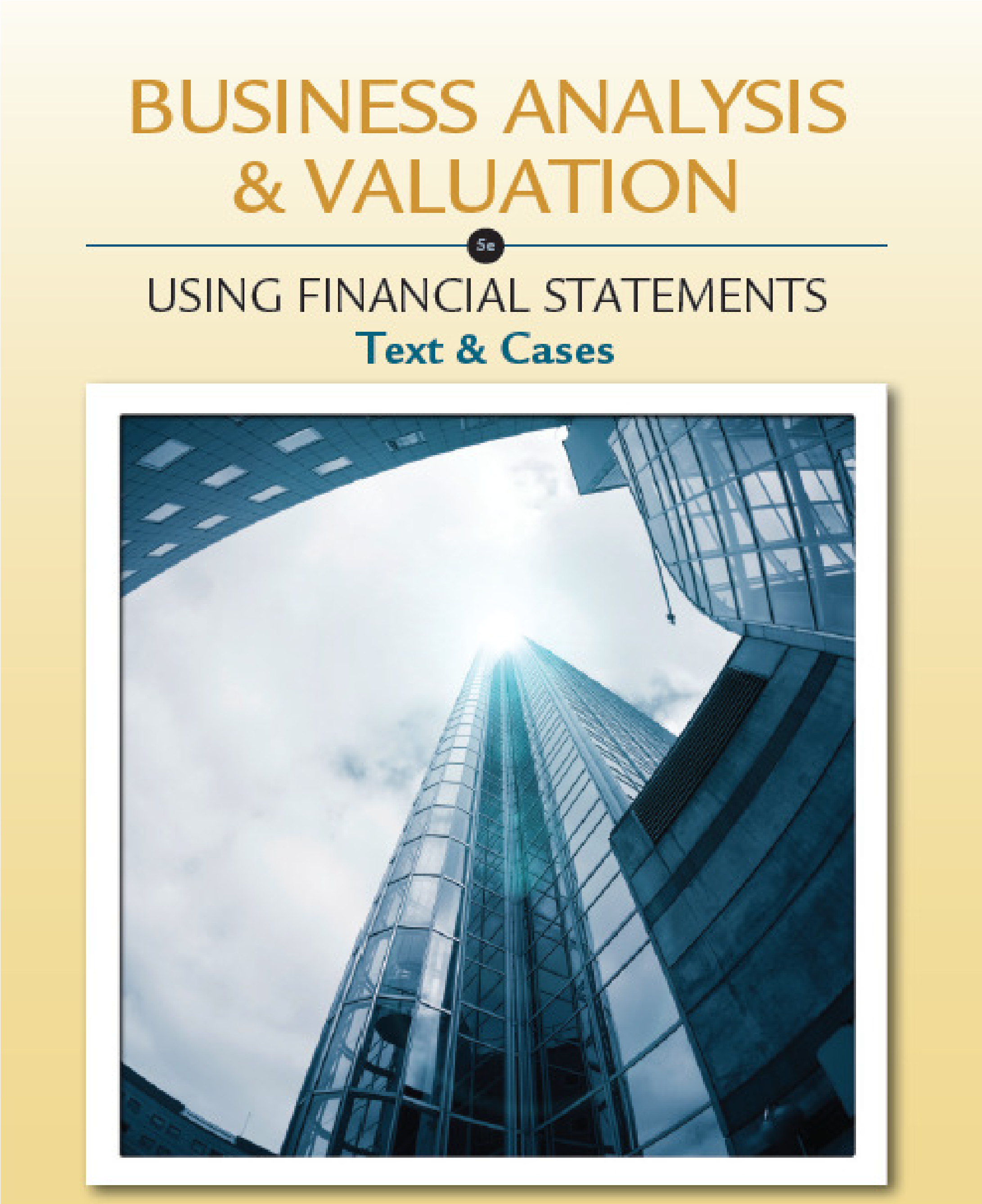


Chapter 5: Financial Analysis

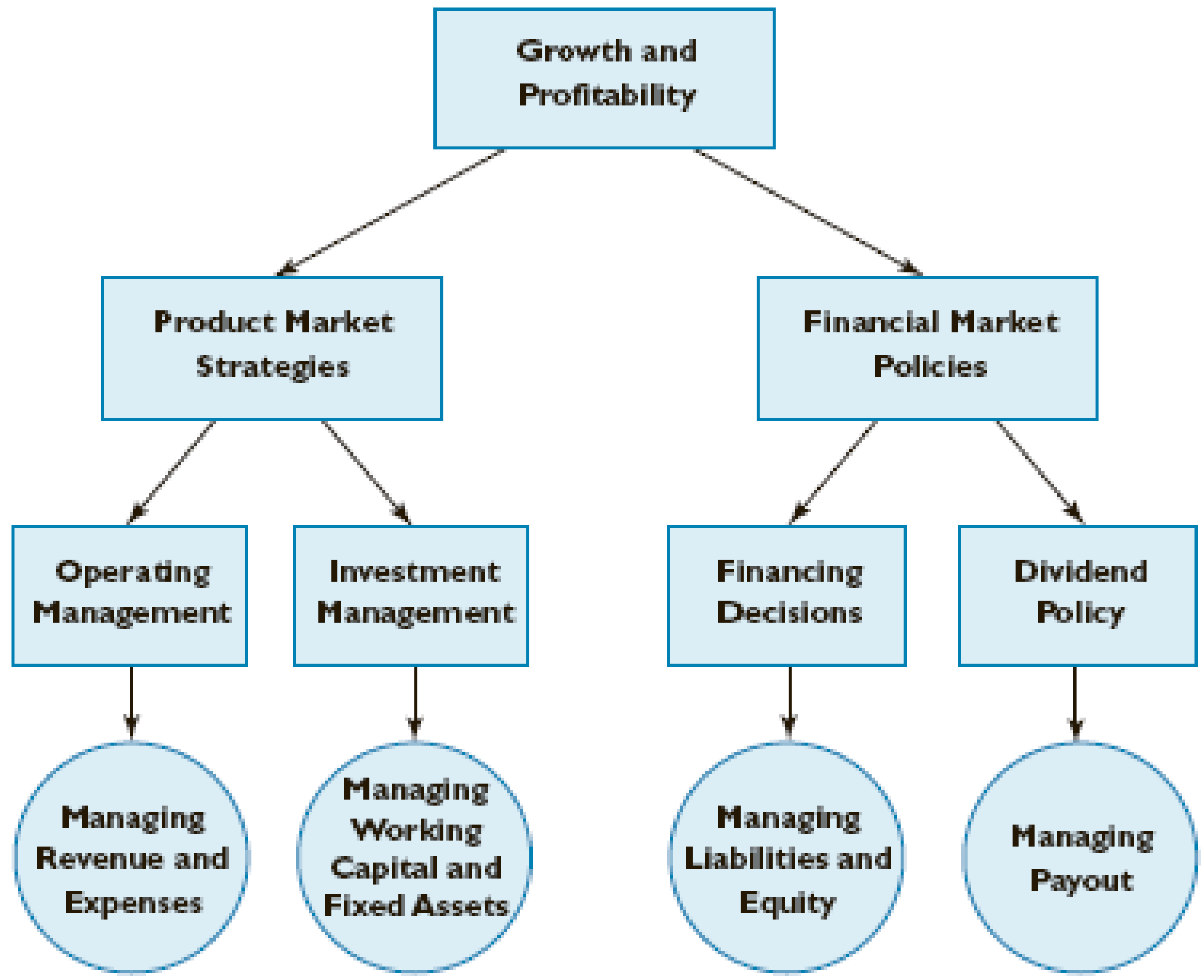
Key Concepts in Chapter 5

- There are two primary tools in financial analysis:
  - **Ratio analysis** – to assess how various line items in financial statements relate to each other and to measure relative performance.
  - **Cash flow analysis** – to evaluate liquidity and the management of operating, investing, and financing activities as they relate to cash flow.

Determinants of Firm Value and Ratio Analysis

- Profitability and growth drive firm value.
- Managers can employ four levers to achieve growth and profit targets:
  - Operating management
  - Investment management
  - Financing strategy
  - Dividend policy
- Ratio analysis seeks to evaluate the firm's effectiveness in these areas.

FIGURE 5-1 Drivers of a Firm's Profitability and Growth



Ratio Analysis

- Evaluating ratios requires comparison against some benchmark. Such benchmarks include:
  - Ratios over time from prior periods (time series)
  - Ratios of other firms in the industry (cross-sectional)
  - Some absolute benchmark
- Effective ratio analysis must attempt to relate underlying business factors to the financial numbers
- The text illustrates ratio analysis by applying it to TJX and Nordstrom.

Measuring Overall Profitability

- ROE is a comprehensive measure of and is a good starting point to systematically analyze firm performance.

ROE = Net Income / Shareholders' equity

TABLE 5-1 Return of Equity for TJX and Nordstrom

Year ended January 29, 2011	As Reported		As Adjusted	
	TJX	Nordstrom	TJX	Nordstrom
Return on Equity	46.5%	39.0%	55.4%	40.0%

Source: © Cengage Learning 2013

Decomposing Profitability: Traditional Approach

- ROE = ROA * Financial leverage

$$= \frac{\text{Net income}}{\text{Assets}} * \frac{\text{Assets}}{\text{Shareholders' equity}}$$

TABLE 5-2 Traditional Decomposition of ROE

Year ended January 29, 2011	As Reported		As Adjusted	
	TJX	Nordstrom	TJX	Nordstrom
Net profit margin (ROS)	6.1%	6.3%	7.3%	6.5%
× Asset turnover	2.94	1.47	1.84	1.36
= Return on assets (ROA)	18.0%	9.3%	13.4%	8.8%
× Financial leverage	2.58	4.19	4.12	4.55
= Return on equity (ROE)	46.5%	39.0%	55.4%	40.0%

Source: © Cengage Learning 2013

Decomposing Profitability: Alternative Approach

- The traditional approach has some limitations imposed by the composition of the denominator and numerator

- An alternative approach computes ROE as ultimately being equal to:

  Operating ROA + Spread * Net financial leverage

Detail of Alternative ROE Decomposition

$$\text{ROE} = \frac{\text{NOPAT}}{\text{Equity}} - \frac{(\text{Net interest expense after tax})}{\text{Equity}}$$

$$= \frac{\text{NOPAT}}{\text{Net assets}} \times \frac{\text{Net assets}}{\text{Equity}} - \frac{\text{Net interest expense after tax}}{\text{Net debt}} \times \frac{\text{Net debt}}{\text{Equity}}$$

$$= \frac{\text{NOPAT}}{\text{Net assets}} \times \left(1 + \frac{\text{Net debt}}{\text{Equity}}\right) - \frac{\text{Net interest expense after tax}}{\text{Net debt}} \times \frac{\text{Net debt}}{\text{Equity}}$$

$$= \text{Operating ROA} + (\text{Operating ROA} - \text{Effective interest rate after tax}) \times \text{Net financial leverage}$$

$$= \text{Operating ROA} + \text{Spread} \times \text{Net financial leverage}$$

TJX and Nordstrom: Comparison of ROE Components

TABLE 5-4 Distinguishing Operating and Financing Components in ROE Decomposition

Year ended January 29, 2011	As Reported		As Adjusted	
	TJX	Nordstrom	TJX	Nordstrom
Net operating profit margin	6.2%	7.1%	8.1%	7.5%
× Net operating asset turnover	11.33	2.86	3.44	2.44
= Operating ROA	70.6%	20.4%	27.8%	18.4%
Spread	73.1%	16.1%	22.8%	14.2%
× Net financial leverage	−0.33	1.16	1.21	1.52
= Financial leverage gain	−24.1%	18.6%	27.6%	21.6%
ROE = Operating ROA + Financial leverage gain	46.5%	39.0%	55.4%	40.0%

Source: © Cengage Learning 2013

Assessing Operating Management: Income Statement Ratios

- Common-sized income statements facilitate comparisons of key line items across time and different firms.
- Additionally, the following ratios are also helpful:
  - Gross profit margin
  - EBITDA margin
  - NOPAT margin
  - Recurring NOPAT margin

Gross Profit Margin

- Measures the profitability of sales, less direct costs of sales:

$$\text{Gross profit margin} = \frac{\text{Sales} - \text{Cost of sales}}{\text{Sales}}$$

The gross profit margin is an indicator of:

- The price premium that a firm's product commands in the market
- The efficiency of a firm's procurement and/or production process

NOPAT and EBITDA Margins

- The NOPAT margin provides a comprehensive measure of operations:

$$\text{NOPAT margin} = \frac{\text{NOPAT}}{\text{Sales}}$$

- The EBITDA margin eliminates the significant non-cash expenses of depreciation and amortization along with interest and taxes:

$$\text{EBITDA} = \frac{\text{Earnings before interest, taxes, depreciation, and amortization}}{\text{Sales}}$$

A Comparison of Key Income Statement Ratios for TJX and Nordstrom

TABLE 5-5 Common-Sized Income Statement and Profitability Ratios

Year ended January 29, 2011	As Reported		As Adjusted	
	TJX	Nordstrom	TJX	Nordstrom
Line Items as a Percent of Sales				
Sales	100.0%	100.0%	100.0%	100.0%
Cost of Sales	71.0%	57.4%	68.1%	56.8%
SG&A	16.9%	27.7%	16.9%	27.7%
Other operating expense	2.1%	3.4%	2.1%	3.4%
Other income, net of other expense	0.0%	0.0%	0.0%	0.0%
Net interest expense (income)	0.2%	1.3%	1.3%	1.7%
Tax expense	3.8%	3.9%	4.4%	4.0%
Unusual gains, net of unusual losses	0.0%[a]	0.0%	0.0%	0.0%
Net income	6.1%	6.3%	7.3%	6.5%
Key Profitability Ratios				
Gross profit margin	29.0%	42.6%	32.0%	43.2%
EBITDA margin	12.1%	14.9%	15.1%	15.5%
NOPAT margin	6.23%	7.13%	8.10%	7.53%
Recurring NOPAT margin	6.19%	7.13%	8.10%	7.53%

[a]This figure is rounded to zero although there was actually a gain of $3.6 million here (which is reflected in the difference in NOPAT and recurring NOPAT margin below).

Source: © Cengage Learning 2013

Decomposing Asset Turnover

- Asset management is a key indicator of how effective a firm’s management is.

- Asset turnover may be broken into two primary components:
  1. Working capital management
  2. Long-term asset management

Working Capital Management

- Working capital is the difference between current assets and current liabilities.
- Key ratios useful to analyzing the management of working capital include:
  - Operating working capital to sales
  - Operating working capital turnover
  - Accounts receivable turnover
    - Day's receivables
  - Inventory turnover
    - Day's inventory
  - Accounts payable turnover
    - Day's payables

Asset Management Ratios for TJX and Nordstrom

TABLE 5-6 Asset Management Ratios

Year ended January 29, 2011	As Reported		As Adjusted	
	TJX	Nordstrom	TJX	Nordstrom
Operating working capital/Sales	0.76%	16.5%	0.76%	16.5%
Net long-term assets/Sales	8.1%	18.4%	28.4%	24.4%
PP&E/Sales	11.3%	25.5%	31.3%	31.3%
Operating working capital turnover	132.2	6.1	132.2	6.1
Net long-term assets turnover	12.4	5.4	3.5	4.1
PP&E turnover	8.9	3.9	3.2	3.2
Accounts receivable turnover	148.2	4.8	148.2	4.8
Inventory turnover	6.2	6.2	5.9	6.1
Accounts payable turnover	10.3	7.7	9.9	7.6
Days' accounts receivable	2.5	76.6	2.5	76.6
Days' inventory	59.3	58.9	61.9	59.5
Days' accounts payable	35.3	47.6	36.9	48.1

Source: © Cengage Learning 2013

Financial Leverage Analysis

- Borrowing allows a firm to access to capital, but increases the risk of ownership for equity holders.
- Analysis of leverage can be performed on both short- and long-term debts:
  - Liquidity analysis relates to evaluating current liabilities
  - Solvency analysis relates to longer term liabilities

Liquidity Analysis

- There are several ratios useful to evaluate a firm's liquidity, including:
  - Current ratio
  - Quick ratio
  - Cash ratio
  - Operating cash flow ratio
- Each of these ratios attempts to measure the ability of a firm to pay its current obligations.

Liquidity Analysis

- Knowing how the liquidity ratios are calculated allows the user to understand how to interpret them:

$$\text{Current ratio} = \frac{\text{Current assets / Current liabilities}}{\text{Current liabilities}}$$

$$\text{Quick ratio} = \frac{\text{Cash + Short-term investments + Accts. receivable}}{\text{Current liabilities}}$$

$$\text{Cash ratio} = \frac{\text{Cash + Marketable securities}}{\text{Current liabilities}}$$

$$\text{Operating cash flow ratio} = \frac{\text{Cash flows from operations}}{\text{Current liabilities}}$$

Comparison of TJX and Nordstrom Liquidity Ratios

TABLE 5-7 Liquidity Ratios

Year ended January 29, 2011	As Reported		As Adjusted	
	TJX	Nordstrom	TJX	Nordstrom
Current ratio	1.66	2.01	1.66	2.01
Quick ratio	0.65	1.41	0.65	1.41
Cash ratio	0.60	0.39	0.60	0.39
Operating cash flow ratio	0.73	0.62	0.73	0.62

Source: © Cengage Learning 2013

Debt and Coverage Ratios

- Beyond short-term survival, solvency measures the ability of a firm to meet long-term obligations.
- Several useful ratios are used to analyze solvency. Three using only shareholders' equity as a denominator are:

$$\text{Liabilities-to-equity ratio} = \frac{\text{Total liabilities}}{\text{Shareholders' equity}}$$

$$\text{Debt-to-equity ratio} = \frac{\text{Short-term debt} + \text{Long-term debt}}{\text{Shareholders' equity}}$$

$$\text{Net-debt-to-equity ratio} = \frac{\text{Short-term debt} + \text{Long-term debt} - \text{Cash and marketable securities}}{\text{Shareholders' equity}}$$

More Debt and Coverage Ratios

- Two ratios that use debt as a proportion of total capital are:

Debt-to-capital ratio =

$$\frac{\text{Short-term debt + Long-term debt}}{\text{Short-term debt + Long-term debt + Shareholders' equity}}$$

Net-debt-to-net-capital ratio =

$$\frac{\text{Interest bearing liabilities – Cash \& marketable securities}}{\text{Interest-bearing liabilities – Cash \& marketable securities + Shareholders' equity}}$$

More Debt and Coverage Ratios, contd.

- Two ratios that specifically address the ability to pay interest on debts are:

Interest coverage ratio (earnings basis) =

$$\frac{\text{Net income} + \text{Interest expense} + \text{Tax expense}}{\text{Interest expense}}$$

Interest coverage ratio (cash flow basis) =

$$\frac{\text{Cash flow from operations} + \text{Interest expense} + \text{Taxes paid}}{\text{Interest expense}}$$

Comparison of TJX and Nordstrom Debt and Coverage Ratios

TABLE 5-8 Debt and Coverage Ratios

Year ended January 29, 2011	As Reported		As Adjusted	
	TJX	Nordstrom	TJX	Nordstrom
Liabilities to equity	1.58	3.19	3.12	3.55
Debt to equity	0.27	1.66	1.81	2.03
Net debt to equity	−0.33	1.16	1.21	1.52
Debt to capital	0.22	0.62	0.64	0.67
Net debt to net capital	−0.49	0.54	0.55	0.60
Interest coverage (earnings based)	45.2	8.5	9.7	7.0
Interest coverage (cash flow based)	60.1	13.3	14.1	11.2

Source: © Cengage Learning 2013

Assessing the Sustainable Growth Rate

- A comprehensive measure of a firm's ratios is the sustainable growth rate, which uses ROE:

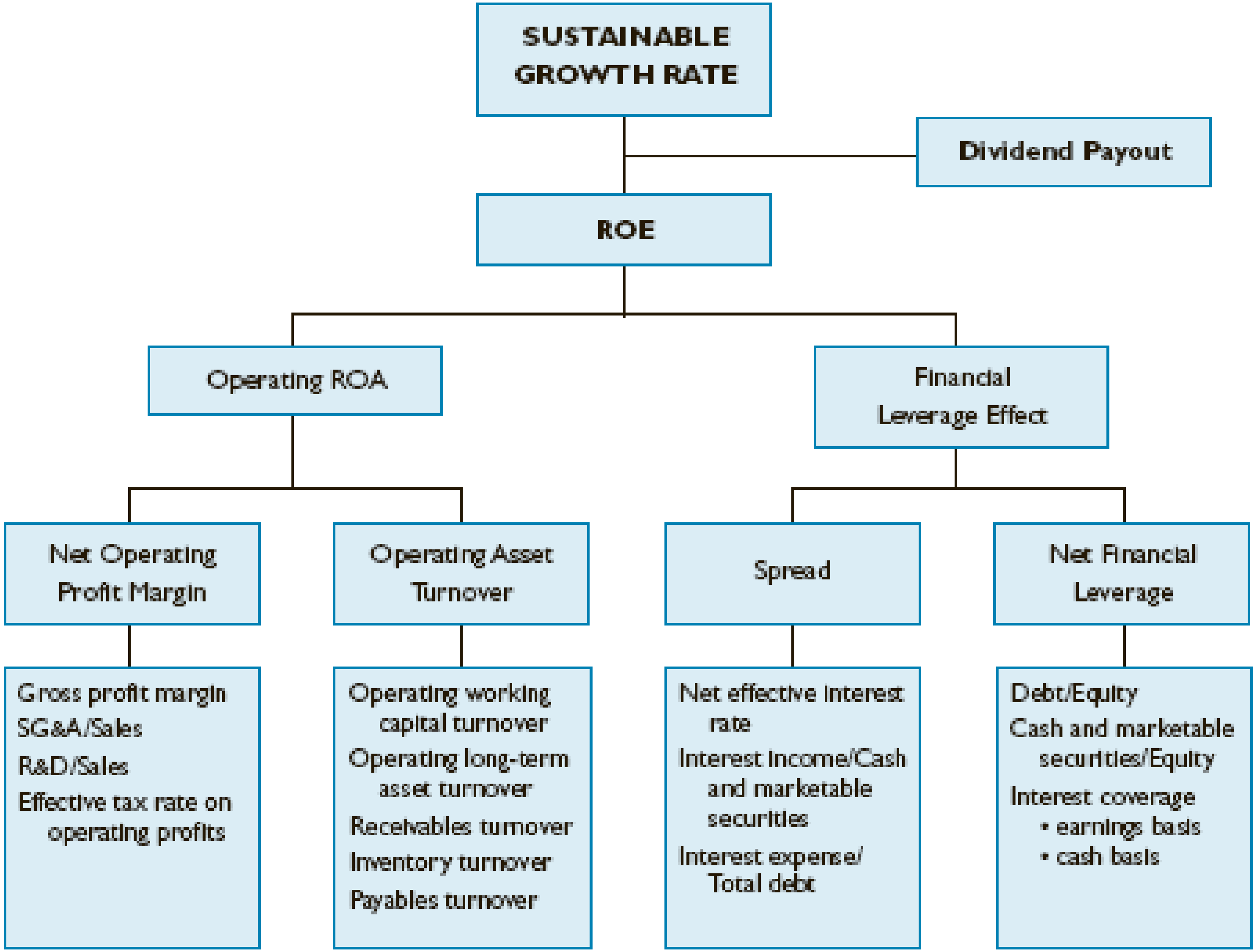
$$\text{ROE} * (1 - \text{Dividend payout ratio})$$

Where:

$$\text{Dividend payout ratio} = \frac{\text{Cash dividends paid}}{\text{Net income}}$$

- Sustainable growth rate measures the ability of a firm to maintain its profitability and financial policies. It's components may be seen in Figure 5-2.

FIGURE 5-2 Sustainable Growth Rate Framework for Financial Ratio Analysis



Sustainable Growth Rates For TJX and Nordstrom

TABLE 5-9 Sustainable Growth Rate

Year ended January 29, 2011	As Reported		As Adjusted	
	TJX	Nordstrom	TJX	Nordstrom
Return on equity	46.5%	39.0%	55.4%	40.0%
Dividend payout ratio	17.1%	27.2%	17.1%	27.2%
Sustainable growth rate	38.6%	28.4%	45.9%	29.1%

Source: © Cengage Learning 2013

Cash Flow Analysis

- The ratio analysis previously discussed used accrual accounting.
- Cash flow analysis can provide further insights into operating, investing, and financing activities.
- All U.S. companies are required to include a statement of cash flows in their financial statements.

Analyzing Cash Flow Information

- A number of questions can be answered through analysis of the statement of cash flows. For example:
  - Operating activities
    - How strong is the firm's internal cash flow generation?
    - How well is working capital being managed?
  - Investing activities
    - How much cash did the company invest in growth assets?
  - Financing activities
    - What type of external financing does the company rely on?
    - Did the company use internally generated funds for investments?
    - Did the company use internally generated funds to pay dividends?

Cash Flow Analysis

- Differences in reporting cash flow information allow for variation across firms that complicate comparisons.
- Analysts can make adjustments to net income to arrive at free cash flows, a commonly used metric for financial analysis.
- Table 5-11 in the next slide illustrates the various calculations using financial information from TJX and Nordstrom.

TABLE 5-11 Cash Flow Analysis

Year ended January 29, 2011	As Reported		As Adjusted	
	TJX	Nordstrom	TJX	Nordstrom
Net Income	**1,343.1**	**613.0**	**1,600.3**	**629.1**
After-tax net interest expense (income)	24.2	78.6	176.0	101.2
Non-operating losses (gains)	158.4	0.0	162.0	0.0
Long-term operating accruals	587.8	465.0	1,087.6	510.5
Operating cash flow before working capital investments	**2,113.5**	**1,156.6**	**3,025.9**	**1,240.8**
Net (investments in) or liquidation of operating working capital	(5.0)	99.0	(5.0)	99.0
Operating cash flow before investment in long-term assets	**2,108.5**	**1,255.6**	**3,020.9**	**1,339.8**
Net (investment in) or liquidation of operating long-term assets	(708.2)	(462.0)	(2,591.2)	(630.6)
Free cash flow available to debt and equity	**1,400.3**	**793.6**	**429.7**	**709.2**
After-tax net interest income (expense)	(24.2)	(78.6)	(176.0)	(101.2)
Net debt (repayment) or issuance	(2.4)	179.0	1,120.0	286.0
Free cash flow available to equity	**1,373.7**	**894.0**	**1,373.7**	**894.0**
Dividend (payments)	(229.3)	(167.0)	(229.3)	(167.0)
Net stock issuance (repurchase), and other equity changes	(1,017.2)	(16.0)	(1,017.2)	(16.0)
Net increase (decrease) in cash balance	**127.2**	**711.0**	**127.2**	**711.0**

Source: © Cengage Learning 2013

Concluding Comments

- There are two primary tools in financial analysis:

  Ratio analysis – to assess how various line items in financial statements relate to each other and to measure relative performance.

  Cash flow analysis – to evaluate liquidity and the management of operating, investing, and financing activities as they relate to cash flow.

  Both forms of analyses must be evaluated while considering whether firm performance is consistent with the strategic initiatives of management.