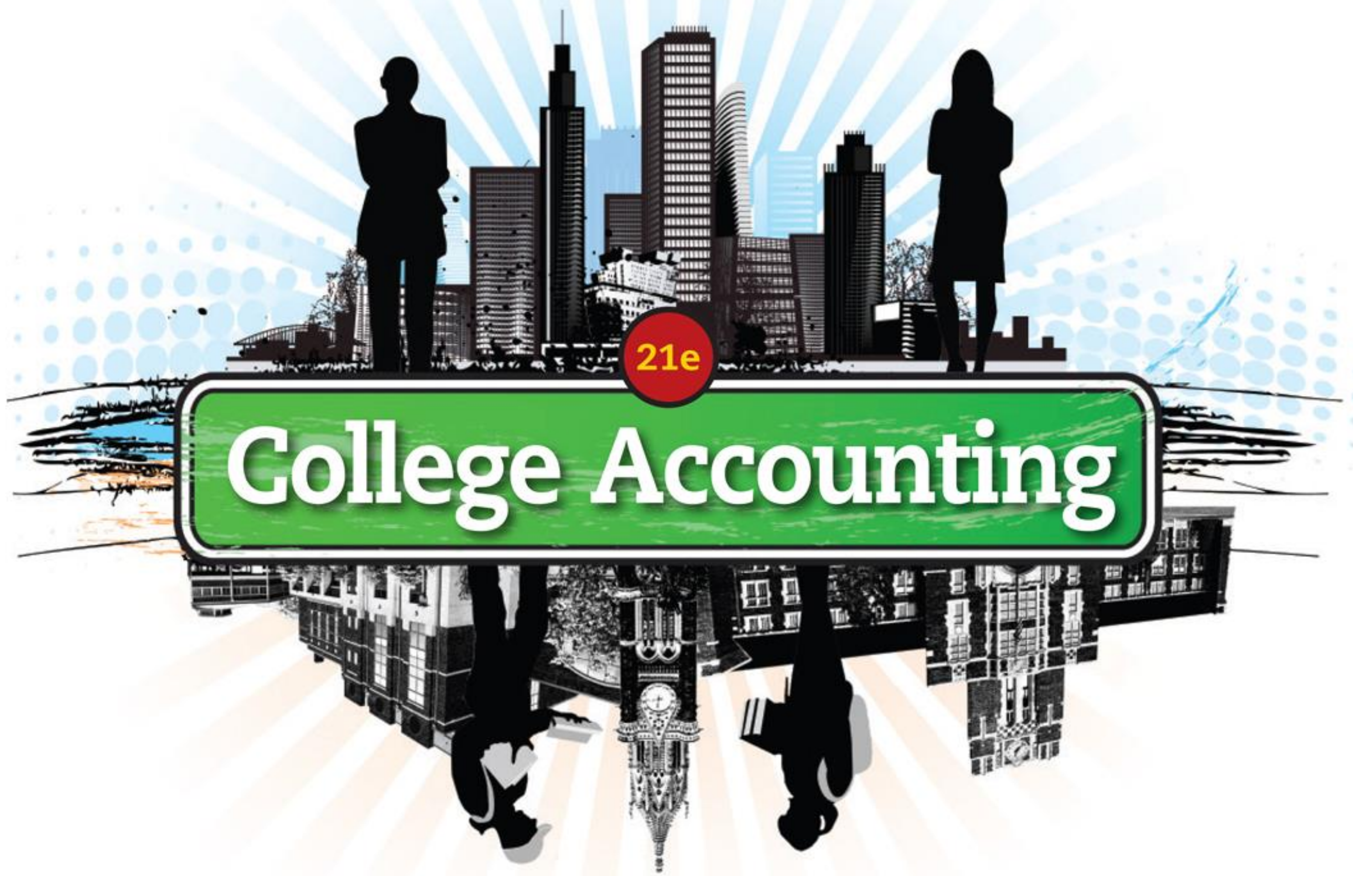
Heintz & Parry



Chapter 24

Analysis of Financial Statements

Learning Objective 1

Perform horizontal and vertical analyses of the income statement and balance sheet.

Comparative Analysis

- Analysis centers on three aspects:
  - Liquidity
  - Profitability
  - Leverage
- Types of comparison:
  - With one or more previous periods
  - With data for the industry as a whole
  - With other businesses in the industry
  - With preset plans or goals

Horizontal Analysis

- Compares the amounts for the same item in the financial statements of two or more periods
- Shows the amount and percentage change in each item

French Connection Importers Comparative Income Statement
For Years Ended December 31, 20-2 and 20-1

	20-2	20-1	Increase (Decrease)	Percent
Net sales	$835,950	$708,800	$127,150	17.9
Cost of goods sold	602,380	520,260	82,120	15.8
Gross profit	$233,570	$188,540	$ 45,030	23.9
Operating exp	[illegible]	[illegible]	2,750	12.7
Operating inc	[illegible]	[illegible]	,280	36.6
Other revenu	[illegible]	[illegible]	425	425.0
Other expens	[illegible]	[illegible]	,770)	–12.3
Income befor	[illegible]	[illegible]	4,475	46.6
Income tax expense	36,600	19,210	17,390	90.5
Net income	$ 71,845	$ 54,760	$ 17,085	31.2

Net Sales 20-2 – Net Sales 20-1 =
$835,950 – $708,800

French Connection Importers Comparative Income Statement
For Years Ended December 31, 20-2 and 20-1

	20-2	20-1	Increase (Decrease)	Percent
Net sales	$835,950	$708,800	$127,150	17.9
Cost of goods sold	602,380	520,260	82,120	15.8
Gross profit	[illegible]	[illegible]	[illegible]	23.9
Operating e	[illegible]	[illegible]	[illegible]	12.7
Operating i	[illegible]	[illegible]	[illegible]	36.6
Other reven	[illegible]	[illegible]	[illegible]	425.0
Other expenses	[illegible]	[illegible]	[illegible]	–12.3
Income before income taxes	$108,445	$ 73,970	$ 34,475	46.6
Income tax expense	36,600	19,210	17,390	90.5
Net income	$ 71,845	$ 54,760	$ 17,085	31.2

Increase(Decrease) ÷ 20-1 Net Sales

$127,150 ÷ $708,800

French Connection Importers Comparative Income Statement
For Years Ended December 31, 20-2 and 20-1

	20-2	20-1	Increase (Decrease)	Percent
Net sales	$835,950	$708,800	$127,150	17.9
Cost of goods sold	602,380	520,260	82,120	15.8
Gross profit	$233,570	$188,540	$ 45,030	**23.9**
Operating expenses	113,000	100,250	12,750	12.7
Operating inco			0	36.6
Other revenue			5	425.0
Other expense			0)	–12.3
Income before			5	46.6
Income tax ex			0	90.5
Net income			5	31.2

As we analyze the percentages, we find net sales rose by 17.9%, while cost of goods sold increased by only 15.8%, leading to the larger 23.9% increase in gross profit.

French Connection Importers Comparative Income Statement
For Years Ended December 31, 20-2 and 20-1

	20-2	20-1	Increase (Decrease)	Percent
Net sales	$835,950	$708,800	$127,150	17.9
Cost of goods sold	602,380	520,260	82,120	15.8
Gross profit	$233,570	$188,540	$ 45,030	23.9
Operating expenses	113,000	100,250	12,750	**12.7**
Operating in			280	36.6
Other reven			425	425.0
Other exper			770)	–12.3
Income befo			475	46.6
Income tax			390	90.5
Net income			,085	31.2

Operating expenses increased at a slower rate than sales, contributing to the hefty 36.6% increase in operating income.

French Connection Importers Comparative Income Statement
For Years Ended December 31, 20-2 and 20-1

	20-2	20-1	Increase (Decrease)	Percent
Net sales	$835,950	$708,800	$127,150	17.9
Cost of goods sold	602,380	520,260	82,120	15.8
Gross profit	$233,570	$188,540	$ 45,030	23.9
Operating expenses	113,000	100,250	12,750	12.7
Operating income	$120,570	$ 88,290	$ 32,280	36.6
Other revenu	[illegible]	[illegible]	425	**425.0**
Other expen			(1,770)	–12.3
Income befo			34,475	46.6
Income tax e			17,390	90.5
Net income			17,085	31.2

While the percentage increase in other revenue is huge, we must also consider the dollar increase, which is small.

French Connection Importers Comparative Income Statement
For Years Ended December 31, 20-2 and 20-1

	20-2	20-1	Increase (Decrease)	Percent
Net sales	$835,950	$708,800	$127,150	17.9
Cost of goods sold	602,380	520,260	82,120	15.8
Gross profit	$233,570	$188,540	$ 45,030	23.9
Operating expenses	113,000	100,250	12,750	12.7
Operating income	$120,570	$ 88,290	$ 32,280	36.6
Other revenue	525	100	425	425.0
Other expenses	12,650	14,420	(1,770)	–12.3
Income before income taxes	$108,445	$ 73,970	$ 34,475	46.6
Income ta	[illegible]	[illegible]	390	90.5
Net incon	[illegible]	[illegible]	085	31.2

The decrease in other expenses contributes further to the increase in income before income taxes.

French Connection Importers Comparative Income Statement
For Years Ended December 31, 20-2 and 20-1

	20-2	20-1	Increase (Decrease)	Percent
Net sales	$835,950	$708,800	$127,150	17.9
Cost of goods sold	602,380	520,260	82,120	15.8
Gross profit	$233,570	$188,540	$ 45,030	23.9
Operating exp[illegible]	[illegible]	[illegible]	12,750	12.7
Operating inc[illegible]	[illegible]	[illegible]	[illegible]	36.6
Other revenue	[illegible]	[illegible]	425	425.0
Other expenses	[illegible]	[illegible]	(1,770)	–12.3
Income before income taxes	$108,445	$ 73,970	$ 34,475	46.6
Income tax expense	36,600	19,210	17,390	**90.5**
Net income	$ 71,845	$ 54,760	$ 17,085	31.2

Income taxes nearly doubled!!!

French Connection Importers Comparative Income Statement
For Years Ended December 31, 20-2 and 20-1

	20-1	20-2	Increase (Decrease)	Percent
Net sales	$835,950	$708,800	$127,150	17.9
Cost of goods sold	602,380	520,260	82,120	15.8
Gross profit			$ 45,030	23.9
Operating expenses			12,750	12.7
Operating income			$ 32,280	36.6
Other revenue			425	425.0
Other expenses			(1,770)	–12.3
Income before income taxes	$108,445	$ 73,970	$ 34,475	46.6
Income tax expense	36,600	19,210	17,390	90.5
Net income	$ 71,845	$ 54,760	$ 17,085	31.2

Overall, French Connection shows a major improvement in operating results.

French Connection Importers Comparative Balance Sheet December 31, 20-2 and 20-1

	20-2	20-1	Increase (Decrease)	Percent
Assets				
Current assets:				
Cash	$ 25,695	$ 19,700	$ 5,995	30.4
Government notes	5,000	1,000	4,000	400.0
Accounts receivable (net)	61,750	50,000	11,750	23.5
Merchandise inv	[illegible]	[illegible]	0	2.3
Supplies and pr	[illegible]	[illegible]	0	20.0
Total current a	[illegible]	[illegible]	5	18.4
Property, plant, a				
Land	[illegible]	[illegible]	0	0.0
Building (net)	140,000	125,000	15,000	12.0
Store equipment	100,000	90,000	10,000	11.1
Delivery & office equip.	22,000	28,500	(6,500)	–22.8
Organization costs	1,200	2,400	(1,200)	–50.0

A comparative balance sheet is also prepared.
Let's analyze it!

French Connection Importers Comparative Balance Sheet December 31, 20-2 and 20-1

	20-2	20-1	Increase (Decrease)	Percent
Assets				
Current assets:				
Cash	$ 25,695	$ 19,700	$ 5,995	30.4
Government notes	5,000	1,000	4,000	400.0
Accounts receivable (net)	61,750	50,000	11,750	23.5
Merchandise inventory	55,500	54,250	1,250	2.3
Supplies and prepayments	2,400	2,000	400	20.0
To[illegible]	[illegible]	[illegible]	3,395	**18.4**
Prope[illegible]				
Lan[illegible]	[illegible]	[illegible]	0	0.0
Buil[illegible]	[illegible]	[illegible]	5,000	12.0
Stor[illegible]	[illegible]	[illegible]	0,000	11.1
Delivery & office equip.	22,000	28,500	(6,500)	–22.8
Organization costs	1,200	2,400	(1,200)	–50.0

Current assets increased by 18.4% (mostly from cash and receivables). These increases correlate with the increase in net sales.

French Connection Importers Comparative Balance Sheet December 31, 20-2 and 20-1

	20-2	20-1	Increase (Decrease)	Percent
Assets				
Current assets:				
Cash	$ 25,695	$ 19,700	$ 5,995	30.4
Government notes	5,000	1,000	4,000	400.0
Accounts receivable (net)	61,750	50,000	11,750	23.5
Merchandise in[illegible]	[illegible]	[illegible]250	1,250	2.3
Supplies and p[illegible]	[illegible]	[illegible]00	400	20.0
Total current[illegible]	[illegible]	[illegible]50	$ 23,395	18.4
Property, plant,[illegible]				
Land	[illegible]	[illegible]000	$ 0	0.0
Building (net)	140,000	125,000	15,000	12.0
Store equipment	100,000	90,000	10,000	11.1
Delivery & office equip.	22,000	28,500	(6,500)	–22.8
Organization costs	1,200	2,400	(1,200)	–50.0

The increases in building and equipment signify growth.

Total prop., plant, & equip.	$303,200	$285,900	$ 17,300	6.1
Total assets	$453,545	$412,850	$ 40,695	9.9
Liabilities				
Current liabilities:				
Acc. & with. payroll taxes	$ 2,500	$ 2,750	$ (250)	–9.1
Notes payable	10,000	37,500	(27,500)	–73.3
Accounts payable	40,000	59,000	(19,000)	–32.2
Accrued interest payable	600	1,700	(1,100)	–64.7
Income tax payable	13,600	13,400	200	1.5
Dividends payable	7,500	6,000	1,500	25.0
Total current liabilities	$ 74,200	$120,350	$ (46,150)	**–38.3**
Long				
Bon			0	0.0
To			150)	–20.9
St				
Common stock	$ 75,000	$ 60,000	$ 15,000	25.0

Current liabilities decreased. Accounts and notes payable were paid using the funds from successful operations.

Total liabilities	$174,200	$220,350	$ (46,150)	–20.9
Stockholders' Equity				
Common stock	$ 75,000	$ 60,000	$15,000	**25.0**
Paid-in capital in excess	20,000	12,500	7,500	**60.0**
Retained earnings	184,345	120,000	64,345	53.6
Total stockholders' equity	$279,345	$192,500	$86,845	45.1
Total liab. & stkhdrs' equity	$453,545	$412,850	$40,695	9.9

The increases in common stock and paid-in capital also signify growth.

Total liabilities	$174,200	$220,350	$ (46,150)	–20.9
Stockholders' Equity				
Common stock	$ 75,000	$ 60,000	$15,000	25.0
Paid-in capital in excess	20,000	12,500	7,500	60.0
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Total stockholders' equity	$279,345	$192,500	$86,845	45.1
Total liab. & stkhdrs' equity	$453,545	$412,850	$40,695	9.9

The increase in retained earnings comes from the profitable operations and a moderate dividend policy. Retention of large amounts of earnings is another desirable way to finance corporate growth.

Vertical Analysis

- Reporting the amount of each item in a statement as a percentage of some designated total
- Income statement
  - Each item is shown as a percentage of net sales
- Balance sheet
  - For assets, each item is shown as a percentage of total assets
  - For liabilities and stockholders' equity, total equity is used

French Connection Importers Comparative Income Statement
For Years Ended December 31, 20-2 and 20-1

	20-2	Percent	20-1	Percent
Net sales	$835,950	100.0	$708,800	100.0
Cost of goods sold	602,380	72.1	520,260	73.4
Gross profit	$233,570	27.9	$188,540	26.6
Operating expenses	113,000	13.5	100,250	14.1
Operating income	$120,570	14.4	$ 88,290	12.5
Other revenue	525	0.1	100	0.0
Other expenses	12,650	1.5	14,420	2.0
Income before income taxes	$108,445	13.0	$ 73,970	10.4
Income tax expense	36,600	4.4	19,210	2.7
Net income	$ 71,845	8.6	$ 54,760	7.7

Cost of Goods Sold ÷ Net Sales
= Cost of Goods Sold Ratio

French Connection Importers Comparative Income Statement
For Years Ended December 31, 20-2 and 20-1

	20-2	Percent	20-1	Percent
Net sales	$835,950	100.0	$708,800	100.0
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Other revenue	525	0.1	100	0.0
Other expenses	12,650	1.5	14,420	2.0
Income before inc[illegible]	[illegible]	[illegible]	$ 73,970	10.4
Income tax exper[illegible]	[illegible]	[illegible]	19,210	2.7
Net income	[illegible]	[illegible]	$ 54,760	7.7

Cost of goods sold ratio has decreased!

French Connection Importers Comparative Income Statement
For Years Ended December 31, 20-2 and 20-1

	20-2	Percent	20-1	Percent
Net sales	$835,950	100.0	$708,800	100.0
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Income before income taxes	$108,445	13.0	$ 73,970	10.4
Income tax expense	36,600	4.4	19,210	2.7
Net		8.6	$ 54,760	7.7

Gross Profit ÷ Net Sales
= Gross Profit Ratio
It increased!

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Income before income taxes	$108,445	13.0	$ 73,970	10.4
Income tax expense	36,600	4.4	19,210	2.7
Net income	[illegible]	[illegible]	[illegible]	7.7

Operating Expenses ÷ Net Sales
= Operating Expenses Ratio
It decreased!

French Connection Importers Comparative Income Statement
For Years Ended December 31, 20-2 and 20-1

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Net sales	$835,950	100.0	$708,800	100.0
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Other revenue	525	0.1	100	0.0
Other expenses	12,650	1.5	14,420	2.0
Income before income taxes	$108,445	13.0	$ 73,970	10.4
Income tax expense	36,600	4.4	19,210	2.7
Net income				7.7

Operating Income ÷ Net Sales
= Operating Income Ratio
It increased!

French Connection Importers Comparative Income Statement
For Years Ended December 31, 20-2 and 20-1

	20-2	Percent	20-1	Percent
Net sales	$835,950	100.0	$708,800	100.0
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Other revenue	525	0.1	100	0.0
Other expenses	12,650	1.5	14,420	2.0
Income before income taxes	$108,445	13.0	$ 73,970	10.4
Income tax expense	36,600	4.4	19,210	2.7
Net income	$ 71,845	8.6	$ 54,760	7.7

Income Taxes ÷ Net Sales

The ratio increased.

French Connection Importers Comparative Income Statement
For Years Ended December 31, 20-2 and 20-1

	20-2	Percent	20-1	Percent
Net sales	$835,950	100.0	$708,800	100.0
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Income before income taxes	$108,445	13.0	$ 73,970	10.4
Income tax expense	36,600	4.4	19,210	2.7
Net income	$ 71,845	**8.6**	$ 54,760	**7.7**

Net Income ÷ Net Sales =
Net Income Ratio or Profit Margin
It increased!

French Connection Importers Comparative Balance Sheet
December 31, 20-2 and 20-1

	20-2	Percent	20-1	Percent
Assets				
Current assets:				
Cash	$ 25,695	5.7	$ 19,700	4.8
Government notes	5,000	1.1	1,000	0.2
Accounts receivable (net)	61,750	13.6	50,000	12.1
Merchandise inventory	55,500	12.2	54,250	13.1
Supplies and prepayments	2,400	0.5	2,000	0.5
Total current assets	$150,345	**33.1**	$126,950	**30.7**
Property, plant, and equip.				
[illegible]	[illegible]	8.8	$ 40,000	9.7
[illegible]	[illegible]	30.9	125,000	30.3
[illegible]	[illegible]	22.0	90,000	21.8
[illegible]	[illegible]	4.9	28,500	6.9
Organization costs	1,200	0.3	2,400	0.6

Current Assets ÷ Total Assets
The ratio increased!

Total prop., plant, & equip.	$303,200	66.9	$285,900	69.3
Total assets	$453,545	100.0	$412,850	100.0
Liabilities				
Current liabilities:				
Acc. & with. payroll taxes	$ 2,500	0.6	$ 2,750	0.7
Notes payable	10,000	2.2	37,500	9.1
Accounts payable	40,000	8.8	59,000	14.3
Accrued interest payable	600	0.1	1,700	0.4
Income tax payable	13,600	3.0	13,400	3.2
Dividends payable	7,500	1.7	6,000	1.5
Total current liabilities	$ 74,200	**16.4**	$120,350	**29.2**
Long-term liabilities				
Bonds p[illegible]	100,000	22.0	100,000	24.2
Total l[illegible]	[illegible]	[illegible]	$220,350	53.4
Stock[illegible]				
Commo[illegible]	[illegible]	[illegible]	$ 60,000	14.5

Current Liabilities ÷ Total Equity

The ratio decreased!

Total prop., plant, & equip.	$303,200	66.9	$285,900	69.3
Total assets	$453,545	100.0	$412,850	100.0
Liabilities				
Current liabilities:				
Acc. & with. payroll taxes	$ 2,500	0.6	$ 2,750	0.7
Notes payable	10,000	2.2	37,500	9.1
Accounts payable	40,000	8.8	59,000	14.3
Accrued interest payable	600	0.1	1,700	0.4
Income tax payable	13,600	3.0	13,400	3.2
Dividends payable	7,500	1.7	6,000	1.5
Total current liabilities	$ 74,200	**16.4**	$120,350	**29.2**
Long-term liabilit				
Bonds payable			100,000	24.2
Total liabilitie			$220,350	53.4
Stockholders				
Common stock			$ 60,000	14.5

Both ratios reflect a major improvement in current position.

Total liabilities	$174,200	**38.4**	$220,350	**53.4**
Stockholders' Equity				
Common stock	$ 75,000	16.5	$ 60,000	14.5
Paid-in capital in excess	20,000	4.4	12,500	3.0
Retained earnings	184,345	40.6	120,000	29.1
Total stockholders' equity	$279,345	61.6	$192,500	46.6
Total liab. & stkhdrs' equity	$453,545	100.0	$412,850	100.0

Increases in common stock,
paid-in capital, and retained earnings
combined with a decrease in
current liabilities
result in a significant decrease in
total liabilities as a share of total equity.

Learning Objective 2

Compute and explain liquidity measures.

Liquidity Measures

- Indicate a company's ability to meet its current debts
  - Examples:
    - Working capital
    - Current ratio
    - Quick or acid-test ratio
    - Accounts receivable turnover
    - Merchandise inventory turnover

Working Capital

FORMULA:	20-2	20-1
Current Assets	$150,345	$ 126,950
– Current Liabilities	(74,200)	(120,350)
Working Capital	$ 76,145	$ 6,600

A significant increase!

Current Ratio

FORMULA:	20-2	20-1
$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	$\frac{\$150,345}{\$74,200}$	$\frac{\$126,950}{\$120,350}$
	2.0 to 1	1.1 to 1

As a general rule, a current ratio is satisfactory if it is at least 2 to 1. In 20-1, it was unsatisfactory. In 20-2, it was satisfactory.

Quick or Acid-Test Ratio

FORMULA:

	20-2	20-1

$$\frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

Quick assets are:
Cash
Temporary investments
Receivables

Quick or Acid-Test Ratio (cont.)

FORMULA:

	20-2	20-1
Quick Assets / Current Liabilities	$92,445	$70,700

Cash	$25,695	$19,700
Government notes	5,000	1,000
Accounts receivable (net)	61,750	50,000
	$92,445	$70,700

Quick or Acid-Test Ratio (cont.)

FORMULA:	20-2	20-1
$\frac{\text{Quick Assets}}{\text{Current Liabilities}}$	$\frac{\$92,445}{\$74,200}$	$\frac{\$70,700}{\$120,350}$
	1.25 to 1	0.59 to 1

As a general rule, the quick ratio should not be below 1 to 1.
In 20-1, it was unsatisfactory.
In 20-2, it was satisfactory.

Learning Objective 3

Compute and explain activity measures.

Accounts Receivable Turnover

FORMULA: **20-2** **20-1**

$$\frac{\textbf{Net Sales on Account}}{\textbf{Avg. Accounts Rec. (net)}}$$

Average Accounts Receivable =

$$\frac{\text{Beg. Accts. Rec.} + \text{End. Accts. Rec.}}{2}$$

Accounts Receivable Turnover (cont.)

FORMULA:

	20-2	20-1
$\frac{\text{Net Sales on Account}}{\text{Avg. Accounts Rec. (net)}}$	$\frac{\$668,760}{\$55,875}$	

$$\frac{\$50,000 + \$61,750}{2}$$

Accounts Receivable Turnover (cont.)

FORMULA:	20-2	20-1
$\frac{\text{Net Sales on Account}}{\text{Avg. Accounts Rec. (net)}}$	$\frac{\$668{,}760}{\$55{,}875}$	$\frac{\$567{,}040}{\$45{,}000}$
	11.97	

$$\frac{\$40{,}000 + \$50{,}000}{2}$$

Accounts Receivable Turnover (cont.)

FORMULA:	**20-2**	**20-1**
$\dfrac{\text{Net Sales on Account}}{\text{Avg. Accounts Rec. (net)}}$	$\dfrac{\$668{,}760}{\$55{,}875}$	$\dfrac{\$567{,}040}{\$45{,}000}$
	11.97	12.6

A slight decrease in 20-2,
but still a good turnover rate.

Accounts Receivable Turnover (cont.)

FORMULA:	**20-2**	**20-1**
Net Sales on Account / Avg. Accounts Rec. (net)	$668,760 / $55,875	$567,040 / $45,000
	11.97	12.6

Average Collection Period:

365 / Accts. Rec. Turnover	365 / 11.97	365 / 12.6
	30.5 days	29 days

Merchandise Inventory Turnover

FORMULA:

	20-2	20-1
Cost of Goods Sold / Avg. Mdse. Inventory	\$602,380 / \$54,875	

$$\frac{\text{Cost of Goods Sold}}{\text{Avg. Mdse. Inventory}} \qquad \frac{\$602,380}{\$54,875}$$

(Beginning + Ending) ÷ 2

$$\frac{\$54,250 + \$55,500}{2}$$

Merchandise Inventory Turnover (cont.)

FORMULA:	**20-2**	**20-1**
$\dfrac{\text{Cost of Goods Sold}}{\text{Avg. Mdse. Inventory}}$	$\dfrac{\$602,380}{\$54,875}$	$\dfrac{\$520,260}{\$52,500}$
	10.98	

$$\frac{\$50,750 + \$54,250}{2}$$

Merchandise Inventory Turnover (cont.)

FORMULA:	20-2	20-1
Cost of Goods Sold / Avg. Mdse. Inventory	$602,380 / $54,875	$520,260 / $52,500
	10.98	9.91
Average Number of Days to Sell Inventory: 365 / Mdse. Inv. Turnover	365 / 10.98	365 / 9.91
Inventory is selling quicker.	33.2 days	36.8 days

Learning Objective 4

Compute and explain profitability measures.

Profitability Measures

- Indicate a company's ability to earn income by operating efficiently
  - Examples:
    - Ratio of net sales to assets
    - Return on total assets
    - Return on common stockholders' equity
    - Earnings per share of common stock
    - Book value per share

Ratio of Net Sales to Assets

- Also called “asset turnover ratio”

FORMULA:

	20-2	20-1
Net Sales	$835,950	
Avg. Assets	$433,198	

Beginning + Ending

$$\frac{\$412,850 + \$453,545}{2}$$

Ratio of Net Sales to Assets (cont.)

- Also called "asset turnover ratio"

FORMULA:

	20-2	20-1
$\dfrac{\text{Net Sales}}{\text{Avg. Assets}}$	$\dfrac{\$835,950}{\$433,198}$	$\dfrac{\$708,800}{\$406,425}$
	1.9 to 1	1.7 to 1

Slightly better than 20-1

Return on Total Assets

FORMULA: **20-2** **20-1**

$$\frac{\textbf{Net Income}}{\textbf{Avg. Assets}}$$

The formula is very similar to asset turnover. Instead of net sales, the numerator is now net income.

Return on Total Assets (cont.)

FORMULA:	20-2	20-1
Net Income / Avg. Assets	$71,845 / $433,198	$54,760 / $406,425
	16.6%	13.5%

French Connection was more profitable in 20-2 than in 20-1. This is consistent with the rest of our analysis.

Return on Common Stockholders' Equity

FORMULA: **20-2** **20-1**

$$\frac{\text{Net Income Available to Common Stockholders}}{\text{Average Common Stockholders' Equity}}$$

Net income less preferred dividends

Return on Common Stockholders' Equity (cont.)

FORMULA:	**20-2**	**20-1**

$$\frac{\textbf{Net Income Available to Common Stockholders}}{\textbf{Average Common Stockholders' Equity}}$$

$$\frac{\text{Beginning + Ending Stockholders' Equity}}{2}$$

Return on Common Stockholders' Equity (cont.)

FORMULA:	20-2	20-1
Net Income Available to Common Stockholders	$71,845	$54,760
Average Common Stockholders' Equity	$235,923	$183,750
	30.5%	29.8%

The increase in net income led to an increase in return on stockholders' equity. These rates of return are quite strong.

Earnings Per Share of Common Stock

FORMULA: **20-2** **20-1**

$$\frac{\textbf{Net Income Available to Common Stockholders}}{\textbf{Avg. Number of Common Shares Outstanding}}$$

$$\frac{\text{Beginning + Ending \# of Shares}}{2}$$

Earnings Per Share of Common Stock (cont.)

FORMULA:	20-2	20-1
Net Income Available to Common Stockholders	$71,845	$54,760
Avg. Number of Common Shares Outstanding	6,750	6,000
	$10.64	$9.13

Learning Objective 5

Compute and explain leverage measures.

Leverage Measures

- Indicate the extent to which a company is being financed by debt and the ability of the company to meet its debt obligations
  - **Examples**:
    - Ratio of liabilities to stockholders’ equity (also called debt-to-equity ratio)
    - Times interest earned ratio

Ratio of Liabilities to Stockholders' Equity

- Measures the extent of leverage, or proportion of borrowed capital, with which a business operates.

FORMULA:

	20-2	20-1
Total Liabilities	$174,200	$220,350
Total Stockholders' Equity	$279,345	$192,500
	0.62 to 1	1.14 to 1

Much lower!

Ratio of Liabilities to Stockholders' Equity (cont.)

- Measures the extent of leverage, or proportion of borrowed capital, with which a business operates.
- Stockholders' equity increased:
  - By issuance of common stock
  - By keeping a large portion of 20-2's earnings
- Both Notes Payable and Accounts Payable were reduced in 20-2

Ratio of Liabilities to Stockholders' Equity (cont.)

FORMULA:	20-2	20-1
Total Liabilities	$174,200	$220,350
Total Stockholders' Equity	$279,345	$192,500
	0.62 to 1	1.14 to 1

Times Interest Earned Ratio

FORMULA: **20-2** **20-1**

$$\frac{\text{Income Before Taxes and Interest}}{\text{Interest Expense}}$$

Add back the income tax and bond interest to the net income.

Times Interest Earned Ratio (cont.)

FORMULA:

	20-2	20-1
Income Before Taxes and Interest / Interest Expense	$118,945	$84,470

	20-2	20-1
Net Income	$ 71,845	$54,760
Add: Income Tax	36,600	19,210
Bond Interest	10,500	10,500
	$118,945	$84,470

Times Interest Earned Ratio (cont.)

FORMULA:	20-2	20-1
Income Before Taxes and Interest	$118,945	$84,470
Interest Expense	$10,500	$10,500
	11.3	8.0

These ratios are great!
2 or 3 is usually
considered adequate.

Learning Objective 6

Explain the components of ROA and ROE.

ROA and ROE

- ROA (return on assets) =

Profit Margin X Asset Turnover

- ROE (return on equity) =

Profit Margin X Asset Turnover X Leverage Ratio

ROA

FORMULA:

Profit Margin X Asset Turnover

$$\text{Profit Margin} = \frac{\textbf{Net Income}}{\textbf{Net Sales}}$$

$$\text{Asset Turnover} = \frac{\textbf{Net Sales}}{\textbf{Average Assets}}$$

ROA (cont.)

- Assume the following data for French Connection Importers:

Net income = $71,845
Net sales = $835,950
Average assets = $433,198

Profit margin = $71,845/$835,950 = 8.59%

Asset turnover = $835,950/$433,198 = 1.93

ROA = 8.59% X 1.93 = 16.6%

ROE

FORMULA:

Profit Margin X Asset Turnover X Leverage Ratio

Profit Margin = $\dfrac{\textbf{Net Income}}{\textbf{Net Sales}}$

Asset Turnover = $\dfrac{\textbf{Net Sales}}{\textbf{Average Assets}}$

Leverage Ratio = $\dfrac{\textbf{Average Assets}}{\textbf{Av. Com. Stk. Equity}}$

ROE (cont.)

- Assume the following data for French Connection Importers:

Net income = $71,845
Net sales = $835,950
Average assets = $433,198
Average common stockholders' equity = $235,923

Profit margin = $71,845/$835,950 = 8.59%

Asset turnover = $835,950/$433,198 = 1.93

Leverage ratio = $433,198/$235,923 = 1.84

ROE = 8.59% X 1.93 X 1.84 = 30.5%

A Broader View

A Broader View

Different Ways to Generate Return on Assets

Return on assets (ROA) may be broken down into two major ratios: profit margin and asset turnover. This view of ROA helps illustrate that there are different ways to be profitable. Some retail stores, like Family Dollar, minimize investments in plant and equipment and focus on low prices. Thus, profit margins are lower, but asset turnover is higher. For every dollar in net sales, net income is rather small, perhaps only a nickel. However, these businesses are able to generate acceptable profits because they are not required to make major investments in plant and equipment. In contrast, companies like ExxonMobil must make massive investments in plant and equipment ($214 billion) to explore for, produce, and sell crude oil, natural gas, and petroleum products to generate revenues. Therefore, they must have higher profit margins to help pay for these huge investments, which create a lower asset turnover. As shown below, Family Dollar and ExxonMobil have the same relatively strong return on assets, but very different measures for profit margin and asset turnover.

A Broader View (cont.)

A Broader View

$$\text{Return on Assets} = \text{Profit Margin} \times \text{Asset Turnover}$$

$$\frac{\text{Net Income}}{\text{Average Assets}} = \frac{\text{Net Income}}{\text{Net Sales}} \times \frac{\text{Net Sales}}{\text{Average Assets}}$$

	Return on Assets	=	Profit Margin	×	Asset Turnover
Family Dollar	$\frac{\$388}{\$2,989}$	=	$\frac{\$388}{\$8,548}$	×	$\frac{\$8,548}{\$2,989}$
	13.0%		4.5%		2.86
ExxonMobil	$\frac{\$41,060}{\$316,781}$	=	$\frac{\$41,060}{\$433,526}$	×	$\frac{\$433,526}{\$316,781}$
	13.0%		9.5%		1.37

Source: Annual Reports for each company.

Dollars in millions.

Learning Objective 7

Compute and explain market measures.

Price-Earnings Ratio

- A higher PE ratio suggests that investors have more confidence in a company's future earnings and growth than for a company with a low PE ratio.

FORMULA:

$$\frac{\textbf{Market Price of Common Stock}}{\textbf{Earnings per Share of Common Stock}}$$

Price-Earnings Ratio (cont.)

FORMULA:	20-2	20-1
Market price of common stock (assumed) / Earnings per share of common stock	$90.44 / $10.64	$70.30 / $9.13
	8.5	7.7

Book Value Per Share of Common Stock

- A measure of the ownership equity represented by each share.

FORMULA:

	20-2	20-1
Common Stockholders' Equity	$279,345	$192,500
Number of Common Shares Outstanding at Year End	7,500	6,000
	$37.25	$32.08

Learning Objective 8

Explain the limitations of financial statement analysis.

Limitations of Financial Statement Analysis

- The accounting system does not measure all aspects of operating a business
- Reported data is based on many estimates and approximations
- The period of time covered by the financial statements is another consideration (need many years to establish a long-term trend)
- A comparison with other companies and with its industry as a whole can be difficult
  - Companies can use different methods of accounting