CHAPTER 14

Financial Statement Analysis

14.1 THE MAJOR FINANCIAL STATEMENTS

Income Statement

- Four broad classes:
  - Cost of goods sold
  - General and administrative expenses
  - Interest expense
  - Taxes on earnings
- Common Sizing

Table 14.1 Consolidated Statement of Income

TABLE 14.1

Consolidated Statement of Income for Hewlett-Packard, 2006

	$ Million	Percent of Revenue
Operating revenues		
Net sales	$91,658	100.0%
Operating expenses		
Cost of goods sold	$66,825	72.9%
Selling, general, and administrative expenses	11,266	12.3
Research and development expenses	3,591	3.9
Depreciation	2,353	2.6
Other expenses	814	0.9
Operating income	$ 6,809	7.4%
Other income	631	0.7
Earnings before interest and income taxes	$ 7,440	8.1%
Interest expense	249	0.3
Taxable income	$ 7,191	7.8%
Taxes	993	1.1
Net income	$ 6,198	6.8%
Allocation of net income		
Dividends	894	1.0
Addition to retained earnings	5,304	5.8

Note: Sums subject to rounding error.

Source: Hewlett-Packard Annual Report.

Balance Sheet

- Assets
  - Current
  - Long-term
- Liability and stockholders' equity
- Common Sizing

Table 14.2 Consolidated Balance Sheet

TABLE 14.2

Consolidated Balance Sheet for Hewlett-Packard, 2006

Assets	$ Million	Percent of Total Assets
Current assets		
Cash and marketable securities	$16,400	20.0%
Receivables	22,699	27.7
Inventories	7,750	9.5
Other current assets	1,415	1.7
Total current assets	$48,264	58.9%
Fixed Assets		
Tangible fixed assets		
Property, plant, and equipment	$ 6,863	8.4%
Long Term Investments	2,340	2.9
Total tangible fixed assets	$ 9,203	11.2%
Intangible fixed assets		
Goodwill	$16,853	20.6%
Other intangible assets	3,352	4.1
Total intangible fixed assets	$20,205	24.6%
Total fixed assets	$29,408	35.9%
Other assets	$ 4,309	5.3%
Total assets	$81,981	100.0%
Liabilities and Shareholders' Equity	**$ Million**	**Percent of Total Assets**
Current liabilities		
Debt due for repayment	$ 2,705	3.3%
Accounts payable	25,688	31.3
Other current liabilities	7,457	9.1
Total current liabilities	$35,850	43.7%
Long-term debt	$ 2,490	3.0%
Deferred liabilities	1,750	2.1
Other long-term liabilities	3,747	4.6
Total liabilities	43,837	53.5
Shareholders' equity		
Common stock and other paid-in capital	17,993	21.9
Retained earnings	20,151	24.6
Total shareholders' equity	$38,144	46.5%
Total liabilities and shareholders' equity	$81,981	100.0%

Note: Column sums subject to rounding error.

Statement of Cash Flows

- Recognizes only transactions in which cash changes hands

Table 14.3 Consolidated Statement of Cash Flows

TABLE 14.3

Statement of Cash Flows for Hewlett-Packard, 2006

	$ Million
Cash provided by operations	
Net income	$ 6,198
Adjustments to net income	
Depreciation	2,353
Changes in working capital	
Decrease (increase) in accounts receivable	(882)
Decrease (increase) in inventories	(1,109)
Increase (decrease) in taxes payable	(513)
Increase (decrease) in accounts payable	1,879
Other adjustments	3,427
Total adjustments	$ 5,155
Cash provided by operations	$11,353
Cash flows from investments	
Investments in tangible fixed assets	$ (1,980)
Investments in business acquisitions	(855)
Investment in other assets	48
Cash provided by (used for) investments	$ (2,787)
Cash provided by (used for) financing activities	
Additions to (reductions in) long-term debt	$ (138)
Net issues (repurchases of) shares	(5,241)
Dividends	(894)
Other	196
Cash provided by (used for) financing activities	$ (6,077)
Net increase in cash	$ 2,489

Source: Hewlett-Packard Annual Report.

14.2 ACCOUNTING VERSUS ECONOMIC EARNINGS

Accounting Versus Economic Earnings

- Accounting earnings
  - Affected by several conventions regarding the valuation of assets
- Economic earnings
  - Earnings above or below a trend line

14.3 PROFITABILITY MEASURES

Past Versus Future ROE

- Data from recent past may provide information regarding future performance
- Analysts should always keep an eye on the future
- Expectations of future dividends and earnings determine intrinsic value of stock

Financial Leverage and ROE

- The relationship among ROE, ROA, and leverage:

$$ROE = (1 - \text{Tax rate})\left[ROA + (ROA - \text{ Interest rate})\frac{Debt}{Equity}\right]$$

14.4 RATIO ANALYSIS

Ratio Analysis

- Purpose of Ratio Analysis
- Uses
  - Trend analysis
  - Comparative analysis
  - Combination
- Use by External Analysts
  - Important information for investment community
  - Important for credit markets

Decomposition of ROE

$$ROE = \frac{\text{Net Profit}}{\text{Pretax Profit}} \times \frac{\text{Pretax Profit}}{\text{EBIT}} \times \frac{\text{EBIT}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}}$$

(1) x (2) x (3) x (4) x (5)

Tax Burden x Interest Burden x Margin x Turnover x Leverage

Type of Financial Ratios

- Profitability Ratios
- Turnover or Asset Utilization Ratios
- Liquidity Ratios
- Leverage Ratios
- Market Price Ratios

Profitability Ratios

Net Profit Margin %

$$\frac{\text{Net Income}}{\text{Sales}}$$

Operating Return on Assets %

$$\frac{\text{Earnings Before Int. \& Taxes}}{\text{Total Assets}}$$

Profitability Ratios (cont.)

Return on Equity %

$$\frac{\text{Net Income}}{\text{Common Equity}}$$

Operating Margin After Depreciation %

$$\frac{\text{Operating Profit}}{\text{Sales}}$$

Activity or Management Efficiency Ratios

Inventory Turnover

$$\frac{\text{Sales or Cost of Goods Sold}}{\text{Inventory}}$$

Total Asset Turnover

$$\frac{\text{Sales}}{\text{Total Assets}}$$

Activity or Management Efficiency Ratios (cont.)

Average Collection Period

$$\frac{\text{Accounts Receivable}}{\text{Sales Per Day}}$$

Days to Sell Inventory

$$\frac{\text{Inventory}}{\text{Sales Per Day}}$$

Liquidity Ratios

Current Ratio

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

Quick Ratio

$$\frac{\text{Current Assets - Inventory}}{\text{Current Liabilities}}$$

Leverage Ratios

Times Interest Earned

$$\frac{\text{Earnings Before Int. \& Taxes}}{\text{Interest Expense}}$$

Fixed Charge Coverage Ratios

- Lease Payments
- Principal Repayments
- Preferred Dividends

Leverage Ratios (cont.)

Debt to Assets %

$$\frac{\text{Long Term Debt}}{\text{Assets}}$$

Debt to Equity %

$$\frac{\text{Long Term Debt}}{\text{Shareholders Equity}}$$

Market Price Ratios

Price to Earnings

$$\frac{\text{Market Price of Stock}}{\text{Earnings}}$$

Market-to-Book-Value

$$\frac{\text{Market Price of Stock}}{\text{Book Value Per Share}}$$

Figure 14.1 DuPont Decomposition for Hewlett-Packard

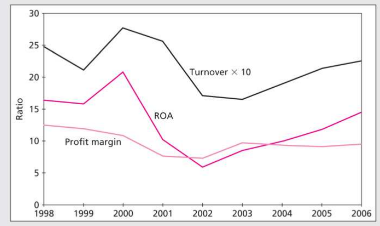


FIGURE 14.1

DuPont decomposition for Hewlett-Packard

14.5 ECONOMIC VALUE ADDED

Economic Value Added

- Approach to compare accounting profitability with the cost of capital
- Definition
  - ROA-K (Capital Invested in the firm)
  - K = opportunity cost for capital
- Ties accounting to return by investors

Table 14.12 Economic Value Added, 2006

TABLE 14.12

Economic Value Added, 2006

	EVA ($ billion)	Capital ($ billion)	ROA (%)	Cost of capital (%)
Royal Dutch Shell	$ 3.98	$121.15	12.2%	8.9%
GlaxoSmithKline	3.26	29.41	18.2	7.2
Wal-Mart	2.13	100.78	8.9	6.7
Genentech	1.11	11.72	16.3	6.8
Motorola	−0.80	21.43	6.9	10.6
Intel	−1.35	38.59	9.8	13.3
Hewlett-Packard	−2.35	41.39	6.2	11.9
AT&T	−5.65	177.76	3.7	6.9

Source: Authors' calculations using data from Yahoo! Finance (**finance. yahoo.com**).

14.6 AN ILLUSTRATION OF FINANCIAL STATEMENT ANALYSIS

Table 14.13 Key Financial Ratios of Growth Industries Inc.

TABLE 14.13

Key financial ratios of Growth Industries, Inc.

Year	ROE	(1) Net Profit / Pretax Profit	(2) Pretax Profit / EBIT	(3) EBIT / Sales (Margin)	(4) Sales / Assets (Turnover)	(5) Assets / Equity	(6) Compound Leverage Factor (2) × (5)	(7) ROA (3) × (4)	P/E	P/B
2006	7.51%	0.6	0.650	30%	0.303	2.117	1.376	9.09%	8	0.58
2007	6.08	0.6	0.470	30	0.303	2.375	1.116	9.09	6	0.35
2008	3.03	0.6	0.204	30	0.303	2.723	0.556	9.09	4	0.12
Industry average	8.64	0.6	0.800	30	0.400	1.500	1.200	12.00	8	0.69

Table 14.14 Growth Industries Statement of Cash Flows

TABLE 14.14

Growth Industries statement of cash flows ($ thousands)

	2006	2007	2008
Cash flow from operating activities			
Net income	$ 11,700	$ 10,143	$ 5,285
+ Depreciation	15,000	18,000	21,600
+ Decrease (increase) in accounts receivable	(5,000)	(6,000)	(7,200)
+ Decrease (increase) in inventories	(15,000)	(18,000)	(21,600)
+ Increase in accounts payable	6,000	7,200	8,640
	$ 12,700	$ 11,343	$ 6,725
Cash flow from investing activities			
Investment in plant and equipment*	$(45,000)	$(54,000)	$(64,800)
Cash flow from financing activities			
Dividends paid†	$ 0	$ 0	$ 0
Short-term debt issued	42,300	54,657	72,475
Change in cash and marketable securities‡	$ 10,000	$ 12,000	$ 14,400

*Gross investment equals increase in net plant and equipment plus depreciation.

†We can conclude that no dividends are paid because stockholders' equity increases each year by the full amount of net income, implying a plowback ratio of 1.0.

‡Equals cash flow from operations plus cash flow from investment activities plus cash flow from financing activities. Note that this equals the yearly change in cash and marketable securities on the balance sheet.

14.7 COMPARABILITY PROBLEMS

Comparability Problems

- Inventory valuation
  - LIFO and FIFO
- Depreciation
- Inflation and interest expense

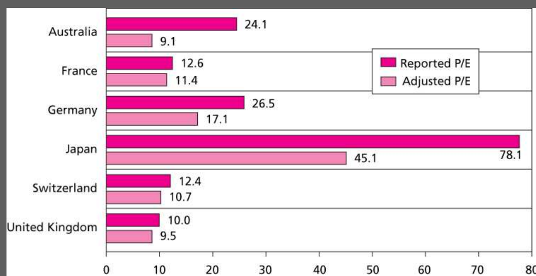
Quality of Earnings: Areas of Accounting Choices

- Allowance for bad debts
- Non-recurring items
- Earnings smoothing
- Stock options
- Revenue recognition
- Off-balance sheet assets and liabilities

International Accounting Conventions

- Reserving practices
- Depreciation
- Intangibles

Figure 14.2 Adjusted Versus Reported Price-Earnings Ratios



14.8 VALUE INVESTING: THE GRAHAM TECHNIQUE

Benjamin Graham

- Graham believed careful analysis of a firm's financial statements could turn up bargain stocks
- He developed many different rules for determining the most important financial ratios