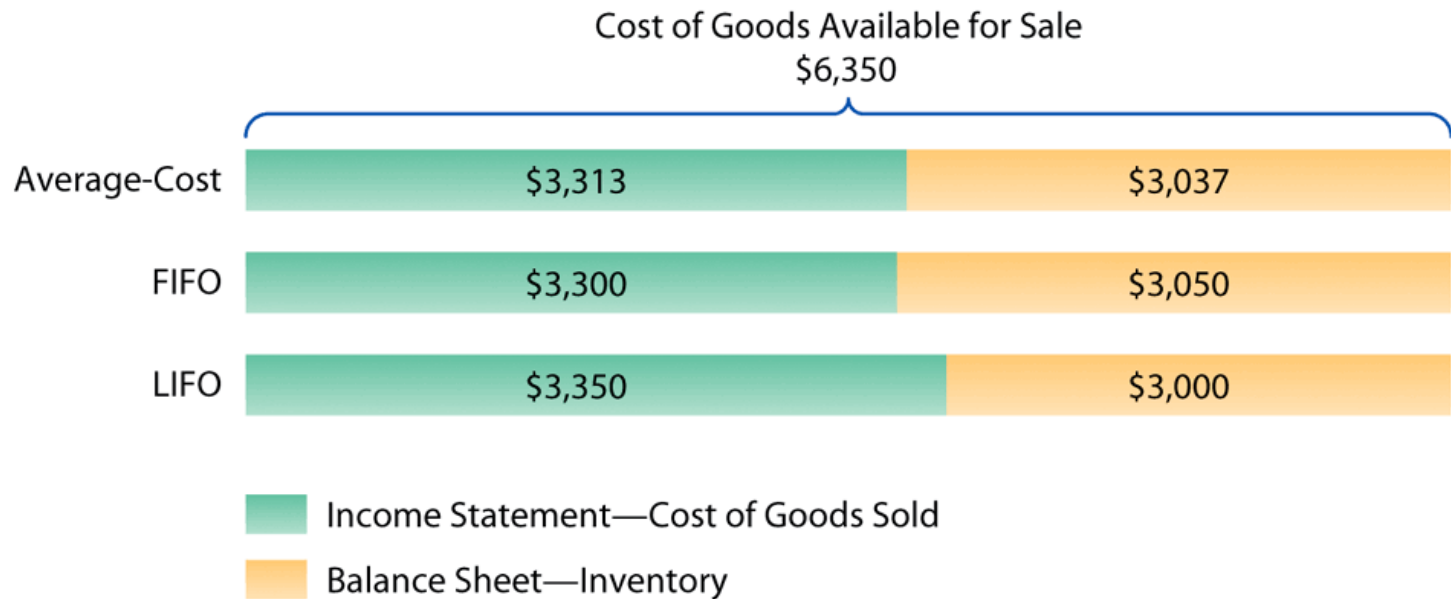| Inventory Data				
June 1	Inventory	80 units	@ $10.00	$ 800.00
June 6	Purchase	220 units	@ $12.50	2,750.00
June 6	Balance	300 units	@ $11.83*	$3,550.00
June 10	Sale	280 units	@ $11.83	3,312.40
June 10	Balance	20 units	@ $11.88	$ 237.60
June 25	Purchase	200 units	@ $14.00	$2,800.00
June 25	Balance	220 units	@ $13.81*	$3,037.60
Cost of goods sold				$3,312.40

*Rounded

FIFO Under the Perpetual Inventory System: Example

Keep track of inventory costs and amounts in date order as purchases and sales are made

Inventory Data

June 1	Inventory	80 units	@ $10.00		$ 800
June 6	Purchase	220 units	@ $12.50		2,750
June 10	Sale	80 units	@ $10.00	($ 800)	
		200 units	@ $12.50	(2,500)	(3,300)
June 10	Balance	20 units	@ $12.50		$ 250
June 25	Purchase	200 units	@ $14.00		2,800
June 25	Inventory	20 units	@ $12.50	$250	
		200 units	@ $14.00	2,800	$3,050
Cost of goods sold					**$3,300**

Cost of goods sold is the total of sales on June 10

LIFO Under the Perpetual Inventory System: Example

Keep track of inventory costs and amounts in date order as purchases and sales are made

Inventory Data

June 1	Inventory	80 units	@ $10.00		$ 800
June 6	Purchase	220 units	@ $12.50		2,750
June 10	Sale	220 units	@ $12.50	($2,750)	
		60 units	@ $10.00	(600)	(3,350)
June 10	Balance	20 units	@ $10.00		$ 200
June 25	Purchase	200 units	@ $14.00		2,800
June 25	Inventory	20 units	@ $10.00	$200	
		200 units	@ $14.00	$2,800	$3,000
Cost of goods sold					**$3,350**

Cost of goods sold is the total of sales on June 10

Impact of Cost Flow Assumptions Under a Perpetual Inventory System

Cost of Goods Available for Sale
$6,350

	Income Statement—Cost of Goods Sold	Balance Sheet—Inventory
Average-Cost	$3,313	$3,037
FIFO	$3,300	$3,050
LIFO	$3,350	$3,000

Income Statement—Cost of Goods Sold

Balance Sheet—Inventory

Lower-of-Cost-or-Market Rule

(IAS 2 § 28):The **lower-of-cost-or-market (LCM) rule** requires that when the replacement cost of inventory falls below historical cost, based on one of the conventional inventory costing methods, the inventory is written down to the lower value and a loss is recorded.

Physical deterioration, obsolescence, or decline in price level may cause a loss to occur.

Inventory Turnover

Measurement of the number of times a company's average inventory is sold during an accounting period

$$\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

$$\text{Cisco's Inventory Turnover} = \frac{\$5{,}766 \text{ m}}{(\$1{,}207 \text{ m} + \$873 \text{ m}) \div 2}$$

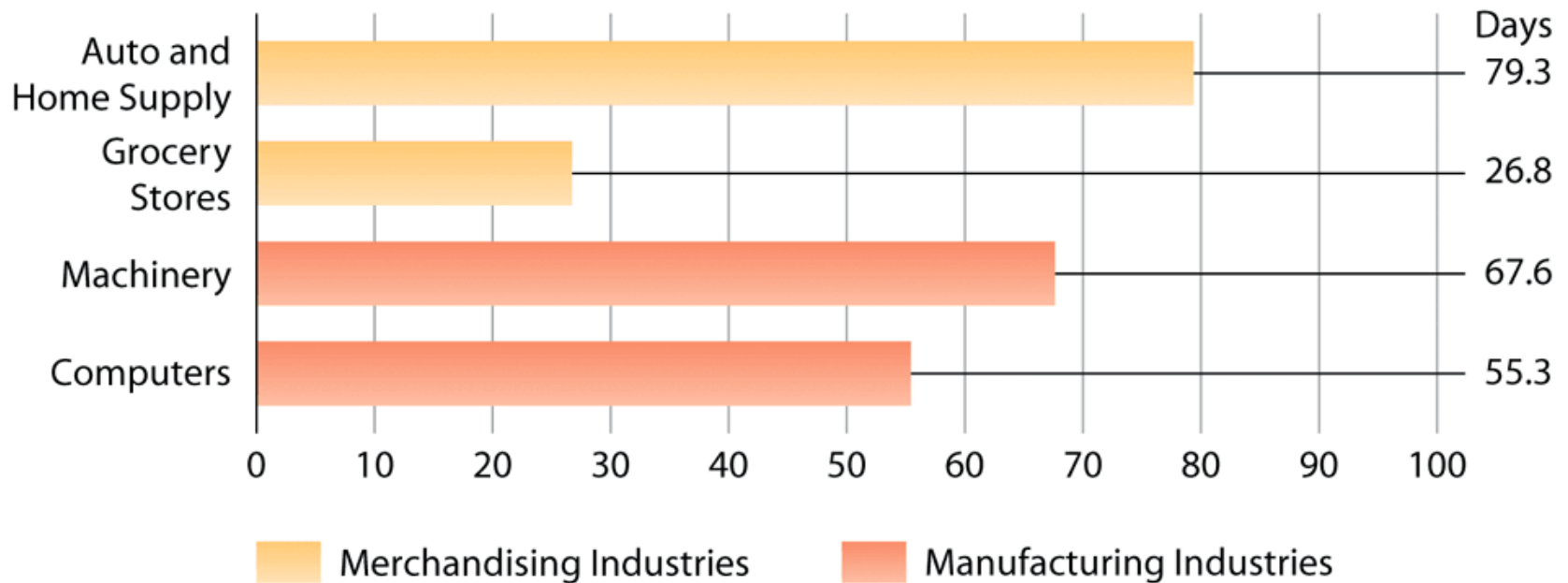$$= 5.5 \text{ times}$$

Inventory Turnover for Selected Industries
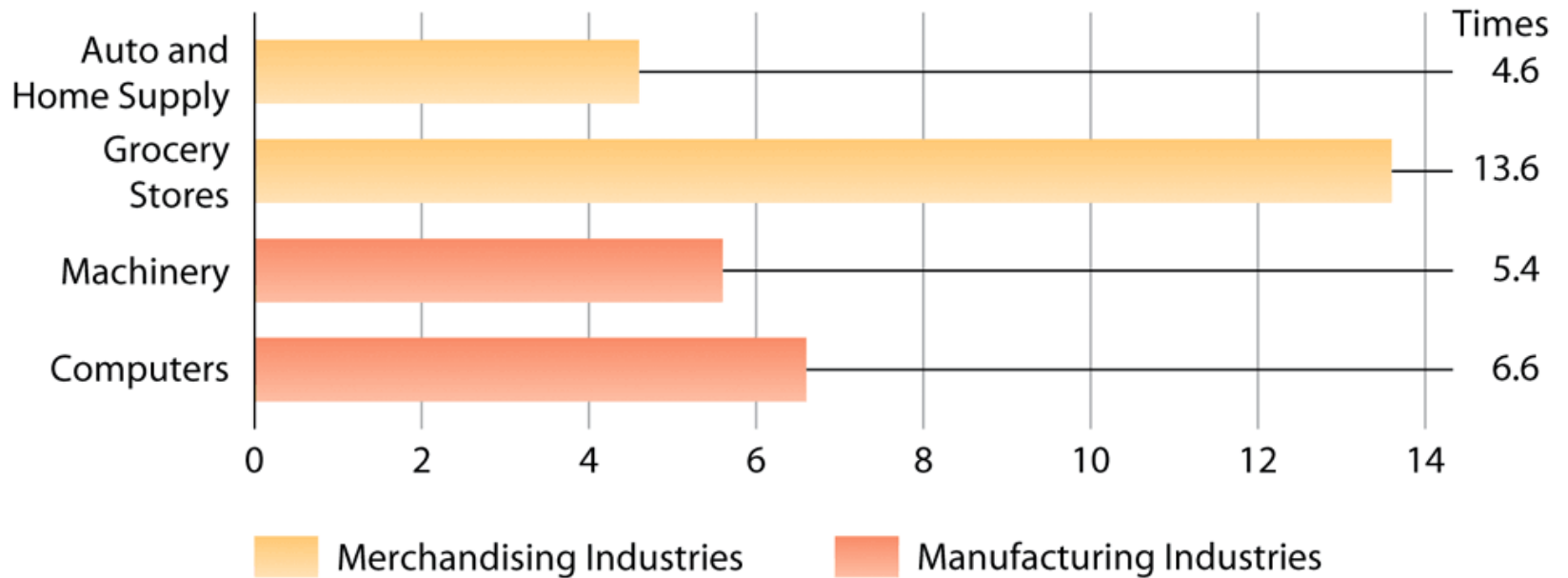
Days' Inventory On Hand

Indicates the average number of days required to sell the inventory on hand

$$\text{Days' Inventory on Hand} = \frac{\text{Number of Days in a Year}}{\text{Inventory Turnover}}$$
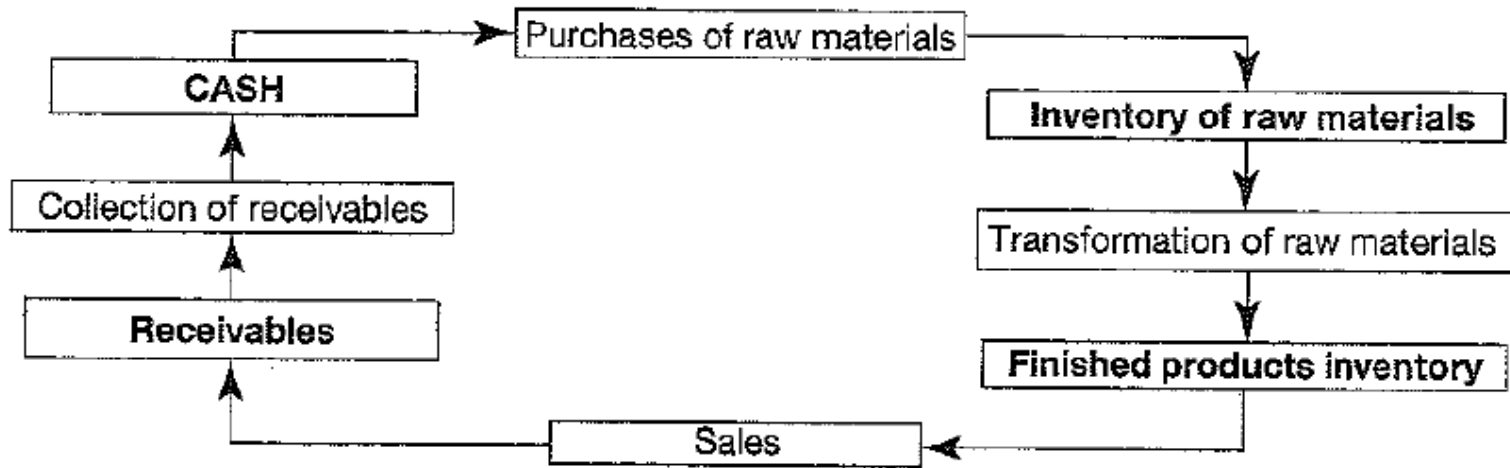
$$\text{Cisco's Days' Inventory on Hand} = \frac{365 \text{ days}}{5.5 \text{ times}}$$
$$= 66.4 \text{ days}$$

Days' Inventory on Hand for Selected Industries

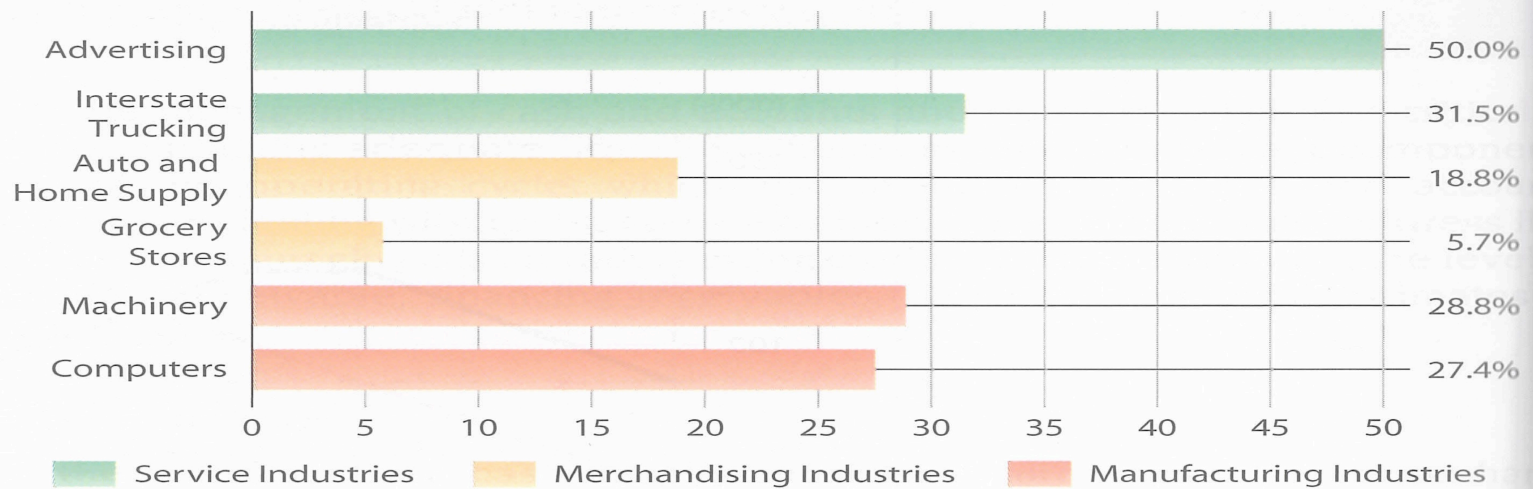# Cash and Receivables

Why current assets?

Agenda

– Management issues related to cash and receivables

– Cash equivalents and Cash control

– Uncollectible Accounts

– Notes Receivable
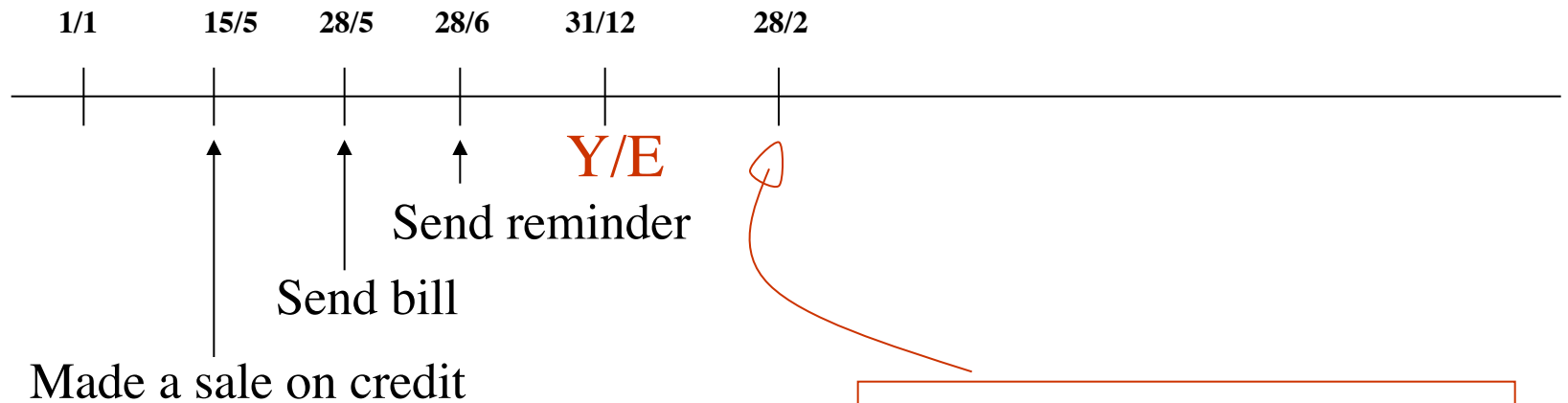
Uncollectible account

FIGURE 2
Accounts Receivable as a Percentage of Total Assets for Selected Industries

Industry	Percentage
Advertising	50.0%
Interstate Trucking	31.5%
Auto and Home Supply	18.8%
Grocery Stores	5.7%
Machinery	28.8%
Computers	27.4%

Service Industries • Merchandising Industries • Manufacturing Industries

Source: Data from Dun & Bradstreet, *Industry Norms and Key Business Ratios,* 2003–2004.

Uncollectible account - principles

1/1	15/5	28/5	28/6	31/12	28/2

Y/E

Send reminder

Send bill

Made a sale on credit

Customer notifies
Company cannot pay bill

-Prudence principle

-Matching principle

The Allowance Method (IFRS 9)

Losses from bad debts are *matched* against the sales they help generate

✓ At the time of sale, management cannot identify which customers will not pay

✓ To observe the matching rule, losses from uncollectible accounts must be estimated

✓ The estimate becomes an expense in the fiscal year in which the sales are made

The Allowance Method Illustrated

Dec. 31, 20x6: Management estimated that approximately $6,000 of the $100,000 of accounts receivable was uncollectible.

Dec. 31	Uncollectible Accounts Expense	6,000	
	Allowance for Uncollectible Accounts		6,000
	To record the estimated uncollectible accounts expense for the year		

Uncollectible Accounts Expense appears on the income statement as an operating expense

Allowance for Uncollectible Accounts appears on the balance sheet as a contra-asset account that is deducted from Accounts Receivable

Estimating Uncollectible Accounts

Dec. 31, 20x6: Management estimated that approximately **$6,000** of the was uncollectible.

Two commonly used methods for estimating loss

1. Percentage of net sales method

2. Accounts receivable aging method

Percentage of Net Sales Method Illustrated

Dec. 31, 20x9: Account balances: Sales, $645,000; Sales Returns and Allowances, $40,000; Sales Discounts, $5,000; Allowance for Uncollectible Accounts, $3,600. **Management estimates that uncollectible accounts will average about 2 percent of net sales.**

Uncollectible accounts expense $= .02$ x $(\$645,000 - \$40,000 - \$5,000) = \$12,000$

Dec. 31	Uncollectible Accounts Expense	12,000	
	Allowance for Uncollectible Accounts		12,000
	To record the uncollectible accounts expense at 2 percent of $600,000 net sales		

Percentage of Net Sales Method Illustrated

| Dec. 31	Uncollectible Accounts Expense	12,000	
	Allowance for Uncollectible Accounts		12,000
	To record the uncollectible accounts expense at 2 percent of $600,000 net sales		

Allowance for Uncollectible Accounts

After the above entry is posted, Allowance for Uncollectible Accounts will have a credit balance of $15,600

Dec. 31	3,600
Dec. 31 adj.	12,000
Dec. 31 bal.	15,600

Accounts Receivable Aging Method Illustrated

Myer Company
Analysis of Accounts Receivable by Age
December 31, 20xx

Customer	Total	Not Yet Due	1–30 Days Past Due	31–60 Days Past Due	61–90 Days Past Due	Over 90 Days Past Due
A. Arnold	$ 150		$ 150			
M. Benoit	400			$ 400		
J. Connolly	1,000	$ 900	100			
R. Deering	250				$ 250	
Others	42,600	21,000	14,000	3,800	2,200	$1,600
Totals	$44,400	$21,900	$14,250	$4,200	$2,450	$1,600
Estimated percentage uncollectible		1.0	2.0	10.0	30.0	50.0
Allowance for Uncollectible Accounts	$ 2,459	$ 219	$ 285	$ 420	$ 735	$ 800
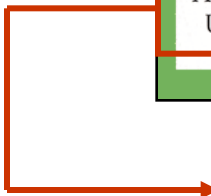
To the balance sheet

Accounts Receivable Aging Method Illustrated

Dec. 31, 20x6: Management has estimated that $2,459 of Accounts Receivable are uncollectible. Allowance for Uncollectible Accounts has a credit balance of $800.

Allowance for Uncollectible Accounts

Dec. 31	800
Dec. 31 adj.	?
Dec. 31 bal.	2,459

Accounts Receivable Aging Method Illustrated

Allowance for Uncollectible Accounts

	Dec. 31	800
	Dec. 31 adj.	**1,659**
	Dec. 31 bal.	2,459

A credit adjustment of $1,659 will bring the account to its target balance

Dec. 31	Uncollectible Accounts Expense	1,659	
	Allowance for Uncollectible Accounts		1,659
	To bring the allowance for uncollectible accounts to the level of estimated losses		

Comparison of Two Methods

Movement in the A/cing period

INCOME STATEMENT APPROACH:
PERCENTAGE OF NET SALES METHOD

NET SALES — Apply a percentage to determine → **UNCOLLECTIBLE ACCOUNTS EXPENSE**

BALANCE SHEET APPROACH:
ACCOUNTS RECEIVABLE AGING METHOD

ACCOUNTS RECEIVABLE — Apply a percentage to determine → **TARGETED BALANCE OF ALLOWANCE FOR UNCOLLECTIBLE ACCOUNTS***

*Add current debit balance or subtract current credit balance to determine uncollectible accounts expense.

Closing Balance Calculation

Writing Off Uncollectible Accounts

✓ The amount should be written off to Allowance for Uncollectible Accounts

✓ The uncollectible amount was already accounted for as an expense when the allowance was established

Writing Off an uncollectible Account Illustrated

Allowance for Uncollectible Accounts		Accounts Receivable	
	Dec. 31 2,459	Dec. 31 44,400	

Jan. 15, 20x7: R. Deering, who owes the company $250, is declared bankrupt by federal court.

Jan. 15	Allowance for Uncollectible Accounts	250	
	Accounts Receivable		250
	To write off receivable from R. Deering as uncollectible because of his bankruptcy		

Writing Off an Uncollectible Account Illustrated

Allowance for Uncollectible Accounts			Accounts Receivable	
		Dec. 31 2,459	Dec. 31 44,400	
Jan. 15 250				Jan. 15 250
		Bal. 2,209	Bal. 44,150	

Net realizable value of A/R
Before write-off
    $44,400 – $2,459 = $41,941
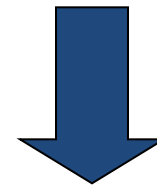
After write-off
    $44,150 – $2,209 = $41,941

Same

Evaluating the Level of Accounts Receivable

How many times, on average, does a company turn its receivables into cash during an accounting period?
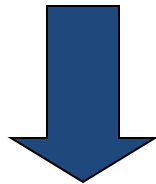
How long, on average, does it take a company to collect its accounts receivables?

Receivable Turnover

Days' Sales Uncollected

Receivable Turnover

Reflects the relative size of a company's accounts receivable and the success of its credit and collection policies

$$\text{Receivable Turnover} = \frac{\text{Net Sales}}{\text{Average Net Accounts Receivable}}$$

Nike's Receivable Turnover for 2004 $= \dfrac{\$12,253.1}{(\$2,120.2 \ + \ \$2,083.9) \ \div \ 2}$
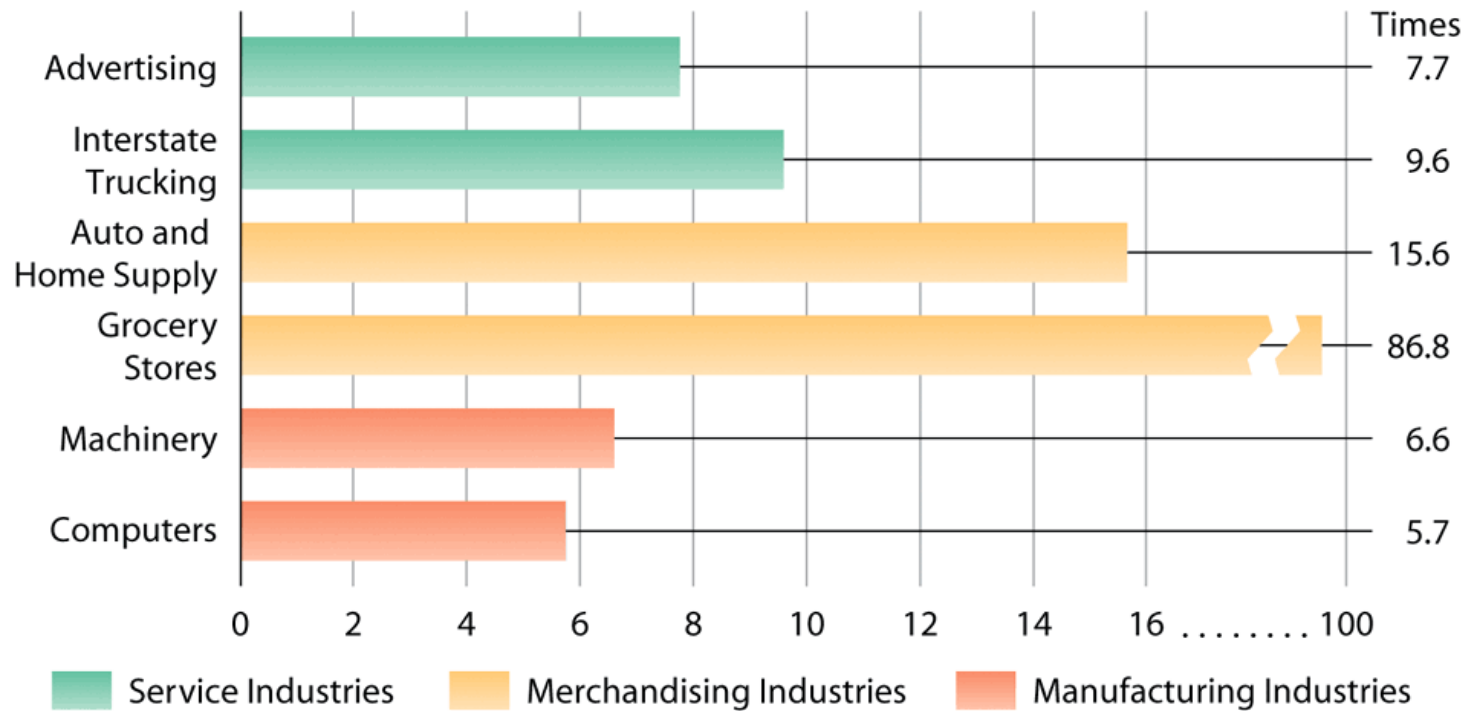
$= \quad 5.8 \text{ times}$

Days' Sales Uncollected

To interpret a company's ratios, take into consideration the industry in which it operates

$$\text{Days' Sales Uncollected} = \frac{365 \text{ days}}{\text{Receivable Turnover}}$$

$$\text{Nike's Days' Sales Uncollected} = \frac{365 \text{ days}}{5.8}$$

$$= 62.9 \text{ days}$$

Receivable Turnover for Selected Industries

Sales tax & discounts

Discounts

2 Types:

– Trade discount = incentive to buy

– Settlement discount = incentive to pay

Take into account trade discount immediately when record Sale but only take into account settlement discount when taken

Discounts illustration

Sales price   € 100.000

Trade discount   (20.000)

Price paid   80.000

Settlement discount 10% if pay within 15 days. (Normal Credit term is 30 days)

Assume the customer pays within 10 days and hence takes advantage of the settlement discount.

The customer only pays 90% * 80.000 = 72.000

Discounts illustration

1. Record the sale (including the trade discount)

Sales			Accounts receivable	
	80.000		80.000	

2. Record payment

Cash			Accounts receivable	
72.000			80.000	72.000

Discounts illustration

3. Record the settlement discount

Discount allowed		Accounts receivable	
8.000		80.000	72.000
			8.000
		Bal 0	

Sales tax (VAT)

Government wants customer to pay sales tax over goods and services.

- Companies therefore charge sales tax to customer => they have to pay this to the government (Sales tax payable – output sales tax)

- Companies are charged sales tax when they buy from their Supplier => they can claim this back from the government (Sales tax receivable – input sales tax)

Companies can reclaim input sales tax from government

but have to pay output sales tax to government.

Output sales tax (VAT) illustrated

Sold goods to customer for € 88.000
Including 19% VAT (= € 16.720 sales tax)

DR Accounts receivable   € 88.000
CR Sales tax payable   € 16.720
CR Sales   € 71.280

Input sales tax (VAT) illustrated

Purchased goods from a supplier € 111.000
Including 19% (= € 21.090 sales tax)

DR Purchases/Inventory   € 89.910
DR sales tax Receivable   € 21.090
CR Accounts Payable   € 111.000