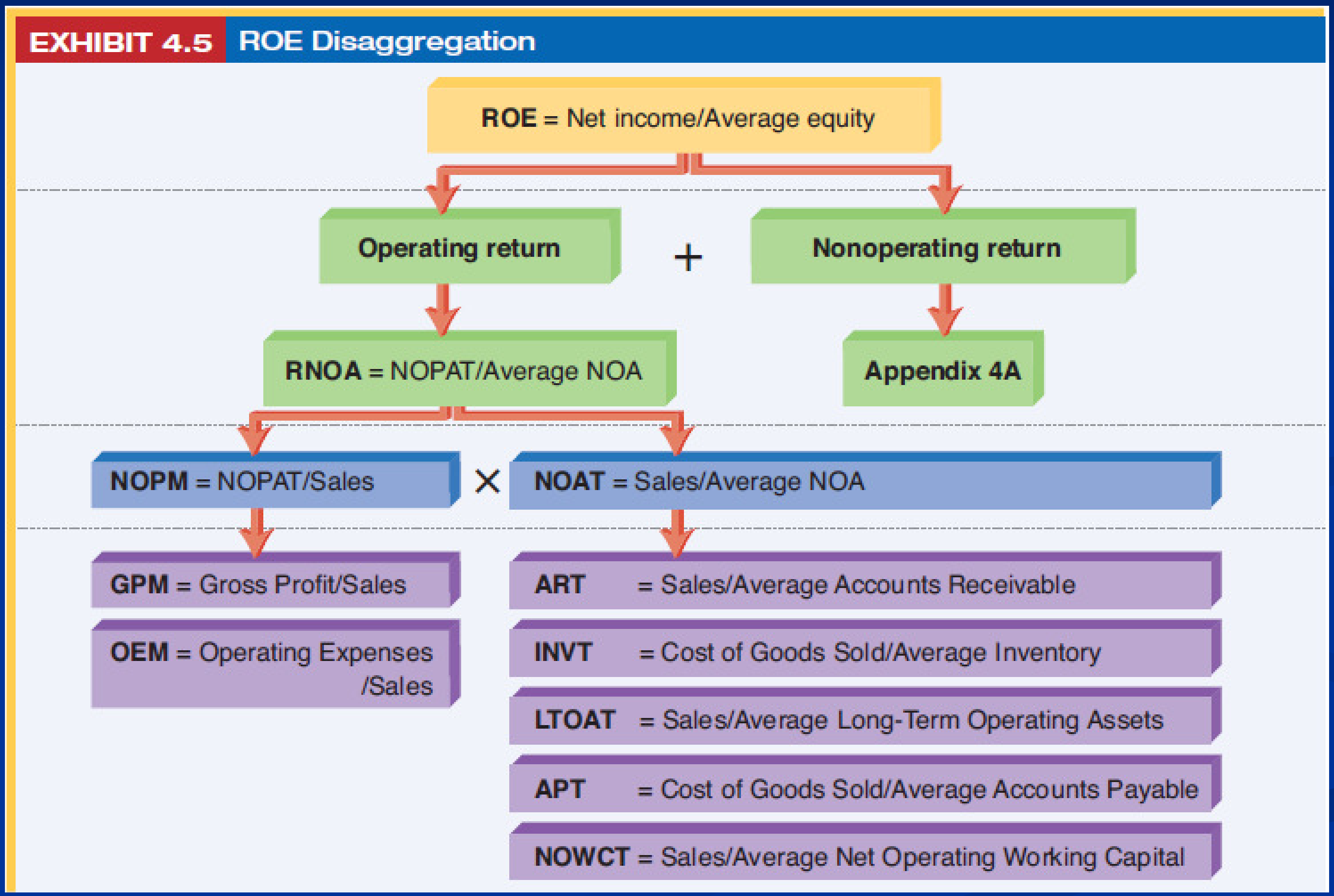
Module 4

Analyzing and Interpreting Financial Statements

Analysis Structure



Return on Equity

- **Return on equity (ROE) is computed as:**

$$\text{ROE} = \frac{\text{Net income}}{\text{Average stockholders' equity}}$$

$$\text{ROE} = \text{Operating return} + \text{Nonoperating return}$$

Operating Return (RNOA)

$$RNOA = \frac{\text{Net operating profit after tax (NOPAT)}}{\text{Average net operating assets (NOA)}}$$

- The income statement reflects operating activities through revenues, costs of goods sold (COGS), and other expenses.
- Operating assets typically include cash, receivables, inventories, prepaid expenses, property, plant and equipment (PPE), and capitalized lease assets, and exclude short-term and long-term investments in marketable securities.

Operating Items in the Income Statement

EXHIBIT 4.1 Operating and Nonoperating Items in the Income Statement

Typical Income Statement Operating Items Highlighted
Revenues
Cost of sales
Gross profit
Operating expenses
Selling, general and administrative
Asset impairment expense
Gains and losses on asset disposal
Total operating expenses
Operating income
Interest expense
Interest and dividend revenue
Investment gains and losses
Total nonoperating expenses
Income from continuing operations before taxes
Tax expense
Income from continuing operations
Income (loss) from discontinued operations, net of tax (see Appendix 4A)
Consolidated net income
Less: consolidated net income attributable to noncontrolling interest (see Appendix 4A)
Consolidated net income attributable to parent shareholders

Target's Operating Items

TARGET Income Statement ($ millions) For Year Ended January 29, 2011	
Sales	$65,786
Credit card revenues	1,604
Total revenues	67,390
Cost of sales	45,725
Selling, general and administrative expenses	13,469
Credit card expenses	860
Depreciation and amortization	2,084
Earnings before interest expense and income taxes	5,252
Net interest expense	
Nonrecourse debt collateralized by credit card receivables	83
Other interest expense	677
Interest income	(3)
Net interest expense	757
Earnings before income taxes	4,495
Provision for income taxes	1,575
Net earnings	$ 2,920

Tax on Operating Profit

$$\text{Tax on operating profit} = \text{Tax expense} + \underbrace{(\text{Pretax net nonoperating expense} \times \text{Statutory tax rate})}_{\text{Tax Shield}}$$

For Target:

Net operating profit before tax (NOPBT)		\$5,252
Less tax on operating profit		
Tax expense (from income statement)	\$1,575	
Tax shield (\$757 × 37%).	+280	(1,855)
Net operating profit after tax (NOPAT)		\$3,397

Treatment of Noncontrolling Interests in Tax Shield Computation

- Our computation of NOPAT adjusts reported tax expense for the tax shield on net nonoperating expense (NNE).
- Should noncontrolling interest be included in NNE?
  - While noncontrolling interests are treated as nonoperating, they represent an *allocation* of net income to the parent company and the noncontrolling shareholders.
  - Noncontrolling interests is not an expense that is deductible for tax purposes.
  - Thus, noncontrolling interest should not be included in the tax shield computation.

Net Operating Assets (NOA)

EXHIBIT 4.2 Operating and Nonoperating Items in the Balance Sheet

Typical Balance Sheet
Operating Items Highlighted

Current assets
Cash and cash equivalents
Short-term investments
Accounts receivable
Inventories
Prepaid expenses
Deferred income tax assets
Other current assets
Current assets of discontinued operations

Long-term assets
Long-term investments in securities
Property, plant and equipment, net
Capitalized lease assets
Natural resources
Equity method investments
Goodwill and intangible assets
Deferred income tax assets
Other long-term assets
Long-term assets of discontinued operations

Current liabilities
Short-term notes and interest payable
Current maturities of long-term debt
Accounts payable
Accrued liabilities
Unearned revenue
Deferred income tax liabilities
Current liabilities of discontinued operations

Long-term liabilities
Bonds and notes payable
Capitalized lease obligations
Pension and other post-employment liabilities
Deferred income tax liabilities
Long-term liabilities of discontinued operations

Stockholders' equity
All equity accounts

Noncontrolling (minority) interest

For Target

TARGET Balance Sheets (In millions)	Jan. 29, 2011	Jan. 30, 2010
Assets		
Cash and cash equivalents	$ 1,712	$ 2,200
Credit card receivables, net of allowance of $690 and $1,016	6,153	6,966
Inventory	7,596	7,179
Other current assets	1,752	2,079
Total current assets	17,213	18,424
Property and equipment		
Land	5,928	5,793
Buildings and improvements	23,081	22,152
Fixtures and equipment	4,939	4,743
Computer hardware and software	2,533	2,575
Construction-in-progress	567	502
Accumulated depreciation	(11,555)	(10,485)
Property and equipment, net	25,493	25,280
Other noncurrent assets	999	829
Total assets	$43,705	$44,533
Liabilities and shareholders' investment		
Accounts payable	$6,625	$6,511
Accrued and other current liabilities	3,326	3,120
Unsecured debt and other borrowings	119	796
Nonrecourse debt collateralized by credit card receivables	—	900
Total current liabilities	10,070	11,327
Unsecured debt and other borrowings	11,653	10,643
Nonrecourse debt collateralized by credit card receivables	3,954	4,475
Deferred income taxes	934	835
Other noncurrent liabilities	1,607	1,906
Total noncurrent liabilities	18,148	17,859
Shareholders' investment		
Common stock	59	62
Additional paid-in-capital	3,311	2,919
Retained earnings	12,698	12,947
Accumulated other comprehensive loss	(581)	(581)
Total shareholders' investment	15,487	15,347
Total liabilities and shareholders' investment	$43,705	$44,533

Target's NOA

Target ($ millions)	Jan. 29, 2011	Jan. 30, 2010
Operating assets		
Credit card receivables	$ 6,153	$ 6,966
Inventory	7,596	7,179
Other current assets	1,752	2,079
Property and equipment, net	25,493	25,280
Other noncurrent assets	999	829
Total operating assets	**41,993**	**42,333**
Operating liabilities		
Accounts payable	6,625	6,511
Accrued and other current liabilities	3,326	3,120
Deferred income taxes	934	835
Other noncurrent liabilities	1,607	1,906
Total operating liabilities	**12,492**	**12,372**
Net operating assets (NOA)	$29,501	$29,961

Target's RNOA and ROE

$$\text{RNOA} = \frac{\text{NOPAT}}{\text{Average NOA}} = \frac{\$3{,}397}{(\$29{,}501 + \$29{,}961)/2} = 11.43\%$$

$$\text{ROE} = \frac{\text{Net income}}{\text{Average stockholders' equity}} = \frac{\$2{,}920}{(\$15{,}487 + \$15{,}347)/2} = 18.94\%$$

Key Definitions

EXHIBIT 4.3 Key Ratio and Acronym Definitions

Ratio		Definition
ROE:	**Return on equity . . . .**	Net income/Average stockholders' equity
NOPAT:	**Net operating profit after tax. . . . .**	Operating revenues less operating expenses such as cost of sales, selling, general and administrative expense, and taxes; it excludes nonoperating revenues and expenses such as interest revenue, dividend revenue, interest expense, gains and losses on investments, discontinued operations, and income attributed to noncontrolling interest.
NOA:	**Net operating assets . . . .**	Operating assets less operating liabilities; it excludes nonoperating items such as investments in marketable securities and interest-bearing debt.
RNOA:	**Return on net operating assets. . .**	NOPAT/Average NOA
NNE:	**Net nonoperating expense . . . .**	NOPAT − Net income; NNE consists of nonoperating expenses and revenues, net of tax, as well as any noncontrolling interest reported on the income statement.

Disaggregation of RNOA

$$\text{RNOA} = \frac{\text{NOPAT}}{\text{Average NOA}} = \frac{\text{NOPAT}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Average NOA}}$$

Net operating profit margin (NOPM)

Net operating asset turnover (NOAT)

Net Operating Profit Margin (NOPM)

- **Net operating profit margin (NOPM)** reveals how much operating profit the company earns from each sales dollar.
- NOPM is affected by
  - the level of gross profit
  - the level of operating expenses
  - the level of competition and the company's willingness and ability to control costs.

Target's NOPM

$$\text{NOPM} = \frac{\text{NOPAT}}{\text{Revenues}} = \frac{\$3{,}397}{\$67{,}390} = 5.04\%$$

- This result means that for each dollar of sales at Target, the company earns just over 5¢ profit after all operating expenses and tax.
- As a reference, the median NOPM for all publicly traded firms is about 6¢.

Net Operating Asset Turnover (NOAT)

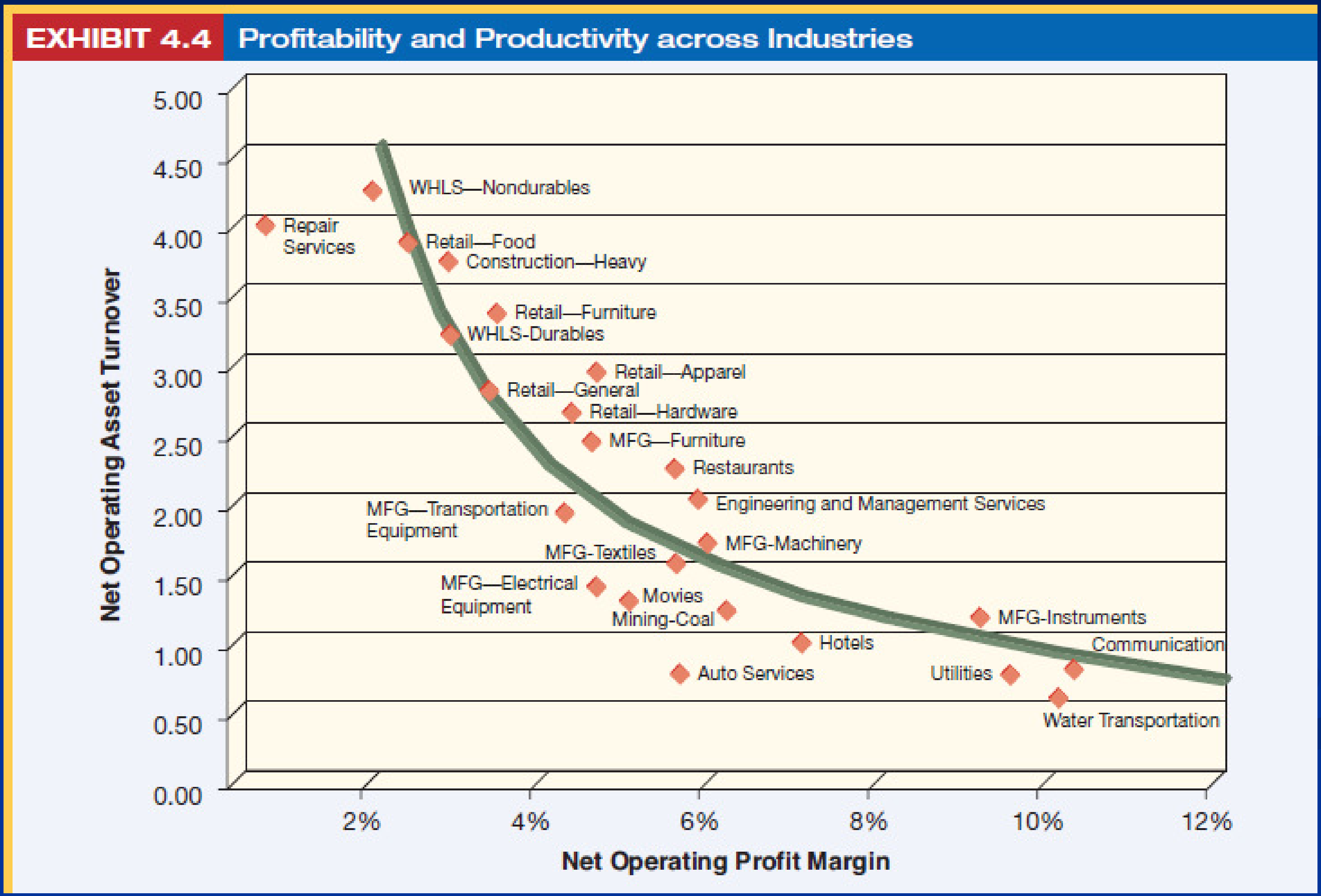
- **Net operating asset turnover (NOAT)** measures the productivity of the company's net operating assets.
- This metric reveals the level of sales the company realizes from each dollar invested in net operating assets.
- All things equal, a higher NOAT is preferable.

Target's NOAT

$$\text{NOAT} = \frac{\text{Revenues}}{\text{Average NOA}} = \frac{\$67{,}390}{(\$29{,}501 + \$29{,}961)/2} = 2.27$$

- This result means that for each dollar of net operating assets, Target realizes $2.27 in sales.
- As a reference, the median for all publicly traded companies is $1.4.

Margin vs. Turnover



Nonoperating Return Component of ROE

- Assume that a company has $1,000 in average assets for the current year in which it earns a 20% RNOA. It finances those assets entirely with equity investment (no debt).
- Its ROE is computed as follows:

ROE	=	Operating return	+	Nonoperating return
	=	20%	+	0%
	=		20%	

Effect of Financial Leverage

- Next, assume that this company borrows \$500 at 7% interest and uses those funds to acquire additional assets yielding the same operating return.
- Its net operating assets for the year now total \$1,500 and its profit is \$265.

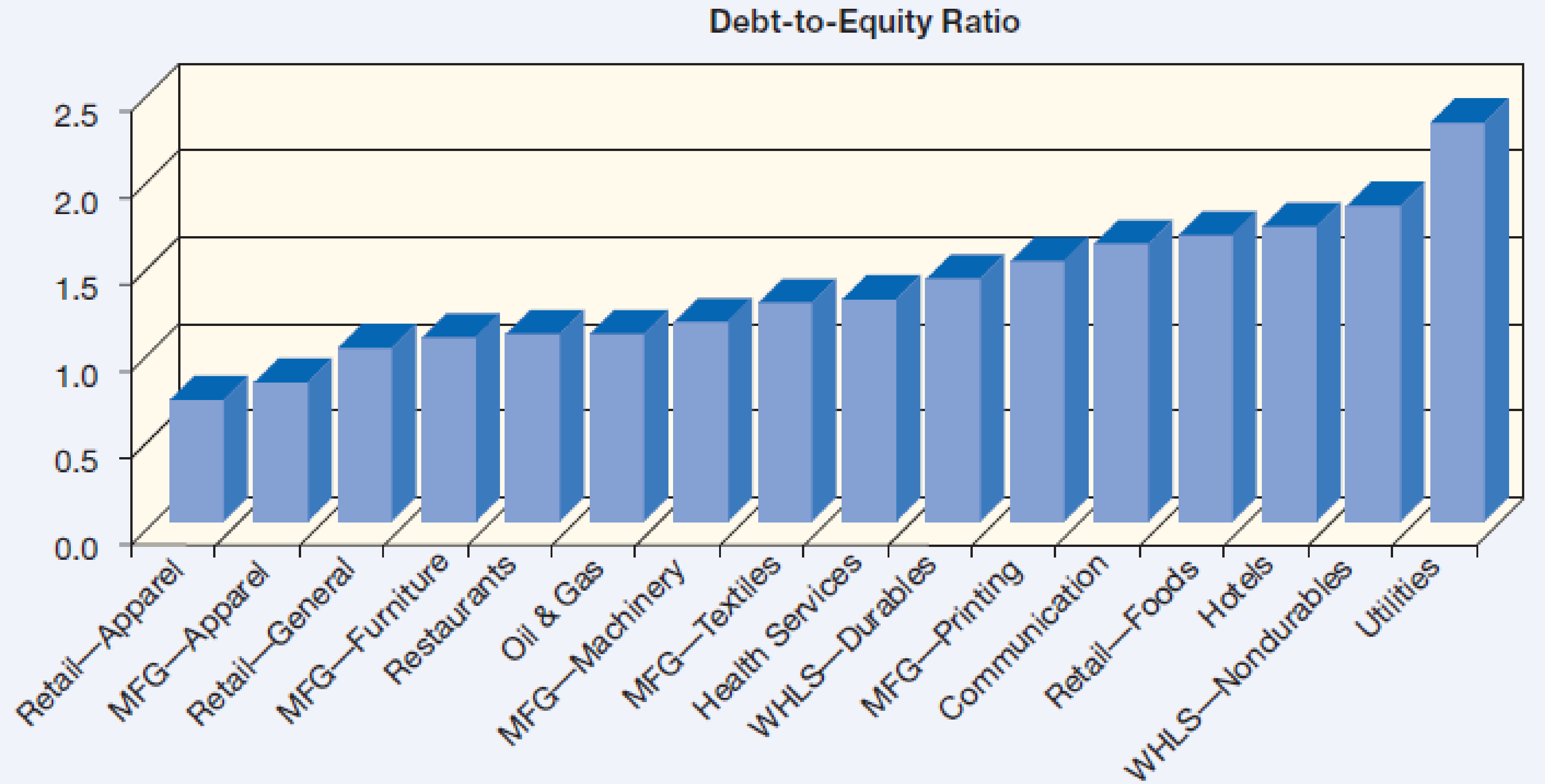
Profit from assets financed with equity (\$1,000 × 20%)		\$200
Profit from assets financed with debt (\$500 × 20%)	\$100	
Less interest expense from debt (\$500 × 7%)	(35)	65
Net profit.		\$265

Effect of Financial Leverage on ROE

- We see that this company has increased its profit to \$265 (up from \$200) with the addition of debt, and its ROE is now 26.5% (\$265/\$1,000).
- The reason for the increased ROE is that the company borrowed \$500 at 7% and invested those funds in assets earning 20%.
- The difference of 13% accrues to shareholders.

$$
\begin{aligned}
\text{ROE} &= \text{Operating return} + \text{Nonoperating return} \\
&= 20\% + 6.5\% \\
&= 26.5\%
\end{aligned}
$$

EXHIBIT 4.6 Median Ratio of Liabilities to Equity for Selected Industries



GAAP Limitations of Ratio analysis

1. **Measurability.** Financial statements reflect what can be reliably measured. This results in nonrecognition of certain assets, often internally developed assets, the very assets that are most likely to confer a competitive advantage and create value. Examples are brand name, a superior management team, employee skills, and a reliable supply chain.
2. **Non-capitalized costs.** Related to the concept of measurability is the expensing of costs relating to “assets” that cannot be identified with enough precision to warrant capitalization. Examples are brand equity costs from advertising and other promotional activities, and research and development costs relating to future products.
3. **Historical costs.** Assets and liabilities are usually recorded at original acquisition or issuance costs. Subsequent increases in value are not recorded until realized, and declines in value are only recognized if deemed permanent.

Global Accounting

- IFRS companies routinely report "financial assets" or "financial liabilities" on the balance sheet.
- IFRS defines financial assets to include receivables (operating item), loans to affiliates or associates (can be operating or nonoperating depending on the nature of the transactions), securities held as investments (nonoperating), and derivatives (nonoperating).
- IFRS notes to financial statements usually detail what financial assets and liabilities consist of.

Global Accounting

Income Statement Line Items	Operating (O) or Nonoperating (N)	Required on IFRS Income Statement
Net sales	O	YES
Cost of sales	O	—
Selling, general and administrative (SG&A) expense	O	—
Provisions for doubtful accounts.	O	—
Nonoperating income	N	—
Interest revenue and Interest expense	N	YES
Nonoperating expenses	N	—
Income before income taxes.	O and N	—
Income tax expense	O and N	YES
Earnings on equity investments (associates and joint ventures). . .	O	YES
Income from continuing operations	O	—
Discontinued operations	N	YES
Income before extraordinary items	O and N	—
Extraordinary items, net of income tax	O or N	—
Net income	O and N	YES
Net income attributable to noncontrolling interest	N	YES
Net income attributable to controlling interest	O and N	YES
Earnings per share (Basic EPS and Diluted EPS)	O and N	YES

Liquidity and Solvency Measures

- **Liquidity** refers to cash: how much we have, how much is expected, and how much can be raised on short notice.
- **Solvency** refers to the ability to meet obligations; primarily obligations to creditors, including lessors.

Current Ratio

- **Current assets** are those assets that a company expects to convert into cash within the next operating cycle, which is typically a year.
- **Current liabilities** are those liabilities that come due within the next year.
- An excess of current assets over current liabilities (Current assets Current liabilities), is known as **net working capital** or simply **working capital**.

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

Quick Ratio

- The **quick ratio** focuses on quick assets.
- **Quick assets** include cash, marketable securities, and accounts receivable; they exclude inventories and prepaid assets.

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

Solvency Ratios

- **Solvency** refers to a company's ability to meet its debt obligations.
- Solvency is crucial since an insolvent company is a failed company.
- Two common solvency ratios:

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

$$\text{Times interest earned} = \frac{\text{Earnings before interest and taxes}}{\text{Interest expense}}$$

Vertical and Horizontal Analysis

EXHIBIT 4B.1 Common-Size Balance Sheets

TARGET
Common-Size Balance Sheets

	Amounts ($ millions)			Percentages*		
	2011	2010	2009	2011	2010	2009
Assets						
Cash and cash equivalents	$ 1,712	$ 2,200	$ 864	3.9%	4.9%	2.0%
Credit card receivables	6,153	6,966	8,084	14.1	15.6	18.3
Inventory	7,596	7,179	6,705	17.4	16.1	15.2
Other current assets	1,752	2,079	1,835	4.0	4.7	4.2
Total current assets	17,213	18,424	17,488	39.4	41.4	39.6
Property and equipment						
Land	5,928	5,793	5,767	13.6	13.0	13.1
Buildings and improvements	23,081	22,152	20,430	52.8	49.7	46.3
Fixtures and equipment	4,939	4,743	4,270	11.3	10.7	9.7
Computer hardware and software	2,533	2,575	2,586	5.8	5.8	5.9
Construction-in-progress	567	502	1,763	1.3	1.1	4.0
Accumulated depreciation	(11,555)	(10,485)	(9,060)	(26.4)	(23.5)	(20.5)
Property and equipment, net	25,493	25,280	25,756	58.3	56.8	58.4
Other noncurrent assets	999	829	862	2.3	1.9	2.0
Total assets	$43,705	$44,533	$44,106	100.0%	100.0%	100.0%
Liabilities and shareholders' investment						
Accounts payable	$ 6,625	$ 6,511	$ 6,337	15.2%	14.6%	14.4%
Accrued and other current liabilities	3,326	3,120	2,913	7.6	7.0	6.6
Unsecured debt and other borrowings	119	796	1,262	0.3	1.8	2.9
Nonrecourse debt collateralized by credit card receivables	—	900	—	0.0	2.0	0.0
Total current liabilities	10,070	11,327	10,512	23.0	25.4	23.8
Unsecured debt and other borrowings	11,653	10,643	12,000	26.7	23.9	27.2
Nonrecourse debt collateralized by credit card receivables	3,954	4,475	5,490	9.0	10.0	12.4
Deferred income taxes	934	835	455	2.1	1.9	1.0
Other noncurrent liabilities	1,607	1,906	1,937	3.7	4.3	4.4
Total noncurrent liabilities	18,148	17,859	19,882	41.5	40.1	45.1
Shareholders' investment						
Common stock	59	62	63	0.1	0.1	0.1
Additional paid-in-capital	3,311	2,919	2,762	7.6	6.6	6.3
Retained earnings	12,698	12,947	11,443	29.1	29.1	25.9
Accumulated other comprehensive loss	(581)	(581)	(556)	(1.3)	(1.3)	(1.3)
Total shareholders' investment	15,487	15,347	13,712	35.4	34.5	31.1
Total liabilities and shareholders' investment	$43,705	$44,533	$44,106	100.0%	100.0%	100.0%

*Percentages are rounded to one decimal and, thus, might not exactly sum to totals and subtotals.

Vertical and Horizontal Analysis

EXHIBIT 4B.2 Common-Size Income Statements

TARGET
Common-Size Income Statements

	Amounts ($ millions)			Percentages*		
	2011	2010	2009	2011	2010	2009
Sales	$65,786	$63,435	$62,884	97.6%	97.1%	96.8%
Credit card revenues	1,604	1,922	2,064	2.4	2.9	3.2
Total revenues	67,390	65,357	64,948	100.0%	100.0%	100.0%
Cost of sales	45,725	44,062	44,157	67.9	67.4	68.0
Selling, general and administrative expenses	13,469	13,078	12,954	20.0	20.0	19.9
Credit card expenses	860	1,521	1,609	1.3	2.3	2.5
Depreciation and amortization	2,084	2,023	1,826	3.1	3.1	2.8
Earnings before interest expense and income taxes	5,252	4,673	4,402	7.8	7.1	6.8
Net interest expense						
Nonrecourse debt collateralized by credit card receivables	83	97	167	0.1	0.1	0.3
Other interest expense	677	707	727	1.0	1.1	1.1
Interest income	(3)	(3)	(28)	(0.0)	(0.0)	(0.0)
Net interest expense	757	801	866	1.1	1.2	1.3
Earnings before income taxes	4,495	3,872	3,536	6.7	5.9	5.4
Provision for income taxes	1,575	1,384	1,322	2.3	2.1	2.0
Net earnings	$ 2,920	$ 2,488	$ 2,214	4.3%	3.8%	3.4%

*Percentages are rounded to one decimal and, thus, might not exactly sum to totals and subtotals.

DuPont Disaggregation Analysis

$$\text{ROE} = \frac{\text{Net income}}{\text{Average stockholders' equity}} = \underbrace{\frac{\text{Net income}}{\text{Sales}}}_{\substack{\text{Profit}\\ \text{Margin}\\ \text{(PM)}}} \times \underbrace{\frac{\text{Sales}}{\text{Average total assets}}}_{\substack{\text{Asset}\\ \text{Turnover}\\ \text{(AT)}}} \times \underbrace{\frac{\text{Average total assets}}{\text{Average stockholders' equity}}}_{\substack{\text{Financial}\\ \text{Leverage}\\ \text{(FL)}}}$$

- **Profit margin** is the amount of profit that the company earns from each dollar of sales.
- **Asset turnover** is a productivity measure that reflects the volume of sales that a company generates from each dollar invested in assets.
- **Financial leverage** measures the degree to which the company finances its assets with debt rather than equity.

Return on Assets

$$\text{ROA} = \frac{\text{Net income}}{\text{Average total assets}} = \underbrace{\underbrace{\frac{\text{Net income}}{\text{Sales}}}_{\text{Profit Margin}} \times \underbrace{\frac{\text{Sales}}{\text{Average total assets}}}_{\text{Asset Turnover}}}_{\text{Return on assets (ROA)}}$$

Return on Assets Adjustment

$$\text{ROA} = \frac{\text{Net income} + [\text{Interest expense}\ (1 - \text{Statutory tax rate})]}{\text{Average total assets}}$$

The adjusted numerator better reflects the company's operating profit as it measures return on assets exclusive of financing costs (independent of the capital structure decision).

DuPont Disaggregation for Target

EXHIBIT 4C.1 Computation of DuPont Disaggregation Analysis for Target

Ratio Component	Definition	Computation
Profit margin (PM)	$\frac{\text{Net income}}{\text{Sales}}$	$\frac{\$2,920}{\$67,390} = 4.33\%$
Asset turnover (AT)	$\frac{\text{Sales}}{\text{Average total assets}}$	$\frac{\$67,390}{(\$43,705 + \$44,533)/2} = 1.53$
Financial leverage (FL)	$\frac{\text{Average total assets}}{\text{Average total equity}}$	$\frac{(\$43,705 + \$44,533)/2}{(\$15,487 + \$15,347)/2} = 2.86$
Return on equity (ROE)	$\frac{\text{Net income}}{\text{Average total equity}}$	$\frac{\$2,920}{(\$15,487 + \$15,347)/2} = 18.94\%$
	or PM $\times$ AT $\times$ FL	or 4.33% $\times$ 1.53 $\times$ 2.86 = 18.94
Return on assets (Adjusted)	$\frac{\text{Net income} + \text{Interest expense} \times (1 - \text{Statutory Tax rate})}{\text{Average total assets}}$	$\frac{\{\$2,920 + [\$757 \times (1 - 37\%)]\}}{(\$43,705 + \$44,533)/2} = 7.70\%$