Interest expense totaled $64. The income tax rate was 35 percent. Average total assets were $6,934.5 and average common shareholders' equity was $3,443.5. The firm did not have preferred stock outstanding or minority interest in its equity.

a. Compute the rate of return on assets. Disaggregate ROA into profit margin for ROA and assets turnover components.
b. Compute the rate of return on common shareholders' equity. Disaggregate ROCE into profit margin for ROCE, assets turnover, and capital structure leverage ratio components.
c. Calculate the amount of net income to common shareholders derived from the excess return on creditors' capital and the amount from the return on common shareholders' capital respectively.

4.10 RELATING ROA AND ROCE. Valero Energy, a petroleum company, reported net income of $1,803.8 on revenues of $54,618.6 for Year 4. Interest expense totaled $359.7 and preferred dividends totaled $12.5. Average total assets for Year 4 were $17,527.9. The income tax rate is 35 percent. Average preferred shareholders' equity totaled $204.3 and average common shareholders' equity totaled $6,562.3. All amounts are in millions.

a. Compute the rate of return on assets. Disaggregate ROA into profit margin for ROA and assets turnover components.
b. Compute the rate of return on common shareholders' equity. Disaggregate ROCE into profit margin for ROCE, assets turnover, and capital leverage ratio components.
c. Calculate the amount of net income to common shareholders derived from the excess return on creditors' capital, the excess return on preferred shareholders' capital, and the return on common shareholders' capital, respectively.

Problems and Cases

4.11 ANALYZING OPERATING PROFITABILITY. Exhibit 4.18 presents selected operating data for three retailers for a recent year. Albertsons sells grocery products. Home Depot sells a wide range of home improvement products, which includes products ranging from riding lawnmowers to lighting fixtures to kitchen countertops. Federated Department Stores operates several department store chains selling products ranging from brand-name clothing to china, cosmetics, and bedding.

Required

a. Compute the rate of return on assets for each firm. Disaggregate the rate of return on assets into profit margin for ROA and assets turnover components. The income tax rate is 35 percent.
b. Describe the likely reasons for the differences in the profit margins for ROA and assets turnovers of the three companies.

4.12 CALCULATING AND INTERPRETING ACCOUNTS RECEIVABLE TURNOVER RATIOS. Microsoft Corporation (Microsoft) and Oracle Corporation (Oracle) engage in the design, manufacture, and sale of computer software. Microsoft sells and licenses a wide range of systems and application software to businesses, computer hardware manufacturers, and consumer retailers. Oracle sells software for informa-

EXHIBIT 4.18

Selected Data for Three Retailers
(amounts in millions)
(Problem 4.11)

	Albertsons	Home Depot	Federated Department Stores
Sales	$39,897	$73,094	$15,630
Cost of Goods Sold	28,711	48,664	9,297
Interest Expense	493	70	299
Net Income	474	5,001	689
Average Inventory	3,077	10,691	3,168
Average Fixed Assets	9,936	22,879	6,096
Average Total Assets	16,989	40,432	14,718

EXHIBIT 4.19

Selected Data for Microsoft and Oracle
(amounts in millions)
(Problem 4.12)

	Year 4	Year 3	Year 2
Microsoft			
Sales	$36,835	$32,187	$28,365
Average Accounts Receivable	5,543	5,163	4,400
Change in Sales from Previous Year	+14.4%	+13.5%	+12.1%
Oracle			
Sales	$10,156	$ 9,475	$ 9,623
Average Accounts Receivable	1,965	1,978	2,234
Change in Sales from Previous Year	+7.2%	−1.5%	−11.8%

tion management almost exclusively to businesses. Exhibit 4.19 presents selected data for the two firms for Year 2, Year 3, and Year 4.

Required

a. Calculate the accounts receivable turnover ratio for Microsoft and Oracle for Year 2, Year 3, and Year 4.

b. Suggest possible reasons for the differences in the accounts receivable turnovers of Microsoft and Oracle during the three-year period.

c. Suggest possible reasons for the changes in the accounts receivable turnover for the two firms over the three-year period.

4.13 CALCULATING AND INTERPRETING INVENTORY TURNOVER RATIOS. Dell produces computers and related equipment on a made-to-order basis for consumers. It has recently expanded this manufacturing strategy to sell to businesses as well. Sun Microsystems designs and manufacturers higher-end computers that function as servers and for use in computer-aided design. Sun Microsystems sells primarily to businesses. It has shifted its strategy in recent years to provide services to business customers in addition to product sales of computers. Selected data for each firm for Year 2, Year 3, and Year 4 appear in Exhibit 4.20.

Required

a. Calculate the inventory turnover ratio for each firm for Year 2, Year 3, and Year 4.
b. Suggest reasons for the differences in the inventory turnover ratios of these two firms.
c. Suggest reasons for the changes in the inventory turnover ratios during the three-year period.

4.14 CALCULATING AND INTERPRETING ACCOUNTS RECEIVABLE AND INVENTORY TURNOVER RATIOS. AK Steel and Nucor are steel manufacturers. AK Steel is an integrated steel producer, transforming ferrous metals into rolled steel and then into various steel products for the automobile, appliance, construction, and other industries. Its steel falls on the higher end in terms of quality (strength and durability). Nucor produces steel in mini-mills. Mini-mills transform scrap ferrous metals into standard sizes of rolled steel, which Nucor then sells to steel service centers and distributors. Its steel falls on the lower end in terms of quality. Exhibit 4.21 sets forth various data for these two companies for Year 3 and Year 4.

Required

a. Calculate the accounts receivable turnovers for AK Steel and Nucor for Year 3 and Year 4.

EXHIBIT 4.20

Selected Data for Dell and Sun Microsystems
(amounts in millions)
(Problem 4.13)

	Year 4	Year 3	Year 2
Dell			
Cost of Goods Sold	$40,190	$33,892	$20,055
Average Inventories	393	317	292
Change in Sales from Previous Year	+18.7%	+17.1%	+13.6%
Sun Microsystems			
Cost of Goods Sold	$ 4,290	$ 4,342	$ 5,506
Average Inventories	440	504	819
Change in Sales from Previous Year	−5.6%	−14.3%	−39.4%

EXHIBIT 4.21

Selected Data for AK Steel and Nucor
(amounts in millions)
(Problem 4.14)

	Year 4	Year 3
AK Steel		
Sales	$ 5,217	$4,042
Cost of Goods Sold	4,554	3,887
Average Accounts Receivable	516	393
Average Inventories	707	790
Change in Sales from Previous Year	+12.9%	−2.8%
Nucor		
Sales	$11,377	$6,266
Cost of Goods Sold	9,129	5,997
Average Accounts Receivable	768	528
Average Inventories	900	575
Change in Sales from Previous Year	+81.6%	+30.5%

b. Describe the likely reasons for the differences in the accounts receivable turnovers for these two firms.
c. Describe the likely reasons for the trend in the accounts receivable turnovers of these two firms during the two-year period.
d. Calculate the inventory turnovers for AK Steel and Nucor for Year 3 and Year 4.
e. Describe the likely reasons for the differences in the inventory turnovers of these two firms.
f. Describe the likely reasons for the trend in the inventory turnovers of these two firms during the two-year period.

4.15 CALCULATING AND INTERPRETING FIXED ASSET TURNOVER RATIOS. Texas Instruments (TI) designs and manufactures semiconductor products for use in computers, telecommunications equipment, automobiles, and other electronics-based products. The manufacturing of semiconductors is highly capital intensive. Hewlett-Packard Corporation (HP) manufactures computer hardware and various imaging products, such as printers and fax machines. HP outsources the manufacture of a portion of the components for its products. HP acquired Compaq Computer in May, Year 2, halfway through its Year 2 fiscal year. Exhibit 4.22 presents selected data for TI and HP for Year 2, Year 3, and Year 4.

Required

a. Compute the fixed asset turnover for each firm for Year 2, Year 3, and Year 4.
b. Suggest reasons for the differences in the fixed asset turnovers of TI and HP.
c. Suggest reasons for the changes in the fixed asset turnovers of TI and HP during the three-year period.

EXHIBIT 4.22

Selected Data for Texas Instruments and Hewlett-Packard (amounts in millions) (Problem 4.15)

	Year 4	Year 3	Year 2
Texas Instruments			
Sales	$12,580	$ 9,834	$ 8,383
Cost of Goods Sold	6,902	5,728	5,313
Capital Expenditures	1,298	800	802
Average Fixed Assets	4,025	4,463	5,192
Percentage Fixed Assets Depreciated	59.1%	56.7%	49.6%
Percentage Change in Sales	+27.9%	+17.3%	−17.8%
Hewlett-Packard			
Sales	$79,905	$73,061	$56,588
Cost of Goods Sold	60,340	53,858	41,793
Capital Expenditures	2,126	1,995	1,710
Average Fixed Assets	6,894	6,703	5,661
Percentage Fixed Assets Depreciated	51.9%	51.3%	44.8%
Percentage Change in Sales	+9.4%	+29.1%	+25.1%

4.16 CALCULATING AND INTERPRETING THE RATE OF RETURN ON COMMON SHAREHOLDERS' EQUITY AND ITS COMPONENTS.

JCPenney operates a chain of retail department stores, selling apparel, shoes, jewelry, and home furnishings. It also offers most of its products through catalog distribution. During fiscal Year 5 it sold Eckerd Drugs, a chain of retail drugstores, and used the cash proceeds in part to repurchase shares of its common stock. Exhibit 4.23 presents selected data for JCPenney for fiscal Year 3, Year 4, and Year 5.

Required

a. Calculate the rate of return on assets for fiscal Year 3, Year 4, and Year 5. Disaggregate ROA into the profit margin for ROA and total assets turnover components. The income tax rate is 35 percent.

b. Calculate the rate of return on common shareholders' equity for fiscal Year 3, Year 4, and Year 5. Disaggregate ROCE into the profit margin for ROCE, total assets turnover, and capital structure leverage components.

c. Suggest reasons for the changes in ROCE over the three years.

d. Compute the ratio of ROCE to ROA for each year.

e. Calculate the amount of net income available to common stockholders derived from the use of financial leverage with respect to creditors' capital, the amount derived from the use of preferred shareholders' capital, and the amount derived from common shareholders' capital for each year.

f. Did financial leverage work to the advantage of the common shareholders in each of the three years? Explain.

EXHIBIT 4.23

Selected Data for JCPenney
(amounts in millions)
(Problem 4.16)

	Year Ended January 31:		
	Year 5	**Year 4**	**Year 3**
Sales	$18,424	$17,786	$17,633
Net Income (Loss)	524	(928)	405
Interest Expense	279	271	245
Preferred Stock Dividend	12	25	27
Income Tax Rate	35%	35%	35%

January 31:	**Year 5**	**Year 4**	**Year 3**	**Year 2**
Total Assets	$14,127	$18,300	$17,787	$18,048
Preferred Stock	0	304	333	363
Total Common Shareholders' Equity	4,856	5,121	6,037	5,766

4.17 INTERPRETING THE RATE OF RETURN ON COMMON SHAREHOLDERS' EQUITY AND ITS COMPONENTS. Selected financial data for Georgia-Pacific Corporation, a forest products firm, appear in Exhibit 4.24.

Required

a. In which years did financial leverage work to the advantage of the common shareholders and in which years did it work to their disadvantage? Explain.
b. Identify possible reasons for the changes in the capital structure leverage ratio during the five-year period.

EXHIBIT 4.24

Selected Data for Georgia-Pacific Corporation
(Problem 4.17)

	Year 4	**Year 3**	**Year 2**	**Year 1**	**Year 0**
Rate of Return on Common Shareholders' Equity	10.8%	6.5%	(4.2%)	(9.1%)	7.4%
Rate of Return on Assets	4.8%	3.7%	1.5%	.8%	3.3%
Profit Margin for ROA	5.8%	4.6%	1.7%	.9%	3.3%
Profit Margin for ROCE	3.2%	1.6%	(.9%)	(1.9%)	1.6%
Total Assets Turnover	.8	.8	.9	.9	1.0
Capital Structure Leverage Ratio	4.1	4.9	5.4	5.3	4.8
Growth Rate in Sales	0.0%	(13.5%)	(9.2%)	13.4%	24.1%

4.18 CALCULATING AND INTERPRETING THE RATE OF RETURN ON COMMON SHAREHOLDERS' EQUITY AND EARNINGS PER COMMON SHARE. Selected data for General Mills for Year 2, Year 3, and Year 4 appear below (amounts in millions):

	Year 4	Year 3	Year 2
Net Income	$ 506.1	$ 505.6	$472.7
Weighted Average Number of Common Shares Outstanding	163.1	165.7	164.5
Average Common Shareholders' Equity	$1,294.7	$1,242.2	$961.6

Required

a. Compute the rate of return on common shareholders' equity (ROCE) for Year 2, Year 3, and Year 4.
b. Compute basic earnings per common share (EPS) for Year 2, Year 3, and Year 4.
c. Interpret the changes in ROCE versus EPS over the three-year period.

ESAP

4.19 CALCULATING AND INTERPRETING PROFITABILITY RATIOS. Hasbro is a leading firm in the toy, game, and amusement industry. Its promoted brands group includes products from Playskool, Tonka, Milton Bradley, Parker Brothers, Tiger, and Wizards of the Coast. Sales of toys and games are highly variable from year to year, depending on whether the latest products meet consumer interests. Hasbro also faces increasing competition from electronic games and Internet online games. Hasbro develops and promotes its core brands and also manufactures and distributes products created by others under license arrangements. Hasbro pays a royalty to the creator of such products. In recent years, Hasbro has attempted to reduce its reliance on license arrangements and place more emphasis on its core brands. Hasbro has also embarked on a strategy of reducing fixed selling and administrative costs in an effort to offset the negative effects on earnings of highly variable sales. Exhibit 4.25 presents the balance sheets for Hasbro for the years ended December 31, Year 1 through Year 4. Exhibit 4.26 presents the income statement and Exhibit 4.27 presents the statement of cash flows for Year 2 through Year 4.

Required

a. Exhibit 4.28 presents profitability ratios for Hasbro for Year 2 and Year 3. Calculate each of these financial ratios for Year 4. The income tax rate is 35 percent.
b. Analyze the changes in ROA and its components for Hasbro over the three-year period, suggesting reasons for the changes observed.
c. Analyze the changes in ROCE and its components for Hasbro over the three-year period, suggesting reasons for the changes observed.

EXHIBIT 4.25

Hasbro
Balance Sheets
(amounts in millions)
(Problem 4.19)

	December 31:			
	Year 4	Year 3	Year 2	Year 1
Assets				
Cash	$ 725	$ 521	$ 496	$ 233
Accounts Receivable	579	607	555	572
Inventories	195	169	190	217
Prepayments	219	212	191	346
Total Current Assets	$1,718	$1,509	$1,432	$1,368
Property, Plant, and Equipment, net	207	200	213	236
Other Assets	1,316	1,454	1,498	1,765
Total Assets	$3,241	$3,163	$3,143	$3,369
Liabilities and Shareholders' Equity				
Accounts Payable	$ 168	$ 159	$ 166	$ 123
Short-Term Borrowing	342	24	223	36
Other Current Liabilities	639	747	578	599
Total Current Liabilities	$1,149	$ 930	$ 967	$ 758
Long-Term Debt	303	687	857	1,166
Other Noncurrent Liabilities	149	141	128	92
Total Liabilities	$1,601	$1,758	$1,952	$2,016
Common Stock	$ 105	$ 105	$ 105	$ 105
Additional Paid-In Capital	381	398	458	455
Retained Earnings	1,721	1,567	1,430	1,622
Accumulated Other Comprehensive Income	82	30	(47)	(68)
Treasury Stock	(649)	(695)	(755)	(761)
Total Shareholders' Equity	$1,640	$1,405	$1,191	$1,353
Total Liabilities and Shareholders' Equity	$3,241	$3,163	$3,143	$3,369

EXHIBIT 4.26

Hasbro
Income Statements
(amounts in millions)
(Problem 4.19)

	For the Year Ended December 31:		
	Year 4	**Year 3**	**Year 2**
Sales	$2,998	$3,139	$2,816
Cost of Goods Sold	(1,252)	(1,288)	(1,099)
Selling and Administrative Expenses:			
Advertising	(387)	(364)	(297)
Research and Development	(157)	(143)	(154)
Royalty Expense	(223)	(248)	(296)
Other Selling and Administrative	(687)	(799)	(788)
Interest Expense	(32)	(53)	(78)
Income Tax Expense	(64)	(69)	(29)
Net Income	$ 196	$ 175	$ 75

EXHIBIT 4.27

Hasbro
Statements of Cash Flows
(amounts in millions)
(Problem 4.19)

	For the Year Ended December 31:		
	Year 4	**Year 3**	**Year 2**
Operations			
Net Income	$196	$175	$ 75
Depreciation and Amortization	146	164	184
Addbacks and Subtractions, net	17	68	(67)
(Increase) Decrease in Accounts Receivable	76	(13)	34
(Increase) Decrease in Inventories	(16)	35	39
(Increase) Decrease in Prepayments	29	8	185
Increase (Decrease) in Accounts Payable and Other Current Liabilities	(90)	17	23
Cash Flow from Operations	$358	$454	$473

Continued

Exhibit 4.27 continued	For the Year Ended December 31: Year 4	Year 3	Year 2
Investing			
Property, Plant, and Equipment Acquired	$(79)	$ (63)	$ (59)
Other Investing Transactions	(6)	(2)	(3)
Cash Flow from Investing	$(85)	$ (65)	$ (62)
Financing			
Increase in Common Stock	$ 26	$ 40	$ 3
Decrease in Short-Term Borrowing	(7)	0	(15)
Decrease in Long-Term Borrowing	(58)	(389)	(127)
Acquisition of Common Stock	0	(3)	0
Dividends	(37)	(21)	(21)
Other Financing Transactions	7	9	12
Cash Flow from Financing	$(69)	$(364)	$(148)
Change in Cash	$204	$ 25	$ 263
Cash—Beginning of Year	521	496	233
Cash—End of Year	$725	$ 521	$ 496

EXHIBIT 4.28

Hasbro
Financial Statement Ratio Analysis
(Problem 4.19)

	Year 4	Year 3	Year 2
Profit Margin for ROA		6.7%	4.5%
Assets Turnover		1.0	.9
Rate of Return on Assets		6.6	3.9
Profit Margin for ROCE		5.6	2.7
Capital Structure Leverage Ratio		2.4	2.6
Rate of Return on Common Shareholders' Equity		13.5	5.9
Cost of Goods Sold/Sales		41.0	39.0
Advertising Expense/Sales		11.6	10.5
Research and Development/Sales		4.6	5.5
Royalty Expense/Sales		7.9	10.5
Other Selling and Administrative Expense/Sales		25.4	28.0
Income Tax Expense (excluding tax effects of interest expense)/Sales		2.8%	2.0%
Accounts Receivable Turnover		5.4	5.0
Inventory Turnover		7.2	5.4
Fixed Asset Turnover		15.2	12.5