CHAPTER ELEVEN

11

EQUITY ANALYSIS AND VALUATION

A LOOK BACK <

Prior chapters on financial analysis dealt with analysis of company returns, both profitability and return on invested capital, along with prospective and credit analysis.

A LOOK AT THIS CHAPTER •

This chapter emphasizes equity analysis and valuation. Our earnings-based analysis focuses on assessing earnings persistence and earning power. Attention is directed at techniques to aid us in measuring and applying these analysis concepts. Our discussion of equity valuation focuses on issues in estimating company values and forecasting earnings.

A LOOK AHEAD >

The Comprehensive Case applies many of the financial statement analysis tools and insights described in the book. These are illustrated using financial information from Campbell Soup Company. Explanation and interpretation accompany all analyses.

ANALYSIS OBJECTIVES

- Analyze earnings persistence, its determinants, and its relevance for earnings forecasting.
- Explain recasting and adjusting of earnings and earnings components for analysis.
- Describe equity valuation and its relevance for financial analysis.
- Analyze earning power and its usefulness for forecasting and valuation.
- Explain earnings forecasting, its mechanics, and its effectiveness in assessing company performance.
- Analyze interim reports and consider their value in monitoring and revising earnings estimates.

Oracle of Omaha Dispenses Wisdom

OMAHA, NE–Warren Buffett, chairman of Berkshire Hathaway, recently commented, "Bad terminology is the enemy of good thinking. When companies or investment professionals use terms such as *EBITDA* and *pro forma,* they want you to unthinkingly accept concepts that are dangerously flawed." Buffett offered an example: "In golf, my score is frequently below par on a *pro forma* basis: I have firm plans to 'restructure' my putting stroke and therefore only count the swings I take before reaching the green."

Unfortunately, pro forma earnings measures gained in popularity in the 1990s as companies sought to redefine the benchmark against which they would be evaluated by the market. Any expense that might be deemed unfavorable was quickly excluded while transitory revenues, such as gains on asset sales and pension income, remained. Pro forma earnings quickly became known as EBUI, or earnings before unpleasant items.

Pro forma earnings are not GAAP, companies use them to portray a rosy earnings picture, and informed investors expect that these numbers are biased.

But what about GAAP earnings? *BusinessWeek* (2001) reported the following case in point: "Construction giant and military contractor Halliburton . . . reported earnings of $339 million, even though it spent $775 million more than it took in from customers. The company did nothing illegal. Halliburton made big outlays in 2003 on contracts with the U.S. Army

The onus is on the investor . . .

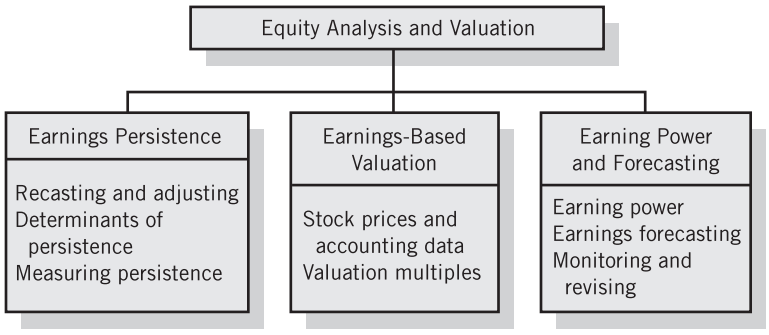
for work on Iraq–contracts for which it expected to be paid later. Still, it counted some of these expected revenues immediately because they related to work done last year." Only a thorough reading of the financial statement footnotes would have revealed the company's accounting practice.

"The problem with today's fuzzy earnings numbers is not accrual accounting itself. It's that investors, analysts, and money managers are having an increasingly hard time figuring out what judgments companies make to come up with those accruals, or estimates. The scandals at Enron, WorldCom, Adelphia Communications, and other companies are forceful reminders that investors could lose billions by not paying attention to how companies arrive at their earnings." (*Business Week,* 2004)

Companies' desire to redefine earnings and to employ aggressive interpretations of accounting standards stems from the mechanics of valuing stock prices. This process involves projecting earnings or cash flows into the future and then discounting them to the present to arrive at price. To be meaningful, projections must focus only on the portion of earnings that is likely to persist into the future. The higher those earnings are, the higher the resulting stock price. That's why companies offer a myriad of definitions of pro forma earnings, and manage GAAP earnings, to portray their business in the most favorable light. The onus is on the investor to ferret out the "true" persistent level of earnings.

PREVIEW OF CHAPTER 11

Equity analysis and valuation is the focus of this chapter. Previous chapters examined return and profitability analyses of financial statements. This chapter extends these analyses to consider earnings persistence, valuation, and forecasting. *Earnings*

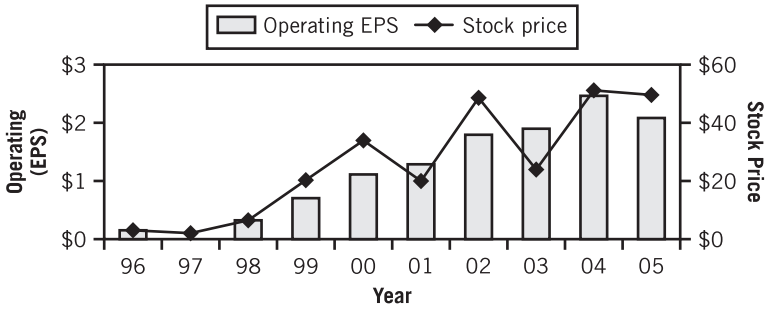


persistence is broadly defined to include the stability, predictability, variability, and trend in earnings. We consider earnings management as a determinant of persistence. Our *equity valuation* analysis emphasizes earnings and other accounting measures for computing company value. *Earnings forecasting* considers earning power, estimation techniques, and monitoring mechanisms. This chapter also describes several useful tools for earnings-based equity analysis. Specifically, we describe recasting and adjustment of financial statements. We also distinguish between recurring and nonrecurring, operating and nonoperating, and extraordinary and nonextraordinary earnings components. Throughout the chapter we emphasize the application of earnings-based analysis with several illustrations.

EARNINGS PERSISTENCE

A good financial analysis identifies components in earnings that exhibit stability and predictability–that is, *persistent* components. We separate these persistent components from random or nonrecurring components. This analysis aids us in producing reliable forecasts of earning power for valuation. Analysis also must be alert to earnings management and income smoothing. Earnings management and income smoothing can imply more stability and predictability than present in the underlying characteristics. Company management often asserts that such activities remove distortions or peculiarities from operating results. Yet these activities can mask natural and cyclical irregularities that are part of a company's environment and experience. Identifying these influences is important for us in assessing a company's risk. This section considers elements bearing on analysis of earnings persistence, including earnings level, trend, and components.

Target's Operating EPS and Stock Price



Recasting and Adjusting Earnings

One task in equity analysis is to recast earnings and earnings components so that stable, normal, and continuing elements that constitute earnings are separated and distinguished from random, erratic, unusual, and nonrecurring elements. The latter elements require separate analytical treatment or investigation. Recasting also aims to identify elements included in current earnings that should more properly be included in the operating results of one or more prior periods.

Information on Earnings Persistence

ANALYSIS AID
To help assess earnings persistence we: (1) Recast the income statement, and then (2) Adjust the income statement.

Analysis of operating results for the recasting and adjusting of earnings requires reliable and relevant information. Major sources of this information include the:

- Income statement, including its components:
  - Income from continuing operations.
  - Income from discontinued operations.
  - Extraordinary gains and losses.
  - Cumulative effect of changes in accounting principles.
- Other financial statements and notes.
- Management discussion and analysis.

We often find "unusual" items separated within the income statement (typically on a pretax basis), but their disclosure is optional and does not always include sufficient information to assess their significance or persistence. We access all available information sources and management, if possible, to obtain this information. Relevant information includes that affecting earnings comparability and interpretation. Examples are product-mix changes, technological innovations, work stoppages, and raw material constraints.

Recasting Earnings and Earnings Components

Once we secure all available information, we recast and adjust the income statements of several years (typically at least five) to assess earnings persistence. Recasting and adjusting earnings aids in determining the earning power of a company. We explain recasting in this section and adjusting in the next, although both can be performed in one statement.

Recasting aims at rearranging earnings components to provide a meaningful classification and relevant format for analysis. Components can be rearranged, subdivided, or tax effected, but the total must reconcile to net income of each period. Discretionary expenses should be segregated. The same applies to components like equity in income (loss) of unconsolidated subsidiaries or affiliates, often reported net of tax. Components reported pretax must be removed along with their tax effects if reclassified apart from income from continuing operations.

Income tax disclosures enable us to separate factors that either reduce or increase taxes. This separation permits us to analyze the recurring nature of these factors. All permanent tax differences and credits are included. This analytical procedure involves computing taxes at the statutory rate and deducting tax benefits arising from various items such as tax credits, capital gains rates, tax-free income, or lower foreign tax rates. We also must add factors such as additional foreign taxes, nontax-deductible expenses, and state and local taxes (net of federal tax benefit). Immaterial items can be considered in a lump sum labeled *other*.

Analytically recast income statements contain as much detail as necessary for our analysis objectives and are supplemented by notes. Exhibit 11.1 shows the analytically recast income statements for Campbell Soup Company. These statements are annotated with key numbers referencing Campbell's financial statements in Appendix A. Financial data preceding Year 10 are taken from company reports summarized in the Comprehensive Case chapter, which also contains a discussion and an integration of Exhibit 11.1.

HINT
"Adjusting" aims to assign earnings components to the periods in which they best belong.

Adjusting Earnings and Earnings Components

The adjusting process uses data from recast income statements and other available information to assign earnings components to periods where they most properly belong. We must be especially careful in assigning extraordinary or unusual items (net of tax) to periods. Also, the income tax benefit of a carryforward of operating losses should normally be moved to the year of the loss occurrence. Costs or benefits from settlements of lawsuits can relate to one or more preceding periods. Similarly, gains or losses from disposal of discontinued operations usually relate to operating results of several years. For changes in accounting principles or estimates, all years under analysis should be adjusted to a comparable basis. If the new principle is the desirable one, prior years should be restated to this new method. This restatement redistributes the "cumulative effect of change in accounting principle" to the relevant prior years. Changes in estimates are accounted for prospectively in practice with few exceptions. Our ability to adjust all periods to a comparable basis depends on information availability.

Exhibit 11.1 **Recast Income Statements**

CAMPBELL SOUP COMPANY

Recast Income Statements for Year 6 through Year 11 ($ millions)

Reference Item		Year 11	Year 10	Year 9	Year 8	Year 7	Year 6
13	Net sales	$6,204.1	$6,205.8	$5,672.1	$4,868.9	$4,490.4	$4,286.8
19	Interest income	26.0	17.6	38.3	33.2	29.5	27.4
	Total revenues	6,230.1	6,223.4	5,710.4	4,902.1	4,519.9	4,314.2
	Costs and expenses						
	Cost of products sold (see Note 1 below)	3,727.1	3,893.5	3,651.8	3,077.8	2,897.8	2,820.5
	Marketing and selling expenses (see Note 2 below)	760.8	760.1	605.9	514.2	422.7	363.0
145	Advertising (see Note 2 below)	195.4	220.4	212.9	219.1	203.5	181.4
144	Repairs and maintenance (see Note 1 below)	173.9	180.6	173.9	155.6	148.8	144.0
16	Administrative expenses	306.7	290.7	252.1	232.6	213.9	195.9
17	Research and development expenses	56.3	53.7	47.7	46.9	44.8	42.2
102	Stock price-related incentive programs (see Note 3 below)	15.4	(0.1)	17.4	(2.7)	—	8.5
20	Foreign exchange adjustment	0.8	3.3	19.3	16.6	4.8	0.7
104	Other, net (see Note 3 below)	(3.3)	(2.0)	(1.4)	(4.7)	(0.4)	(9.0)
162A	Depreciation (see Note 1 below)	194.5	184.1	175.9	162.0	139.0	120.8
103	Amortization of intangible and other assets (see Note 3 below)	14.1	16.8	16.4	8.9	5.6	6.0
18	Interest expense	116.2	111.6	94.1	53.9	51.7	56.0
	Total costs and expenses	5,557.9	5,712.7	5,266.0	4,480.2	4,132.2	3,930.0
23	Earnings before equity in earnings of affiliates and minority interests	672.2	510.7	444.4	421.9	387.7	384.2
24	Equity in earnings of affiliates	2.4	13.5	10.4	6.3	15.1	4.3
25	Minority interests	(7.2)	(5.7)	(5.3)	(6.3)	(4.7)	(3.9)
26	Income before taxes	667.4	518.5	449.5	421.9	398.1	384.6
	Income taxes at statutory rate*	(226.9)	(176.3)	(152.8)	(143.5)	(179.1)	(176.9)
	Income from continuing operations	440.5	342.2	296.7	278.4	219.0	207.7
135	State taxes (net of federal tax benefit)	(20.0)	(6.6)	(3.8)	(11.8)	(8.6)	(8.0)
	Investment tax credit	—	—	—	—	4.4	11.6
137	Nondeductible amortization of intangibles	(4.0)	(1.6)	(1.2)	(2.6)	(1.4)	—†
138	Foreign earnings not taxed or taxed at other than statutory rate	2.0	(2.2)	(0.2)	3.2	11.1	15.2
139	Other: Tax effects	(17.0)	(2.2)	(0.1)	(3.7)	7.5	(4.7)

(continued)

Recast Income Statements (concluded)

Reference Item		Year 11	Year 10	Year 9	Year 8	Year 7	Year 6
	Alaska Native Corporation transaction	—	—	—	—	4.5	—
22	Divestitures, restructuring, and unusual charges	—	(339.1)	(343.0)	(40.6)	—	—
	Tax effect of divestitures, restructuring, and unusual charges (Note 4)	—	13.9	64.7	13.9	—	—
	Gain on sale of businesses in Year 8 and subsidiary in Year 7	—	—	—	3.1	9.7	—
	Loss on sale of exercise equipment subsidiary, net of tax	—	—	—	—	(1.7)	—
	LIFO liquidation gain (see Note 1 below)	—	—	—	1.7	2.8	1.4
	Income before cumulative effect of accounting change	401.5	4.4	13.1	241.6	247.3	223.2
153A	Cumulative effect of accounting change for income taxes	—	—	—	32.5	—	—
28	Net income as reported	$ 401.5	$ 4.4	$ 13.1	$ 274.1	$ 247.3	$ 223.2
14	**Note 1:** Cost of products sold	$4,095.5	$4,258.2	$4,001.6	$3,392.8	$3,180.5	$3,082.8
144	Less: Repair and maintenance expenses	(173.9)	(180.6)	(173.9)	(155.6)	(148.8)	(144.0)
162A	Less: Depreciation[a]	(194.5)	(184.1)	(175.9)	(162.0)	(139.0)	(120.8)
153A	Plus: LIFO liquidation gain[b]	—	—	—	2.6	5.1	2.5
		$3,727.1	$3,893.5	$3,651.8	$3,077.8	$2,897.8	$2,820.5
15	**Note 2:** Marketing and selling expenses	$ 956.2	$ 980.5	$ 818.8	$ 733.3	$ 626.2	$ 544.4
145	Less: Advertising	(195.4)	(220.4)	(212.9)	(219.1)	(203.5)	(181.4)
		$ 760.8	$ 760.1	$ 605.9	$ 514.2	$ 422.7	$ 363.0
21	**Note 3:** Other expenses (income)	$ 26.2	$ 14.7	$ 32.4	$ (3.2)	$ (9.5)	$ 5.5
102	Less: Stock price-related incentive programs	(15.4)	0.1	(17.4)	2.7	—	(8.5)
103	Less: Amortization of intangible and other assets	(14.1)	(16.8)	(16.4)	(8.9)	(5.6)	(6.0)
	Less: Gain on sale of businesses (Year 8) and subsidiary (Year 7)	—	—	—	4.7	14.7	—
104	Other net	$ (3.3)	$ (2.0)	$ (1.4)	$ (4.7)	$ (0.4)	$ (9.0)
	Note 4: Tax effect of divestitures, restructuring, and unusual charges at statutory rate	—	$ 115.3[c]	$ 116.6[d]	$ 13.9	—	—
136	Nondeductible divestitures, restructuring, and unusual charges	—	(101.4)[e]	(51.9)[f]	—	—	—
		—	$ 13.9	$ 64.7	$ 13.9	—	—

* *The statutory, federal tax rate is 34% in Year 8 through Year 11, 45% in Year 7, and 46% in Year 6.*

† *This amount is not reported for Year 6.*

[a] *We assume most depreciation is included in cost of products sold.*

[b] *LIFO liquidation gain before tax—for example, for Year 8 this is $2.5 million, computed as $1.7/(1 − 0.34).*

[c] *$339.1 [22] × 0.34 = $115.3.*

[d] *$343.0 [22] × 0.34 = $116.6.*

[e] *$179.4 [26] × 0.565 [136] = $101.4.*

[f] *$106.5 [26] × 0.487 [136] = $51.9.*

Before we assess earnings persistence it is necessary to obtain the best possible income statement numbers with our adjustments. Exhibit 11.2 shows the adjusted income statements of Campbell Soup Company. All earnings components must be considered. If we decide a component should be excluded from the period it is reported, we can either (1) shift it (net of tax) to the operating results of one or more prior periods or (2) spread (average) it over earnings for the period under analysis. We should only spread it over prior periods' earnings when it cannot be identified with a specific period. While spreading (averaging) helps us in determining earning power, it is not helpful in determining earnings trends. We also must realize that moving gains or losses to other periods does not remedy the misstatements of prior years' results. For example, a damage award for patent infringement in one period implies prior periods suffered from lost sales or other impairments. Further details and analyses of Exhibit 11.2 are identified and discussed in the Comprehensive Case.

Exhibit 11.2 ***Adjusted Income Statements***

CAMPBELL SOUP COMPANY

Adjusted Income Statements for Year 6 through Year 11

($ millions)	Year 11	Year 10	Year 9	Year 8	Year 7	Year 6	Total
Net income as reported	$401.5	$ 4.4	$ 13.1	$274.1	$247.3	$223.2	$1,163.6
Divestitures, restructuring & unusual charges		339.1	343.0	40.6			
Tax effect of divestitures, restructuring, etc.		(13.9)	(64.7)	(13.9)			
Gain on sale of businesses (Year 8) and sale of subsidiary (Year 7), net of tax				(3.1)	(9.7)		
Loss on sale of exercise equipment subsidiary					1.7		
Alaska Native Corporation transaction					(4.5)		
LIFO liquidation gain				(1.7)	(2.8)	(1.4)	
Cumulative effect of change in accounting for income taxes				(32.5)			
Adjusted net income	$401.5	$329.6	$291.4	$263.5	$232.0	$221.8	
Total net income for the period							$1,739.80
Average net income for the period							$ 289.97*

* *One measure of average earning power.*

Analysis must also recognize that certain management characterizations of revenue or expense items as unusual, nonrecurring, infrequent, or extraordinary are attempts to reduce earnings volatility or minimize selected earnings components. These characterizations also extend to the inclusion in equity of transactions such as gains and losses on available-for-sale securities and foreign currency translation adjustments. We often exclude equity effects from our adjustment process. Yet these items are part of a company's lifetime earnings. These items increase or decrease equity and affect earning power. Accordingly, even if we omit these items from the adjustment process, they belong in the analysis of average earning power.

Determinants of Earnings Persistence

After recasting and adjusting earnings, our analysis next focuses on determining earnings persistence. Earnings management, variability, trends, and incentives are all potential determinants of earnings persistence. We also should assess earnings persistence over both the business cycle and the long run.

Earnings Trend and Persistence

Earnings that reflect a steady growth trend are desirable. We can assess earnings trends by statistical methods or with **trend statements.** Examples of trend statements using selected financial data of Campbell Soup are reported in Exhibits CC.8 and CC.9 in the Comprehensive Case chapter. Trend analysis uses earnings numbers taken from the recasting and adjusting procedures illustrated in Exhibit 11.2. Earnings trends often reveal important clues to a company's current and future performance (cyclical, growth, defensive) and bear on the quality of management. We must be alert to accounting distortions affecting trends. Especially important are changes in accounting principles and the effect of business combinations, particularly purchases. We must make adjustments for these changes. Probably one major motivation of earnings management is to effect earnings trends. Earnings management practices assume earnings trends are important for valuation. They also reflect a belief that retroactive revisions of earnings previously reported have little impact on security prices. For example, once a company incurs and reports a loss, this perspective suggests its existence is often as important as its magnitude for valuation purposes. These assumptions and the propensities of some managers to use accounting as a means of improving earnings trend has led to sophisticated earnings management techniques, including income smoothing.

Earnings Management and Persistence

There are several requirements to meet the definition of *earnings management.* These requirements are important as they distinguish earnings management from misrepresentations and distortions. Earnings management uses acceptable accounting reporting principles for purposes of reporting specific results. It uses the available discretion in selecting and applying accounting principles to achieve its goals, and it is arguably performed within the framework of accepted practice. It is a matter of form rather than of substance. It does not affect actual transactions (such as postponing outlays to later periods) but, instead, does affect a redistribution of credits or charges across periods. A main goal is to moderate earnings variability across periods by shifting earnings between good and bad years, between future and current years, or various combinations. Actual earnings management takes many forms. Some forms of earnings management that we should be especially alert to include:

- *Changes in accounting methods or assumptions.* Examples of companies that changed methods or assumptions include Chrysler, who revised upward the assumed rate of return on its pension portfolio and substantially increased earnings when sales were slumping, and Continental Airlines who lengthened depreciable lives and increased residual values of aircraft, thereby boosting subsequent earnings.
- *Offsetting extraordinary (and unusual) gains and losses.* This practice removes unusual or unexpected earnings effects that can adversely impact earnings trend.
- *Big baths.* This technique recognizes future periods' costs in the current period, when the current period is unavoidably badly performing. This practice relieves future periods' earnings of these costs.

- *Write-downs.* Write-downs of operating assets such as plant and equipment or intangibles such as goodwill when operating results are poor is another earnings management tool. Companies often justify write-downs by arguing that current economics do not support reported asset values. An example is Cisco Systems that wrote off $2.25 billion of inventories as part of a restructuring program.
- *Timing revenue and expense recognition.* This technique times revenue and expense recognition to manage earnings, including trend. Examples are the timing of revenue recognition, asset sales, research expenditures, advertising, maintenance, and repairs. Unlike most earnings management techniques, these decisions can involve the timing of actual transactions. An example is General Electric which offset gains with restructuring expenses to smooth earnings fluctuations.

Management Incentives and Persistence

We previously described the impact of management incentives on both the accounting and the analysis of financial statements (see Chapters 1–6). This is especially evident in assessing earning persistence and in performing credit analysis. Experience shows that some managers, owners, and employees manipulate and distort reported earnings for personal benefits. Companies in financial distress are particularly vulnerable to these pressures. Such practices are too often justified by these individuals as a battle for survival. Prosperous companies also sometimes try to preserve hard-earned reputations as earnings growth companies through earnings management. Compensation plans and other accounting-based incentives or constraints provide added motivation for managers to manage earnings. The impacts of management incentives reveal themselves in the following cases:

Analysts must recognize the incentives confronting managers with regard to earnings. Earnings management is often initially achieved by understating reported earnings. This creates a "reserve" to call on in any future low earnings periods. For example, Sears boosted its allowance for uncollectible accounts and used the reserve to inflate earnings for many years. While this point is arguable, this is not the purpose of financial reporting. We are better served by full disclosure of earnings components along with management's explanation. We can then average, smooth, or adjust reported earnings in accordance with our analysis objectives. Another probable instance of earnings management is that of General Motors–see Illustration 11.1.

ILLUSTRATION 11.1

GM reported a revision in useful lives of its plant and equipment–reducing depreciation and amortization charges by $1.2 billion. GM's chairperson reported *"GM earned $3.6 billion for the year, up 21% . . . despite a 9% reduction in worldwide unit sales."* Yet without the $1.2 billion decline in depreciation and amortization, earnings would have decreased. This accounting change followed a year earlier provision of $1.3 billion for plant closings and restructurings. However, only $0.5 billion had been charged against this provision four years later, leaving the rest to absorb still future years' costs. After yet another change in leadership at GM, there was an additional $2.1 billion charge to earnings to cover costs of closing several more plants, including closings planned several years into the future. This sequence of events impairs confidence in both financial statements and management. Accordingly, we must work to reliably estimate earning power using techniques like averaging, recasting, and adjusting of earnings.

Given the performance incentives of managers, and the use of accounting numbers to control and monitor their performance, analysis must recognize the potential for earnings management and even misstatements. Analysis must identify companies with strong incentives to manage earnings, and then scrutinize these companies' accounting practices to ensure the integrity of financial statements.

Persistent and Transitory Items in Earnings

Recasting and adjusting earnings for equity valuation rely on separating stable, persistent earnings components from random, transitory components. Assessing persistence is important in determining earning power. Earnings forecasting also relies on persistence. A crucial part of analysis is to assess the persistence of the gain and loss components of earnings. This section describes how we can determine the persistence of nonrecurring, unusual, or extraordinary items. We also discuss how they should be handled in evaluating earnings level, management performance, and earnings forecasting.

Analyzing and Interpreting Transitory Items

The purpose of analyzing and interpreting extraordinary items is twofold:

1. Determine whether an item is transitory (less persistent). This involves assessing whether an item is unusual, nonoperating, or nonrecurring.
2. Determine adjustments that are necessary given assessment of persistence. Special adjustments are sometimes necessary for both evaluating and forecasting earnings.

We describe both of these analyses in this section.

Determining Persistence (Transitory Nature) of Items. Given the incentives confronting managers in reporting transitory items, we must render independent evaluation of whether a gain or loss is transitory. We also must determine how to adjust for them. For this purpose we arrange items into two broad categories: nonrecurring operating and nonrecurring nonoperating.

1. *Nonrecurring operating gains and losses.* These gains and losses relate to operating activities but recur infrequently or unpredictably. Operating items relate to a company's *normal business activities.* The concept of normal operations is far less clear than many realize. A plant's operating revenues and expenses are those associated with the workings of the plant. In contrast, proceeds from selling available-for-sale marketable securities are nonoperating gains or losses. The other important concept, that of *recurrence,* is one of frequency. There are no predetermined generally accepted boundaries separating a recurring event from a nonrecurring one. For example, a regular event generating a gain or loss is classified as recurring. An unpredictable event, which occurs infrequently, is classified as nonrecurring. Yet an event occurring infrequently but whose occurrence is predictable raises questions as to its classification. An example is the relining of blast furnaces–they endure for many years and their replacement is infrequent, but the need for it is predictable. Some companies provide for these types of replacements with a reserve.

Analysis of nonrecurring operating gains and losses must recognize their inherent infrequencies and lack of recurring patterns. We treat them as belonging to the reporting period. We must also address the question of normal operations. For example, it is a bakery's purpose to bake bread, rolls, and cakes, but it is presumably outside normal activities to buy and sell marketable securities for gains and losses, or even to sell baking machinery that is replaced with more efficient machinery. This limited interpretation of operating activities can be challenged. Some argue the objective is not baking but for management to increase equity or stock values. This is accomplished through strategic classification of financing, investing, and operating activities. It is not limited to a narrow view of normal operations. We can usefully evaluate a much wider range of gains and losses as being derived from operating activities. This view results in many nonrecurring operating gains and losses considered as part of operating activities in the period when they occur.

Analysis of nonrecurring operating items does not readily fit a mechanical rule. We must review the information and will doubtless find some items more likely to be recurring than others and some more operating than others. This review affects our recasting, adjusting, and forecasting of earnings. We should also recognize the magnitude of an item as an important factor. Once we complete the analysis of recurring earnings, we often need to focus on average earnings experience over a few years rather than the result of a single year. A focus on average earnings is especially important for companies with fluctuating amounts of nonrecurring and other extraordinary items. A single year is too short and too arbitrary a period to evaluate the earning power of a company or for forecasting earnings. Illustration 11.2 sheds more light on this point.

ILLUSTRATION 11.2

The past few years have seen several large charges to earnings for reorganization, redeployment, or regrouping. Companies taking substantial write-offs include ($ billions) Viacom $18 and AT&T $13. Information supplied with these events is often limited, but there is no denying these companies' enormous "revisions" of previously reported results. In one stroke, these write-offs *correct* prior years' overreporting of earnings. Analysis must be alert to aggressive write-offs to relieve future periods of charges properly attributable to them.

2. *Nonrecurring nonoperating gains and losses.* These items are nonrepeating and unpredictable and fall outside normal operations. Events driving these items are typically extraneous, unintended, and unplanned, yet they are rarely entirely unexpected. Business is subject to risks of adverse events and random shocks, be they natural or man-made. Business transactions are subject to the same. An example is damage to plant facilities due to the crash of an aircraft when your plant is not located near an airport. Other examples might include: (1) substantial uninsured casualty losses not within the usual risks of the company, (2) expropriation by a foreign government of assets owned by the company, and (3) seizure or destruction of property from war, insurrection, or civil disorders when not expected. These occurrences are typically nonrecurring but their relation to operating activities varies. All are occurrences in the regular course of business. Even assets destroyed by acts of nature reflect the risks of business. Unique events are rare. What often appears unique is frequently symptomatic of new risks affecting earning power and future operations. Analysis must consider this possibility. But barring evidence to the contrary, these items are regarded as extraordinary and omitted from operating results of a single year. They are, nevertheless, part of the long-term performance of a company.

Adjustments to Extraordinary Items Reflecting Persistence. The second step in analyzing transitory items is to consider their effects on both the resources of the company and the evaluation of management.

- *Effects of transitory items on company resources.* Every transitory gain and loss has a dual effect. For example, when recording a gain, a company also records an increase in resources. Similarly, a loss results in a decrease in resources. Since return on invested capital measures the relations of net income to resources, transitory gains and losses affect this measure. The larger the transitory item, the larger its effect on return. If we use earnings and current events in forecasting, then transitory items convey more than past performance. That is, if a transitory loss decreases capital for expected returns, then future returns are lost. Conversely,

a transitory gain increases capital and future expected returns. In forecasting profitability and return on investment, analysis must take account of the effects of recorded transitory items and the likelihood of future events causing transitory items.

- *Effect of transitory items on evaluation of management.* One implication frequently associated with transitory gains and losses is their lack of association with normal or planned business activities. Because of this they are often not used when evaluating management performance. Analysis should question their exclusion from management performance evaluation. What are the normal or planned activities that relate to management's decisions? Whether we consider securities transactions, plant asset transactions, or activities of divisions and subsidiaries, these all reflect on actions taken by management with specific purposes. These actions typically require more consideration or deliberation than ordinary operating decisions because they are often unusual in nature and involve substantial amounts. All of these actions reflect on management's ability as evidenced in the following:

ANALYSIS EXCERPT

Viacom reported a transitory charge of $1.5 billion in writing down its ill-fated investment in Blockbuster. This loss implies prior years' earnings were overstated *and* it also raises questions about management's investment decisions.

Management should be aware of the risks of natural or manmade disasters and impediments. Business decisions are managers' responsibility. For example, a decision to pursue international activities is made with the knowledge of the risks involved. A decision to insure or not is a normal operating decision. Essentially, nothing is entirely unexpected or unforeseeable. Management does not engage in, or is at least not expected to engage in, business activities unknowingly. Decision making is within the expected activities of a business. Every company is subject to inherent risks, and management should not blindly pursue activities without weighing these risks.

In an assessment of operating results, distinguishing between normal and transitory items is sometimes meaningless. Management's beliefs about the quality of its decisions are nearly always related to the normalcy, or lack thereof, of business conditions. This is evident in the Management Discussion and Analysis. Yet the best managers anticipate the unexpected. When failures or shortcomings occur, poor managers typically take time to "explain" these in a way to avoid responsibility. While success rarely requires explanation, failure evokes long explanations and blame to unusual or unforeseeable events. In a competitive economy, normal conditions rarely prevail for any length of time. Management is paid to anticipate and expect the unusual. Explanations are not a substitute for performance.

***ANALYSIS VIEWPOINT* . . . YOU ARE THE ANALYST/FORECASTER**

You are analyzing a company's earnings persistence in preparing its earnings forecasts for publication in your company's online forecasting service. Its earnings and earnings components ("net income" and "income from continuing operations") are stable and exhibit a steady growth trend. However, you find "unusual gains" relating to litigation comprising 40% of current earnings. You also find "extraordinary losses" from environmental costs. How do these disclosures affect your earnings persistence estimate?

EARNINGS-BASED EQUITY VALUATION

Company valuation is an important objective for many users of financial statements. Reliable estimates of value enable us to make buy/sell/hold decisions regarding securities, assess the value of a company for credit decisions, estimate values for business combinations, determine prices for public offerings of a company's securities, and pursue many other useful applications. This section continues our discussion of accounting-based equity valuation and incorporates it within the analysis of financial statements.

Traditional descriptions of company equity valuation rely on the *discounted cash flow (DCF) method*. Under the DCF method, the value of a company's equity is computed based on forecasts of cash flows available to equity investors. These forecasts are then discounted using the company's cost of equity capital.[1] It is important to emphasize that the accounting-based equity valuation model introduced earlier in this book and discussed in this section is theoretically consistent with the DCF method.

Relation between Stock Prices and Accounting Data

Recall the accounting-based equity valuation model introduced in Chapter 1:

$$V_t = BV_t + \frac{E(RI_{t+1})}{(1+k)^1} + \frac{E(RI_{t+2})}{(1+k)^2} + \frac{E(RI_{t+3})}{(1+k)^3} + \cdots$$

where BV_t is book value at the end of period t, RI_{t+n} is residual income in period $t+n$, and k is cost of capital. **Residual income** at time t is defined as comprehensive net income minus a charge on beginning book value, that is, $RI_t = NI_t - (k \times BV_{t-1})$. The model directly shows the importance of future profitability in estimating company value–that is, by using estimates of future net income and book values. Accurate estimates of these measures can be made only after consideration of the quality and persistence of a company's earnings and earning power.

A common criticism of accounting-based valuation methods is that earnings are subject to manipulation and distortion at the hands of management whose personal objectives and interests depend on reported accounting numbers. Indeed, a good portion of the book focuses on the need for our analysis to go "beyond the numbers." A reasonable question, therefore, is: Does the potential manipulation of accounting data influence the accuracy of accounting-based estimates, or forecasts, of company value? The answer is both yes *and* no.

The numerical example in Illustration 11.3 confirms the "no" part of the answer. We demonstrate that while accounting choices necessarily affect both earnings and book value, valuation is unaffected. Although conservative (aggressive) accounting results in lower (higher) book values of stockholders' equity, this is exactly offset by higher (lower) expected residual income.

The "yes" part of the answer is based on the reality that analysis uses reported accounting data (and other information) as a basis for projecting future profitability. To the extent accounting choices mask the true economic performance of the company, a less experienced analyst can be misled regarding the company's current and future performance. Consequently, the analysis techniques described in this book are important for equity analysis even though the accounting-based valuation model is mathematically immune from accounting manipulations.

[1] A common alternative is to discount expected cash flows available to both debt and equity holders using the company's weighted-average cost of debt and equity capital. This yields an estimate of the total value of the company. The value of a company's equity is obtained by subtracting the value of its debt.

ILLUSTRATION 11.3

Consider two identical companies. These companies use the same accounting methods and are expected to report income of $20 million before depreciation in all future years. At the beginning of Year 0, each company has a book value of $40 million; and during the year, each incurs a cash expenditure of $10 million. Company A decides to capitalize the expenditure and depreciate it over the next two years under the straight-line method. Company B chooses to expense the expenditure immediately. Each company has a cost of equity capital of 15% and does not intend to pay dividends in the foreseeable future. Since earnings for both companies are identical after Year 2, the difference in valuation of the two companies will be affected only by differences in earnings through Year 2. Accordingly, we assume that residual income for Year 3 and beyond equals zero. Ignoring income taxes, the companies report the following results:

Company A:	Year 0	Year 1	Year 2
Income before effect of expenditure	$20	$20	$20
Depreciation of $10 expenditure	0	5	5
Net income	$20	$15	$15
Book value at year-end	$60	$75	$90

Company B:	Year 0	Year 1	Year 2
Income before effect of expenditure	$20	$20	$20
Depreciation of $10 expenditure	10	0	0
Net income	$10	$20	$20
Book value at year-end	$50	$70	$90

The valuations of Company A and Company B, computed at the end of Year 0, follow:

$$\text{Company A valuation} = \$60 + [\$15 - (15\% \times \$60)]/1.15 + [\$15 - (15\% \times \$75)]/1.15^2 = \$68.05$$

$$\text{Company B valuation} = \$50 + [\$20 - (15\% \times \$50)]/1.15 + [\$20 - (15\% \times \$70)]/1.15^2 = \$68.05$$

Generally, the phrase *conservative accounting* is applied to methods that result in lower income and lower book values in early years. Accordingly, by immediately expensing the $10 expenditure, Company B is using more conservative accounting. Despite the use of different accounting treatments for the $10 expenditure, the estimated values for Companies A and B are equal. Mathematically, the accounting-based equity valuation model yields the same valuation estimates for any accounting system that follows the clean surplus relation.

Fundamental Valuation Multiples

Two widely cited valuation measures are the price-to-book (PB) and price-to-earnings (PE) ratios. Users often base investment decisions on the observed values of these ratios. We describe how an analysis can arrive at "fundamental" PB and PE ratios without referring to the trading price of a company's shares. By comparing our fundamental ratios to those implicit in current stock prices, we can evaluate the investment merits of a publicly traded company. For those companies whose shares are not traded in active markets, the fundamental ratios serve as a means for estimating equity value.

Price-to-Book (PB) Ratio

The **price-to-book (PB) ratio** is expressed as:

$$\frac{\text{Market value of equity}}{\text{Book value of equity}}$$

Analysis Research

EARNINGS PERSISTENCE

Earnings persistence plays an important role in company valuation. Analysis research indicates nonrecurring earnings increase company value on a dollar-for-dollar basis, while the stock price reaction to persistent sources of earnings is higher and positively associated with the degree of persistence.

An analyst cannot rely solely on income statement classifications in assessing the persistence of a company's earnings. Research indicates that many types of nonrecurring items often are included in income from continuing operations. Examples are gains and losses from asset disposals, changes in accounting estimates, asset writedowns, and provisions for future losses. Analysis must carefully examine the financial statement notes, MD&A, and other disclosures for the existence of these items. Evidence also shows that extraordinary items and discontinued operations (special items) may be partly predictable and can provide information regarding future profitability.

Recent analysis research indicates that companies currently reporting negative income along with special items are more likely to report special items in the following year. These subsequent years' special items are likely to be of the same sign. Profitable companies with discontinued operations are more likely to report higher earnings in subsequent years.

By substituting the accounting-based expression for equity value in the numerator, the PB ratio can be expressed in terms of accounting data as follows:

$$\frac{V_t}{BV_t} = 1 + \left[\frac{(ROCE_{t+1} - k)}{(1+k)}\right] + \left[\frac{(ROCE_{t+2} - k)}{(1+k)^2} \times \frac{BV_{t+1}}{BV_t}\right] + \left[\frac{(ROCE_{t+3} - k)}{(1+k)^3} \times \frac{BV_{t+2}}{BV_t}\right] + \cdots$$

This expression yields several important insights. As future ROCE and/or growth in book value increase, the PB ratio increases. Also, as the cost (risk) of equity capital, k, increases, the PB ratio decreases. Recognize that PB ratios deviate from 1.0 when the market expects residual earnings (both positive and negative) in the future. If the present value of future residual earnings is positive (negative), the PB ratio is greater (less) than 1.0.

Price-to-Earnings (PE) Ratio

The **price-to-earnings (PE) ratio** is expressed as:

$$\frac{\text{Market value of equity}}{\text{Net income}}$$

Ohlson and Juettner-Nauroth (2000) show that the PE ratio can be written as a function of short-term (STG) and long-term growth (LTG) of earning per share (eps) as follows:

$$\frac{P_0}{eps_1} = \frac{1}{k} \times \frac{STG - LTG}{k - LTG}$$

where k is the cost of equity capital, STG (LTG) is the expected short-term (long-term) percentage change in eps relative to expected "normal" growth, STG > LTG and LTG < k.[2] STG can be thought of as analysts' consensus five-year growth rate in eps and LTG as the long-run rate of inflation beyond the forecast horizon.

This equation yields two important insights: (1) The PE ratio is inversely related to the cost of capital, that is, it will be lower (higher) the higher (lower) the cost of equity

[2] Expected normal growth is at the rate of the cost of capital, that is, $eps_1 = eps_0 \times (1 + k)$ and eps includes the normal return on any dividends paid during the year (e.g., $k \times$ dividends).

capital, and (2) the PE ratio is positively related to the expected growth in eps relative to normal growth.

The PE ratio does not say anything about the absolute level of earnings (whether eps is high or low), only the rate at which eps is expected to increase relative to normal expected growth.

An interesting case is one in which the long-term expected growth in eps relative to normal eps is expected to remain at a constant level (for example, when LTG = 0). In this case, the ratio reduces to

$$\frac{P}{eps} = \frac{STG}{k^2}$$

In this form, the PE ratio is related to the short-term growth in eps relative to expected normal growth. This provides the rationale for the **PEG ratio,** a popular stock-screening metric. As an example, assume that a stock's PE ratio is 20 and the cost of capital is 10%. Proponents of this method classify a stock as fairly priced if the expected growth in eps is 20%, underpriced if the expected growth in eps is greater than 20% and overpriced if the expected growth in eps is less than 20%. While the validity of the PEG ratio has yet to be demonstrated empirically, its widespread use highlights investors' appreciation of the relation between PE and eps growth.

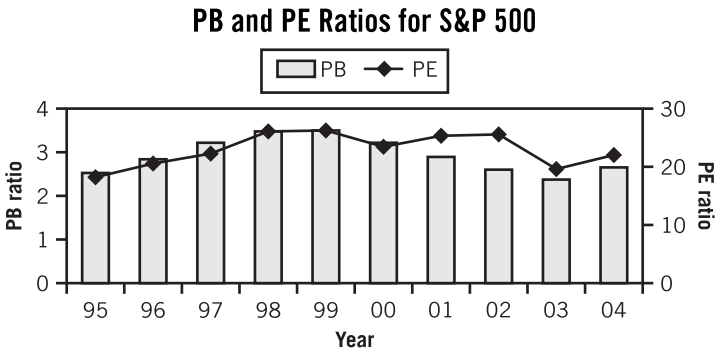


Illustration of Earnings-Based Valuation

We illustrate earnings-based valuation using financial information from Christy Company. The book value of equity for Christy Company at January 1, Year 1, is $50,000. The company has a 15% cost of equity capital (k). After careful study of the company and its prospects using analysis techniques described in this book, we obtain the following predictions of accounting data:

	Year 1	Year 2	Year 3	Year 4	Year 5*
Sales	$100,000	$113,000	$127,690	$144,290	$144,290
Operating expenses	77,500	90,000	103,500	118,000	119,040
Depreciation	10,000	11,300	12,770	14,430	14,430
Net income	$ 12,500	$ 11,700	$ 11,420	$ 11,860	$ 10,820
Dividends	$ 6,000	$ 4,355	$ 3,120	$ 11,860	$ 10,820

* *Note: For Year 6 and beyond, both accounting data and dividends are expected to approximate Year 5 levels.*

To apply the accounting-based valuation model, we compute expected future book values and ROCEs using the accounting predictions above. For example, expected book value at January 1, Year 2, is computed as $56,500 ($50,000 beginning book value + $12,500 net income − $6,000 dividends). Expected book values at January 1, Years 3 through 5, are $63,845, $72,145, and $72,145, respectively.

Recall that the accounting-based valuation model uses ROCEs computed using *beginning-of-period* book value. Therefore, expected ROCE for Year 1 is 25%

($12,500 ÷ $50,000). Expected ROCEs for Years 2 through 5 are 20.71%, 17.89%, 16.44%, and 15%, respectively.

The value of Christy Company's equity at January 1, Year 1, is computed using the accounting-based valuation model as follows:

$$\$58{,}594 = \$50{,}000 + \frac{(0.25 - 0.15) \times \$50{,}000}{1.15} + \frac{(0.2071 - 0.15) \times \$56{,}500}{1.15^2} + \frac{(0.1789 - 0.15) \times \$63{,}845}{1.15^3} + \frac{(0.1644 - 0.15) \times \$72{,}145}{1.15^4} + \frac{(0.15 - 0.15) \times \$72{,}145}{1.15^5} + 0 + \cdots$$

This accounting-based valuation implies that Christy's stock should sell at a PB ratio of 1.17 ($58,594 ÷ $50,000) at January 1, Year 1. To the extent that expectations of stock market participants differ from those implied by the valuation model, the PB ratio using actual stock price will differ from 1.17. In this case, we must consider two possibilities: (1) estimates of future profitability are too optimistic or pessimistic, and/or (2) the company's stock is mispriced. This determination is a major part of fundamental analysis. Three additional observations regarding this illustration are important.

1. Expected ROCE equals 15% for Year 5 and beyond. This 15% return is equal to Christy Company's cost of capital for those years. Since ROCE equals the cost of capital for Year 5 and beyond, these years' results do not change the value of Christy Company (that is, residual earnings equal zero for those years). Our assumption that ROCE gradually nears the cost of capital arises from basic economics. That is, if companies in an industry are able to earn ROCEs in excess of the cost of capital, other companies will enter the industry and drive residual earnings to zero.[3] The anticipated effects of competition are implicit in estimates of future profitability. For example, net income as a percentage of sales steadily decreases from 12.5% ($12,500 ÷ $100,000) in Year 1 to 7.5% ($10,820 ÷ $144,290) in Year 5 and beyond.
2. Since PE ratios are based on both *current* and *future* earnings, a PE ratio for Christy Company as of January 1, Year 1, cannot be calculated since prior years' data are unavailable. We can compute the PE ratio at January 1, Year 2. It is calculated as follows (we calculate Christy's residual income earnings in Problem 11–5):

$$\underline{\underline{4.91}} = \frac{1.15}{0.15} + \frac{\left(\frac{1.15}{0.15}\right)}{12{,}500}\left[\frac{3{,}225 - 5{,}000}{1.15} + \frac{1{,}844 - 3{,}226}{1.15^2} + \frac{1{,}039 - 1{,}845}{1.15^3} + \frac{0 - 1{,}039}{1.15^4}\right] - \frac{6{,}000}{12{,}500}$$

3. Valuation estimates assume dividend payments occur at the end of each year. A more realistic assumption is that, on average, these cash outflows occur midway through the year. To adjust valuation estimates for midyear discounting, we multiply the present value of future residual earnings by $(1 + k/2)$. For Christy Company the adjusted valuation estimate equals $59,239. This is computed as $50,000 plus [1 + (.15½)] × $8,594.

[3] We must be alert to the possibility that even when residual earnings are zero, conservatism in accounting principles can create the *appearance* of residual profitability. While this issue is not pursued here, our analysis must consider the effects of conservative accounting principles on future ROCEs. For example, due to mandated expensing of most research and development costs, firms in the pharmaceutical industry are characterized by relatively high ROCEs.

EARNING POWER AND FORECASTING FOR VALUATION

This section expands on the role of earning power and earnings forecasts for valuation. We also discuss the use of interim reports to monitor and revise these valuation inputs.

Earning Power

Earning power refers to the earnings level for a company that is expected to persist into the foreseeable future. With few exceptions, earning power is recognized as a primary factor in company valuation. Accounting-based valuation models include the capitalization of earning power, where capitalization involves using a factor or multiplier reflecting the cost of capital and its future expected risks and returns. Many analyses of earnings and financial statements are aimed at determining earning power.

Measuring Earning Power

Earning power is a concept derived from financial analysis, not accounting. It focuses on the stability and persistence of earnings and earnings components. Financial statements are used in computing earning power. This computation requires knowledge, judgment, experience, and perspective. Earnings are the most reliable and relevant measure for valuation purposes. While valuation is future oriented, we must recognize the relevance of current and prior company performance for estimating future performance. Recent periods' earnings extending over a business cycle represent actual operating performance and provide us a perspective on operating activities from which we can estimate future performance. Valuation is extremely important for many decisions (such as investing, lending, tax planning, adjudication of valuation disputes). Accordingly, valuation estimates must be credible and defensible, and we must scrutinize departures from the norm.

Time Horizon for Earning Power

A one-year period is often too short a period to reliably measure earnings. This is because of the long-term nature of many investing and financing activities, the effects of business cycles, and the existence of various nonrecurring factors. We can usually best measure a company's earning power by using average (or cumulative) earnings over several years. The preferred time horizon in measuring earning power varies across industries and other factors. A typical horizon is 5 years (and sometimes up to 10 years) in computing average earnings. This extended period is less subject to distortions, irregularities, and other transitory effects impairing the relevance of a single year's results. A five-year earnings computation often retains an emphasis on recent experience while avoiding less relevant performance.

Our discussion of both earnings quality and persistence emphasizes the importance of several earnings attributes including trend. Earnings trend is an important factor in measuring earning power. If earnings exhibit a sustainable trend, we can adjust the averaging process to weigh recent earnings more heavily. As an example, in a five-year earnings computation, the most recent earnings might be given a weight of 5/15, the next most recent earnings a weight of 4/15, and so on until earnings from five years ago receives a weight of 1/15. The more a company's recent experience is representative of future activities, the more relevant it is in the earnings forecast computation. If recent

performance is unlike a company's future plans, then less emphasis is placed on prior earnings and more on earnings forecasts.

Adjusting Earnings per Share

Earning power is measured using *all* earnings components. Every item of revenue and expense is part of a company's operating experience. The issue is to what year we assign these items when computing earning power. In certain cases our earnings analysis might be limited to a short time horizon. As described earlier in this chapter, we adjust short time series of earnings for items that better relate to other periods. If this is done on a per share basis, every item must be adjusted for its tax effect using the company's effective tax rate unless the applicable tax rate is specified. All items must also be divided by the number of shares used in computing earnings per share (see Appendix 6A). An example of analytical adjustments for A. H. Robins Company appears in Illustration 11.4.

ILLUSTRATION 11.4

An Example of per Share Earnings Adjustments

Item	Year 2	Year 1
Effective tax rate change	+$0.02	
Settlement of litigation	+0.07	+$0.57
Change to straight-line depreciation	+0.02	
Reserves for losses on foreign assets	+0.02	−0.15
Loss on sale of divisions	−0.19	
Change to LIFO	−0.07	
Litigation settlements and expense	−0.09	−0.12
Foreign exchange translation	−0.03	−0.04
R&D expenditures exceeding prior levels	−0.11	
Higher percent allowance for doubtful accounts	−0.02	
± Per share earnings impact	−$0.38	+$0.26
Per share earnings as reported	$1.01	$1.71
Add back negative (−) impact to Year 2	0.38	
Subtract positive (+) impact from Year 1		(0.26)
Adjusted earnings per share	$1.39	$1.45

Earnings Forecasting

A major part of financial statement analysis and valuation is earnings forecasting. From an analytical perspective, evaluating earnings level is closely related to forecasting earnings. This is because a relevant forecast of earnings involves an analysis of earnings components and an assessment of their future levels. Accordingly, much of this chapter's previous discussion is applicable to earnings forecasting. Earnings forecasting follows an analysis of earnings components and involves generating estimates of their future levels. We should consider interactions among components and future business conditions. We should also consider persistence and stability of earnings components. This includes analysis of permanent (recurring) and transitory (nonrecurring) elements.

Mechanics of Earnings Forecasting

Forecasting requires us to effectively use all available information, including prior periods' earnings. Forecasting also benefits from disaggregation. Disaggregation involves using data by product lines or segments and is especially useful when these segments differ by risk, profitability, or growth. Divisional earnings for TechCom, Inc., reveal how strikingly different divisional performance can be masked by aggregate results:

TECHCOM EARNINGS ($ MILLIONS)				
	2003	2004	2005	2006
Electronic products	$1,800	$1,700	$1,500	$1,200
Customer services	600	800	1,100	1,400
Total net income	$2,400	$2,500	$2,600	$2,600

We must also differentiate forecasting from extrapolation. *Extrapolation* typically assumes the continuation of a trend and mechanically projects that trend into the future.

Analysis research reveals various statistical properties in earnings. Annual earnings growth often behaves in a random fashion. Some users interpret this as implying earnings growth cannot be forecasted. We must remember these studies reflect aggregate behavior and not individual company behavior. Furthermore, reliable earnings forecasting is not done by naive extrapolation of past earnings growth or trends. It is done by analyzing earnings components and considering all available information, both quantitative and qualitative. It involves forecasting these components and speculating about future business conditions.

An often useful source of relevant information for earnings forecasting is the Management Discussion and Analysis. It contains information on management's views and attitudes about the future, along with a discussion of factors influencing company performance. While companies have been slow to respond to the market demand for numerical forecasts of financial position and performance, they are encouraged to report forward-looking information in the MD&A.

Elements in Earnings Forecasting

While earnings forecasting depends on future prospects, the forecasting process must rely on current and past evidence. We forecast expected future conditions in light of this evidence. Analysis must assess continuity and momentum of company performance, including its industry, but it should be put in perspective. We should not confuse a company's past with its future and the uncertainty of forecasting. We must also remember that earnings is total revenues less total expenses, and that earnings forecasts reflect these components. A relatively minor change in a component can cause a large change in earnings.

Another element in earnings forecasting is checking on a forecast's reasonableness. We often use return on invested capital for this purpose. If the earnings forecast yields returns substantially different from returns realized in the past or from industry returns, we should reassess the forecasts and the process. Differences in forecast returns from what is reasonable must be explained. Return on invested capital

depends on earnings–where earnings are a product of management quality and asset management.

- *Management quality.* It takes resourceful management to "breathe life" into assets by profitably and efficiently using them. To assume stability of relations and trends implies there is no major change in the skill, depth, and continuity of management. It also implies no major changes in the type of business where management's skills are proven.
- *Asset management.* A second element of profitable operations is asset management and success in financing those assets. Companies require assets to expand operations. Continuity of success and forecasts of growth depend on financing sources and their effects on earnings.

A company's financial condition is another element to earnings forecasting. Lack of liquidity can constrain successful management, and risky capital structure can limit management's actions. These and other economic, industry, and competitive factors are relevant to earnings forecasting. In forecasting earnings we must add expectations about the future to our knowledge of the past. We should also evaluate earnings trends with special emphasis on indicators of future performance like capital expenditures, order backlogs, and demand trends for products and services. It is important for us to realize that earnings forecasting is accompanied by considerable uncertainty. Forecasts may prove quite different from realizations because of unpredictable events or circumstances. We counter uncertainty by continual monitoring of performance relative to forecasts and revising forecasts as appropriate.

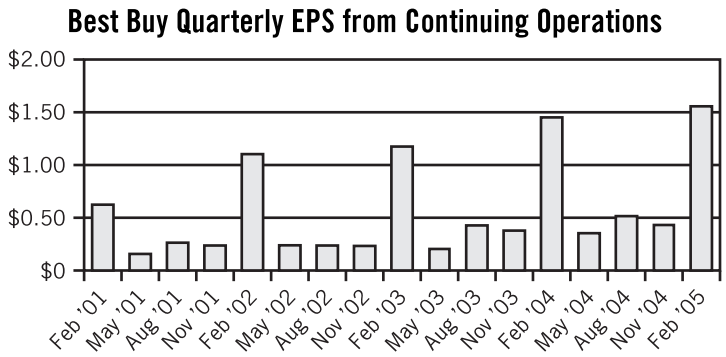
Reporting Earnings Forecasts

Recent years have witnessed increased interest in disclosures of earnings forecasts by companies. We should recognize that management (insider) forecasting is different from forecasts made by financial analysts (outsiders). The reliability of forecasts depends on information access and assumptions made. Use of management or analyst forecasts in our analysis depends on an assessment of the assumptions underlying them. The SEC encourages forecasts made in *good faith* that have a reasonable basis. It recommends they be reported in financial statement format and accompanied by information adequate for investors to assess reliability. To encourage forecast disclosures, the SEC has "safe harbor" rules protecting companies from lawsuits in case their predictions do not come true. These rules protect companies provided their forecasts are reasonably based and made in good faith. Because of practical legal considerations, few companies avail themselves of these safe harbor rules and publish forecasts. The following caveat from The Limited is typical of companies' reluctance to report forecasts:

ANALYSIS EXCERPT

The Company cautions that any forward-looking statements . . . involve risks and uncertainties, and are subject to . . . changes in consumer spending patterns, consumer preferences and overall economic conditions, the impact of competition and pricing, changes in weather patterns, political stability, currency and exchange risks and changes in existing or potential duties, tariffs, quotas, postal rate increases and charges; paper and printing costs, availability of suitable store locations at appropriate terms, ability to develop new merchandise and ability to hire and train associates.

Interim Reports for Monitoring and Revising Earnings Estimates



Assessing the earning power or earnings forecasts of a company relies on estimates of future conditions not amenable to verification. Our analysis must continually monitor company performance and compare it with the most recent forecasts and assumptions. We should regularly revise forecasts to incorporate current business conditions. Interim (less than one year) financial statements are a valuable source of information for monitoring performance. Interim statements are usually issued quarterly and are designed to meet users' needs. They are useful in revising estimates of earning power and earnings forecasts. Yet we must recognize certain limitations in interim reporting related to difficulties in assigning earnings components to periods of under one year in length. The remainder of this chapter describes these limitations and their effects on interim reports.

Period-End Accounting Adjustments

Determining operating results for a one-year period requires many accrual adjustments and estimates. These year-end adjustments are often complex, time-consuming, and costly. Examples include revenue recognition, determining inventory costs, allocating overhead, obtaining market values of securities, and estimating bad debts. Adjustments for interim periods are often less complete and use less reliable information than their year-end counterparts. This likely yields a less accurate earnings measure for interim periods.

Seasonality in Business Activities

Many companies experience seasonality in their business activities. Sales, production, and other operating activities are often unevenly distributed across interim periods. This can distort comparisons of interim earnings. It also creates problems in allocating certain discretionary costs like advertising, research, development, repairs, and maintenance. If these expenses vary with sales, they are usually accrued on the basis of expected sales for the entire year. Reporting problems also extend to allocating fixed costs across interim periods.

Integral Reporting Method

Interim reports are generally reported in a manner consistent with annual reporting requirements. Adopting the view that quarterly reports are integral to the entire year rather than a discrete period, practice requires accrual of revenues and expenses across interim periods. This includes accruals for inventory shrinkages, quantity discounts, and uncollectible accounts. Losses are not usually deferred beyond the interim period when they occur, and extraordinary items are reported in the interim period when they occur. But accrual of advertising costs is not acceptable on the basis that their benefits cannot be anticipated. Similarly, LIFO inventory liquidations are not considered for interim periods and only permanent declines in inventory values are recorded for interim reports. In contrast, income taxes are accrued using the effective tax rate expected for the annual period.

SEC Interim Reporting Requirements

The SEC is keenly interested in interim reporting. It requires quarterly reports (Form 10-Q), reports on current developments (Form 8-K), disclosure of separate fourth-quarter results, and details of year-end adjustments. Several reporting requirements exist for interim reports filed with the SEC. Principal requirements include:

- Comparative interim and year-to-date income statement data–can be labeled *unaudited* but must be included in annual reports (small companies are exempt).
- Comparative balance sheets.
- Year-to-date statement of cash flows.
- Pro forma information on business combinations accounted for as purchases.
- Conformity with accepted accounting principles and disclosure of accounting changes, including a letter from the auditor reporting whether the changes are preferable.
- Management's narrative analysis of operating results, with explanations of changes in revenues and expenses across interim periods.
- Disclosure as to whether a Form 8-K is filed during the period–reporting either unusual earnings adjustments or change of auditor.

These disclosures are believed to assist users in better understanding a company's business activities. They also are believed to assist users in estimating the trend in business activities across periods in a timely manner.

Analysis Implications of Interim Reports

Our analysis must be aware of estimation errors and the discretion inherent in interim reports. The limited involvement of auditors with interim reports reduces their reliability relative to annual audited financial statements. Exchange regulations offer some, albeit limited, assurance. Yet not all reporting requirements for interim reports are necessarily best for our analysis. For example, including extraordinary items in the interim period when they occur requires adjustment for use in analysis. Similarly, while accruing expenses across interim periods is reasonable, our analysis must remember there are no precise rules governing these accruals. Shifting expenses across interim periods is often easier than shifting revenues. Therefore, analysis often emphasizes interim revenues as a measure of interim performance. Further, certain seasonality problems with interim reports are overcome by computing *year-to-date cumulative numbers,* including the results of the most recent quarter.

GUIDANCE ANSWERS TO ANALYSIS VIEWPOINTS

ANALYST/FORECASTER

More persistent earnings reflect recurring, stable, and predictable operating elements. Your estimate of earnings persistence should consider these elements. More persistent earnings comprise recurring operating elements. Finding 40% of earnings from unusual gains implies less persistence because its source is nonoperating. You can also question classification of litigation gains as unusual–they are sometimes better viewed as extraordinary. The extraordinary loss component also implies less persistence. In this case you need to assess whether environmental costs are truly extraordinary for this company's business. Together, these components suggest less persistence than suggested by the stable and steady growth trend in aggregate earnings. This lower persistence should be reflected in both the level and uncertainty of your earnings forecast.

QUESTIONS

11–1. Why is analysis of research and development expenses important in assessing and forecasting earnings? What are some concerns in analyzing research and development expenses?

11–2. What is the relation between the reported values of assets and reported earnings? What is the relation between the reported values of liabilities, including provisions, and reported earnings?

11–3. What is the purpose in recasting the income statement for analysis?

11–4. Where do we find the data necessary for analysis of operating results and for their recasting and adjustment?

11–5. Describe the recasting process. What is the aim of the recasting process in analysis?

11–6. Describe the adjustment of the income statement for financial statement analysis.

11–7. Explain earnings management. How is earnings management distinguished from fraudulent reporting?

11–8. Identify and explain at least three types of earnings management.

11–9. What factors and incentives motivate companies (management) to engage in earnings management? What are the implications of these incentives for financial statement analysis?

11–10. Why is management interested in the reporting of extraordinary gains and losses?

11–11. What are the analysis objectives in evaluating extraordinary items?

11–12. What three categories can unusual or extraordinary items be usefully subdivided into for purposes of analysis? Provide examples for each category. How should an analysis treat items in each of these categories? Is a certain treatment implied under all circumstances? Explain.

11–13. Describe the effects of extraordinary items on:

a. Company resources.

b. Management evaluation.

11–14. Comment on the following statement: "Extraordinary gains or losses do not result from 'normal' or 'planned' business activities and, consequently, they should not be used in evaluating managerial performance." Do you agree?

11–15. Can accounting manipulations influence earnings-based estimates of company valuation? Explain.

11–16. *a.* Identify major determinants of PB and PE ratios.

b. How can the analyst use jointly the values of PB and PE ratios in assessing the merits of a particular stock investment?

11–17. What is the difference between forecasting and extrapolation of earnings?

11–18. How do MD&A disclosure requirements aid in earnings forecasting?

11–19. What is earning power? Why is earning power important for financial statement analysis?

11–20. How are interim financial statements used in analysis? What accounting problems with interim statements must we be alert to in an analysis?

11–21. Interim financial reports are subject to limitations and distortions. Identify and discuss at least two reasons for this.

11–22. What are major disclosure requirements for interim reports? What are the objectives of these requirements?

11–23. What are the implications of interim reports for financial analysis?

EXERCISES

Quaker Oats Company

EXERCISE 11–1
Analyzing and Interpreting Maintenance and Repairs Expense

Refer to the financial statements of **Quaker Oats Company** in Problem 9-6 along with the following footnote.

SUPPLEMENTARY EXPENSE DATA

($ millions)	Year 11	Year 10	Year 9
Advertising, media, and production	$ 277.5	$ 282.8	$ 256.5
Merchandising	1,129.9	912.5	886.2
Total advertising and merchandising	$1,407.4	$1,195.3	$1,142.7
Maintenance and repairs	$ 96.1	$ 96.6	$ 93.8
Depreciation expense	$ 125.2	$ 103.5	$ 94.5
Research and development	$ 44.3	$ 43.3	$ 39.3

Required:

a. Prepare a schedule where maintenance and repairs expense is shown (i) as a percent of revenues and (ii) as a percent of property, plant, and equipment (net) for:
(1) Year 9 and Year 10, separately.
(2) Total of Years 9 and 10.
(3) Average of Years 9 and 10.
(4) Year 11.

CHECK
(4) (i) 1.75%
(ii) 7.80%

b. Interpret the comparison of the spending level for maintenance and repairs in Year 11 with the average level of spending for Years 9 and 10.

EXERCISE 11–2
Interpreting Extraordinary Items

The president of Vancouver Viacom made the following comments to shareholders:

> Regarding management attitudes, Vancouver Viacom has resisted joining an increasing number of companies who along with earnings announcements make extraordinary or nonrecurring loss announcements. Many of these cases read like regular operating problems. When we close plants, we charge earnings for the costs involved or reserved as we approach the event. These costs, in my judgment, are usually a normal operating expense and something that good management should expect or anticipate. That, of course, raises the question of what earnings figure should be used in assessing a price-earnings ratio and the quality of earnings.

Required:

a. Discuss your reactions to these comments.

b. What factors determine whether a gain or loss is extraordinary?

c. Explain whether you would classify the following items as extraordinary and why.
(1) Loss suffered by foreign subsidiaries due to a change in the foreign exchange rate.
(2) Write-down of inventory from cost to market.
(3) Loss attributable to an improved product developed by a competitor.
(4) Decrease in net income from higher tax rates.
(5) Increase in income from liquidation of low-cost LIFO inventories due to a strike.
(6) Expenses incurred in relocating plant facilities.
(7) Expenses incurred in liquidating unprofitable product lines.
(8) Research and development costs written off from a product failure (non-marketed).
(9) Software costs written off because demand for a product was weaker than expected.
(10) Financial distress of a major customer yielding a bad debts provision.
(11) Loss on sale of rental cars by a car rental company.
(12) Gains on sales of fixed assets.
(13) Rents received from employees who occupy company-owned houses.
(14) Uninsured casualty losses.
(15) Expropriation by a foreign government of an entire division of the company.
(16) Seizure or destruction of property from an act of war.

CHECK
(1) No
(5) No
(10) No

EXERCISE 11–3
Extraordinary Items in Financial Statement Analysis

A financial analyst's comments on income statement classifications follow:

> We should drop the word extraordinary and leave it to users to decide whether items like a strike will recur next year or not, and to decide whether a lease abandonment will recur or not. We need an all-inclusive statement with no extraordinary items. Let users apply the income statement for predictive purposes by eliminating items that will not recur. But let the record show all events that have an impact–there are really no values that "don't count." The current operating performance approach to reporting has no merit. I argue that everything is relevant and needs to be included. By omitting items from current operating performance we are relegating them to a lesser role. I do not believe this is conceptually correct. We include everything to better evaluate management and forecast earnings. Users can individually decide on the merits of an inventory write-off or the planned sale or abandonment of a plant. Both items deserve to adversely affect income because they reflect management performance. Both items can be excluded by the user in forecasting earnings. The current system yields abuses. Even an earthquake is part of the picture. A lease abandonment recurs in the oil industry. No man is wise enough to cut the Gordian knot on this issue by picking and choosing what is extraordinary, recurring, typical, or customary.

Required:

a. Describe your views on this statement. What is your opinion on how extraordinary items should be reported?

b. Discuss how extraordinary items should be treated in financial analysis.

EXERCISE 11–4
Interpreting Disclosures in Interim Financial Statements

Interim accounting statements comprise a major part of financial reporting. There is ongoing discussion considering the relevance of reporting on business activities for interim periods.

Required:

a. Discuss how revenues are recognized for interim periods. Comment on differences in revenue recognition for companies (1) subject to large seasonal fluctuations in revenue, and (2) having long-term contracts accounted for using percentage of completion for annual periods.

b. Explain how product and period costs are recognized for interim periods.

c. Discuss how inventory and cost of goods sold can be given special accounting treatment for interim periods.

d. Describe how the provision for income taxes is computed and reported in interim reports.

(AICPA Adapted)

EXERCISE 11–5
Identifying Sources of Variability in Financial Data

An analyst needs to understand the sources and implications of variability in financial statement data.

Required:

Identify factors affecting variability in earnings per share, dividends per share, and market price per share that derive from

a. The company

b. The economy

(CFA Adapted)

PROBLEMS

PROBLEM 11–1
Recasting of the Income Statement

Quaker Oats Company

Refer to the financial statements of **Quaker Oats Company** in Problem 9-6 along with the following footnotes.

SUPPLEMENTARY EXPENSE DATA

($ millions)	Year 11	Year 10	Year 9
Advertising, media and production	$ 277.5	$ 282.8	$ 256.5
Merchandising	1,129.9	912.5	886.2
Total advertising and merchandising	$1,407.4	$1,195.3	$1,142.7
Maintenance and repairs	$ 96.1	$ 96.6	$ 93.8
Depreciation expense	$ 125.2	$ 103.5	$ 94.5
Research and development	$ 44.3	$ 43.3	$ 39.3

INTEREST (INCOME) EXPENSE

($ millions)	Year 11	Year 10	Year 9
Total interest expense	$101.9	$120.2	$ 75.9
Total interest income	(9.0)	(11.0)	(12.4)
Net interest allocated to discontinued operations	(6.7)	(7.4)	(7.1)

	Year 11		Year 10		Year 9	
($ millions)	Amount	% of Pretax Income	Amount	% of Pretax Income	Amount	% of Pretax Income
Tax provision based on the federal statutory rate	$139.9	34.0%	$130.0	34.0%	$81.3	34.0%
State and local income taxes, net of federal income tax benefit	16.7	4.1	11.9	3.1	7.7	3.2
ANC benefit	—	—	—	—	(1.7)	(.7)
Repatriation of foreign earnings	4.3	1.0	4.8	1.3	(2.1)	(.9)
Non-U.S. tax rate differential	8.2	2.0	9.8	2.5	8.8	3.7
U.S. tax credits	(.2)	—	(.1)	—	(.7)	(.3)
Miscellaneous items—net	6.8	1.6	(2.9)	(.8)	(3.1)	(1.3)
Actual tax provision	$175.7	42.7%	$153.5	40.1%	$90.2	37.7%

OTHER (INCOME) EXPENSE

($ millions)	Year 11	Year 10	Year 9
Foreign exchange (gains) losses—net	$ (5.1)	$ 25.7	$ 14.8
Amortization of intangibles	22.4	22.2	18.2
Losses (gains) from plant closings and operations sold or to be sold—net	8.8	(23.1)	119.4
Miscellaneous—net	6.5	(8.4)	(2.8)
Net other expense	$32.6	$ 16.4	$149.6

Required:

a. Recast Quaker Oats' income statements through Income from Continuing Operations for Years 11, 10, and 9 (estimate federal income tax at 34%).

b. Interpret trends revealed by the recasted income statements.

CHECK
Recast cont. income Years 11–9, $252.7, $224.5, $126.8

PROBLEM 11–2
Analyzing Pre- and Post-acquisition Financial Statements

You are considering the purchase of all outstanding preferred and common stock of Finex, Inc., for $700,000 on January 2, Year 2. Finex's financial statements for Year 1 are reproduced below.

FINEX, INC.
Balance Sheet
As of December 31, Year 1

Cash	$ 55,000
U.S. government bonds	25,000
Accounts receivable, net	150,000
Merchandise inventory	230,000
Land	40,000
Buildings, net[a]	360,000
Equipment, net[b]	130,000
Total assets	$990,000
Accounts payable	$170,000
Notes payable, current	50,000
Bonds payable, due Year 12[c]	200,000
Preferred stock, 6%, $100 par	100,000
Common stock, $100 par	400,000
Paid-in capital in excess of par	43,000
Retained earnings[d]	27,000
Total liabilities and equity	$990,000

Income Statement
For Year Ended December 31, Year 1

Net sales	$860,000
Cost of good sold	546,000
Gross profit	314,000
Selling and administrative expenses	240,000
Net operating income	74,000
Income tax expense	34,000
Net income	$ 40,000

[a] *Accumulated depreciation on buildings, $35,000. Depreciation expense in Year 1, $7,900.*
[b] *Accumulated depreciation on equipment, $20,000. Depreciation expense in Year 1, $9,000.*
[c] *Bonds are sold at par.*
[d] *Dividends paid in Year 1: preferred, $6,000; common, $20,000.*

You need to adjust net income to estimate the earnings potential of an acquisition. The company uses the FIFO method of inventory valuation and all inventories can be sold without loss. With the change in ownership you expect an additional 5% of net accounts receivable to be uncollectible. You assume sales and all remaining financial relations are constant.

Required:

a. What reported value would be individually assigned to Land, Buildings, and Equipment after the proposed purchase assuming that we allocate the excess purchase price to these three assets in proportion to their respective book values on the Year 1 balance sheet? (implicitly assumes that these assets are undervalued by this amount)

CHECK
(*b*) Total assets, $1,120,000
(*c*) Net oper. inc., $72,008

b. Prepare a balance sheet for Finex, Inc., immediately after your proposed purchase.

c. Estimate Finex, Inc.'s net operating income for Year 2 under your ownership. (*Hint:* Use the same ratio of depreciation expense to assets; and one-third of depreciation is charged to cost of goods sold.)

d. Assuming your minimum required ratio of net operating income to net sales is 8%, should you purchase Finex, Inc.?

PROBLEM 11–3
Analyzing Credit Constraints for a Bank Loan

Aspero, Inc., has sales of approximately $500,000 per year. Aspero requires a short-term loan of $100,000 to finance its working capital requirements. Two banks are considering Aspero's loan request but each bank requires certain minimum conditions be satisfied. Bank America requires at least a 25% gross margin on sales, and Bank Boston requires a 2:1 current ratio. The following information is available for Aspero for the current year:

- Sales returns and allowances are 10% of sales.
- Purchases returns and allowances are 2% of purchases.
- Sales discounts are 2% of sales.
- Purchase discounts are 1% of purchases.
- Ending inventory is $138,000.
- Cash is 10% of accounts receivable.
- Credit terms to Aspero's customers are 45 days.
- Credit terms Aspero receives from its suppliers are 90 days.
- Purchases for the year are $400,000.
- Ending inventory is 38% greater than beginning inventory.
- Accounts payable are the only current liability.

CHECK
Bank America rejects loan.

Required:

Assess whether Aspero, Inc., meets the credit constraint for a loan from either or both banks. Show computations.

PROBLEM 11–4
Accounting-Based Equity Valuation

Use the data from Christy Company in the chapter to answer the following.

a. Calculate Christy Company's residual income for each of Year 1 through Year 5.

b. Use the accounting-based equity valuation model to estimate the value of Christy's equity at January 1 of each of Year 2 through Year 5.

CHECK
1/1/Year 2
(*b*) $60,747
(*c*) $61,066
(*e*) 1.09

c. The chapter's discussion of Christy Company assumes that accounting for book value is not conservative. How does the use of conservative accounting principles affect the accounting-based valuation task?

d. Use the PB formula to determine the PB ratio at January 1 of each of Year 2 through Year 5.

e. Use the PE formula to determine the PE ratio at January 1 of each of Year 3 through Year 5.

CASES

Ferro Corporation

CASE 11–1
Analyzing and Interpreting Trends in Earnings and Earnings Components

Income statements of **Ferro Corporation,** along with its note 7 on income taxes and selected information from its Form 10-K, are reproduced below:

CONSOLIDATED STATEMENT OF INCOME
Years Ended December 31, Year 6 and Year 5

($ thousands)	Year 6	Year 5
Net sales	$376,485	$328,005
Cost of sales	266,846	237,333
Selling and administrative expenses	58,216	54,140
Research and development	9,972	8,205
Operating expenses	335,034	299,678
Operating income	41,451	28,327
Other income		
Equity in net earnings of affiliated companies	1,394	504
Royalties	710	854
Interest earned	1,346	1,086
Miscellaneous	1,490	1,761
Total other income	4,940	4,205
Other charges		
Interest expense	4,055	4,474
Unrealized foreign currency translation loss	4,037	1,851
Miscellaneous	1,480	1,448
Total other charges	9,572	7,773
Income before taxes	36,819	24,759
U.S. and foreign income taxes (note 7)	16,765	11,133
Net income	$ 20,054	$ 13,626

Notes to Financial Statements

Income tax expense is comprised of the following components ($ thousands):

Year 6	U.S. Federal	Foreign	Total
Current	$5,147	$11,125	$16,272
Deferred	353	140	493
Total	$5,500	$11,265	$16,765

Year 5	U.S. Federal	Foreign	Total
Current	$2,974	$ 8,095	$11,069
Deferred	180	(116)	64
Total	$3,154	$ 7,979	$11,133

Deferred income taxes were mainly the result of using accelerated depreciation for income tax purposes and straight-line depreciation in the consolidated financial statements. State and local income taxes totaling approximately $750,000 and $698,000 in Year 6 and Year 5, respectively, are included in other

(continued)

CASE 11–1
(concluded)

expense categories. A reconciliation between the U.S. federal income tax rate and the effective tax rate for Year 6 and Year 5 follows:

	Year 6	Year 5
U.S. federal income tax rate	48.0%	48.0%
Earnings of consolidated subsidiaries taxed at rates less than the U.S. federal income tax rate	(5.3)	(5.3)
Equity in after-tax earnings of affiliated companies	(1.4)	(0.8)
Unrealized foreign exchange translation loss	5.3	3.6
Additional U.S. taxes on dividends from subsidiaries and affiliates	0.8	1.0
Investment tax credit	(1.5)	(0.9)
Miscellaneous	(0.4)	(0.6)
Effective tax rate	45.5%	45.0%

The following information from Ferro Corporation's Form 10-K is available:

	Year 6	Year 5
Cost of sales includes ($ thousands)		
Repairs and maintenance	$15,000	$20,000
Loss on disposal of chemicals division	—	7,000
Selling and administrative expenses include ($ thousands)		
Advertising	$ 6,000	$ 7,000
Employee training program	4,000	5,000

Recast oper. income, Year 6 = $20,520; Year 5 = $17,215

Required:

a. Recast Ferro's income statements for Years 5 and 6. Show computations.

b. Identify factors causing income tax expense to differ from 48% of pretax income. Identify any random or unstable factors.

c. What significant changes can you identify in Ferro's operating policies for Year 6? (*Hint:* Limit your analysis to outlays for repairs and maintenance, advertising, and employee training programs.)

CHECK

CASE 11–2
Assessing Earnings Quality and Proposed Accounting Changes

Canada Steel, Ltd., produces steel castings and metal fabrications for sale to manufacturers of heavy construction machinery and agricultural equipment. Early in Year 3 the company's president sent the following memorandum to the financial vice president:

TO: Robert Kinkaid, Financial Vice President

FROM: Richard Johnson, President

SUBJECT: Accounting and Financial Policies

Fiscal Year 2 was a difficult year, and the recession is likely to continue into Year 3. While the entire industry is suffering, we might be hurting our performance unnecessarily with accounting and business policies that are not appropriate. Specifically:

(1) We depreciate most fixed assets over their estimated useful lives on a "tonnage-of-production" method. Accelerated methods and shorter lives are used for tax purposes. A switch to straight-line for financial reporting purposes could: (a) eliminate the deferred tax liability on our balance sheet, and (b) leverage our profits if business picks up.

(2) Several years ago you convinced me to change from the FIFO to LIFO inventory method. Since inflation is now down to a 4% annual rate, and balance sheet strength is important in our current environment, I estimate we can increase shareholders' equity by about $2.0 million, working capital by $4.0 million, and Year 3 earnings by $0.5 million if we return to FIFO in Year 3. This adjustment is real–these profits were earned by us over the past several years and should be recognized.

(3) If we make the inventory change, our stock repurchase program can be continued. The same shareholder who sold us 50,000 shares last year at $100 per share would like to sell another 20,000 shares at the same price. However, to obtain additional bank financing, we must maintain the current ratio at 3:1 or better. It seems prudent to decrease our capitalization if return on assets is unsatisfactory. Also, interest rates are lower (11% prime) and we can save $60,000 after taxes annually once our $3.00 per share dividend is resumed.

These actions would favorably affect our profitability and liquidity ratios as shown in the pro forma income statement and balance sheet data for Year 3 ($ millions):

	Year 1	Year 2	Year 3 Estimate
Net sales	$50.6	$42.3	$29.0
Net income (loss)	$ 2.0	$ (5.7)	$ 0.1
Net profit margin	4.0%	—	0.3%
Dividends	$ 0.7	$ 0.6	$ 0.0
Return on assets	7.2%	—	0.4%
Return on equity	11.3%	—	0.9%
Current assets	$17.6	$14.8	$14.5
Current liabilities	$ 6.6	$ 4.9	$ 4.5
Long-term debt	$ 2.0	$ 6.1	$ 8.1
Shareholders' equity	$17.7	$11.4	$11.5
Shares outstanding (000s)	226.8	170.5	150.5
Per common share			
Book value	$78.05	$66.70	$76.41
Market price range	$42–34	$65–45	$62–55*

* *Year to date.*

Required:

Assume you are Robert Kinkaid, the financial vice president. Appraise the president's rationale for each of the proposals. You should place special emphasis on how each accounting or business decision affects earnings quality. Support your response with ratio analysis.

(CFA Adapted)

CASE 11–3

Accounting-Based Equity Valuation

After careful financial statement analysis, we obtain these predictions for Colin Technology:

Year	Net Income	Beginning Book Value
1	$1,034	$5,308
2	1,130	5,292
3	1,218	5,834
4	1,256	6,338
5	$1,278	$6,728
6	1,404	7,266
7	1,546	7,856

Colin Technology's cost of equity capital is estimated at 13 percent.

Required:

CHECK
(a) $7,205
(d) $8,644

a. Abnormal earnings are expected to be $0 per year after Year 7. Use the accounting-based equity valuation model to estimate Colin's value at the beginning of Year 1.

b. Determine Colin's PB ratio using the results in (*a*). Colin's actual market-based PB ratio is 1.95. What do you conclude from this PB comparison?

c. Determine Colin's PE ratio using the results in (*a*). Colin's actual market-based PE ratio is 10. What do you conclude from this PE comparison?

d. If we expect Colin's sales and profit margin to remain unchanged after Year 7 with a stable book value of $8,506, use the accounting-based equity valuation model to estimate Colin's value at the beginning of Year 1.

CASE 11–4

IT Professional Service Company Valuations–Revenue Multiples

IT service companies develop Web storefronts that are integrated with back-end implementation systems. Only a small number of companies offer such extensive e-business integration. The industry continues to grow because of customer demand. Unlike traditional valuation, companies in the IT services sector are valued based on revenue multiples. Following are two tables that summarize comparable valuation multiples and operating metrics as of November 22, 2005–a leading Wall Street investment bank, using its own estimates and company data, compiled these tables.

Valuation Multiples

Company	Price at 11/22/05	Shares (millions)	Market Value	REVENUE ESTIMATES 2005	2006	Growth	Latest Quarter Revenue	Growth	REVENUE MULTIPLE 2005	2006
Breakaway Solutions	$ 62.63	23.9	$1,497	25	43	72%	7	38%	59.9	34.8
Rare Medium	31.25	78.0	2,438	50	100	100	5	100	48.8	24.4
Scient	129.38	38.9	5,033	95	222	134	31	88	53.0	22.7
Viant	87.00	26.0	2,262	59	110	86	19	71	38.3	20.6
Proxicom	73.50	29.2	2,146	79	122	54	24	45	27.2	17.6
US Interactive	41.25	22.1	912	34	55	62	10	29	26.8	16.6
Razorfish	73.50	46.5	3,420	148	230	55	41	20	23.1	14.9
AppNet	48.63	31.3	1,522	109	150	38	30	20	14.0	10.1
iXL Enterprises	37.00	64.5	2,388	200	370	85	64	39	11.9	6.5
Modem Media	54.00	11.7	632	71	102	44	21	32	8.9	6.2
Luminant Worldwide	38.38	23.7	909	94	149	58	25	—	9.6	6.1
USWeb/CKS	42.50	89.1	3,787	506	925	83	138	22	7.5	4.1
Selected averages	—	—	—	—	—	73%	—	46%	27.4	15.4
Selected medians	—	—	—	—	—	67%	—	38%	25.0	15.7

Operating Metrics

Company	Gross Margin	Revenue/ Headcount	Billable Headcount	Billing Rates	Annual Turnover	Average Utilization
Breakaway Solutions	52.4%	$214,000	140	$138	20%	73%
Rare Medium	51.0	188,000	327	200	—	70
Scient	53.8	303,000	484	—	12	71
Viant	55.0	324,000	254	—	28	67
Proxicom	48.8	214,000	492	149	17	79
US Interactive	44.2	187,000	212	160	24	68
Razorfish	57.8	197,000	868	153	18	62
AppNet	45.1	175,000	715	115	16	73
iXL Enterprises	44.0	217,000	1,260	152	30	73
Modem Media	44.7	209,000	455	132	8	78
Luminant Worldwide	—	180,000	—	—	24	73
USWeb/CKS	40.0	223,000	3,190	155	21	69
Selected averages	48.8%	$219,283	—	$150	20%	71%
Selected medians	48.8%	$211,500	—	$152	20%	72%

Required:

a. Considering that the IT services sector is still in its infancy, explain why analysts employ a revenue multiple model when valuing these companies. How do the "nonfinancial" operating metrics supplement this model?

b. Can you explain why the distribution of revenue multiples appears to have such a wide variance? Notice that billing rates do not appear to be as varied.

c. Most operating metrics are based on headcount. This can be a problem for an industry enjoying such rapid growth. Can you explain how this can be a problem? (*Hint:* Average utilization is the percentage of the 2,080 normal work year that is billed to clients beginning on the day that the employee is hired.)

d. Explain why the revenue multiples for year 2006 are all lower than the comparable revenue multiples for 2005.

e. With such rapid industry expansion comes consolidation through business combinations. Shortly after the above tables were compiled, Razorfish completed a merger with International Integration (I-Cube), another company in the IT services sector. Razorfish offered I-Cube shareholders 0.875 share of Razorfish for each one I-Cube share. The deal was valued at $24.72 per share, nearly 18% above what I-Cube was trading for prior to the announcement. At the time of the acquisition announcement, I-Cube was trading at a price-to-revenue multiple of seven. What is your assessment of the price that Razorfish paid to acquire I-Cube?