PacificCPE

COURSE
21806A

Forecasting Financial Statements and Equity Analysis

Building a reliable financial forecast requires more than plugging numbers into a spreadsheet. This course walks you through the process of projecting financial statements in a disciplined, structured way—then connects that work to equity analysis, exploring how value is assessed in practice. You'll learn how analysts evaluate companies and what drives equity value judgments. Whether you advise business owners, work in valuation, or support investment decisions, these skills add real depth to your financial analysis toolkit.

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Assignment

- Study the full course materials included here.
- Complete the review questions after each chapter.
- Answer 10 final exam questions.
- Final exam is scored immediately, 70% or better passes.
- Certificate of completion is available in your account.
- Failed exams can be retaken free of charge.

Course Objectives

- Identify the steps in the financial forecasting process.
- Recognize the simplified version of the valuation formula.

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Chapter 1: FORECASTING FINANCIAL STATEMENTS

Chapter Objective

After completing this chapter, you should be able to:

- Identify the steps in the financial forecasting process.

Analysis of a company's current financial statements, as described in Chapter 2 of course 21801B of course 21801B through Chapter 2 of course 21801B of course 21802B, is enlightening, but not as enlightening as the analysis of its **future** financial statements. After all, it is future earnings and dividends that determine the value of a company's stock (see Chapter 2) and the relative likelihood of future timely payments of debt service that determines credit quality (see Chapter 2 of course 21806B). To be sure, investors rely to some extent on the past as an indication of the future. Because already-reported financials are available to everyone, however, studying them is unlikely to provide any significant advantage over competing investors. To capture fundamental value that is not already reflected in securities prices, the analyst must act on the earnings and credit quality measures that will appear on future statements.

Naturally, the analyst cannot know with certainty what a company's future financial statements will look like. Neither are financial projections mere guesswork, however. The process is an extension of historical patterns and relationships, based on assumptions about future economic conditions, market behavior, and managerial actions.

Financial projections will correspond to actual future results only to the extent that the assumptions prove accurate. Analysts should therefore energetically gather information beyond the statements themselves. They must constantly seek to improve the quality of their assumptions by expanding their contacts among customers, suppliers, and competitors of the companies they analyze.

A TYPICAL ONE-YEAR PROJECTION

The following one-year projection works through the effects of the analyst's assumptions on all three basic financial statements. There is probably no better way than following the numbers in this manner to appreciate the interrelatedness of the income statement, the cash flow statement, and the balance sheet.

Exhibit 12.1 displays the current financial statements of a fictitious company, Colossal Chemical Corporation. The historical statements constitute a starting point for the projection by affirming the reasonableness of assumptions about future financial performance. We will assume throughout the

commentary on the Colossal Chemical projection that the analyst has studied the company's results over not only the preceding year but also over the past several years.

Projected Income Statement

The financial projection begins with an earnings forecast (Exhibit 12.2). Two key figures from the projected income statement, net income and depreciation, will later be incorporated into a projected statement of cash flows. The cash flow statement, in turn, will supply data for constructing a projected balance sheet. At each succeeding stage, the analyst will have to make additional assumptions. The logical flow, however, begins with a forecast of earnings, which will significantly shape the appearance of all three statements.

Immediately following is a discussion of the assumptions underlying each line in the income statement, presented in order from top (sales) to bottom (net income).

Sales The projected $9,617 million for 2021 represents an assumed rise of 4 percent over the actual figure for 2020 shown in Exhibit 12.1. Of this increase, higher shipments and higher prices will each account for 2 percent.

To arrive at the projected 2021 sales, the analyst builds a forecast from the ground up, using the historical segment data shown in Exhibit 12.3. Sales projections for the company's business – basic chemicals, plastics, and industrial chemicals – can be developed with the help of such sources as trade publications, trade associations, and firms that sell econometric forecasting models. Certain assumptions about economic growth (increase in gross domestic product) in the coming year underlie all such forecasts. The analyst must be careful to ascertain the *GDP* forecaster's underlying assumptions and judge whether they seem realistic.

If the analyst is expected to produce an earnings projection that is consistent with an in-house economic forecast, then it will be critical to establish a historical relationship between key indicators and the shipments of the company's various business segments. For example, a particular segment's shipments may have historically grown at 1.5 times the rate of industrial production or have fluctuated in essentially direct proportion to housing starts. Similarly, price increases should be linked to the expected inflation level. Depending on the product, this will be represented by either the Consumer Price Index or the Producer Price Index.

EXHIBIT 12.1 FINANCIAL STATEMENTS

Financial Statements of Colossal Chemical Corporation Year Ended December 31, 2020 ($000,000 omitted)

Income statement		Statement of cash flows	
Sales	$ 9,247		
Cost of goods sold	6,380	**Cash flows from operating activities**	
Selling, general, and administrative expense	1,387	Net income	$ 295
Depreciation	684	Depreciation	684
Research and development	231	Deferred income taxes	36
Total costs and expenses	8,683	Working capital changes, excluding cash marketable securities	(107)
		Total operating cash flows	908
Operating income	564		
Interest expense	188		
Interest (income)	3	**Cash flows from investing activities**	
Earnings before income taxes	373	Additions to property, plant, and equipment	719
Provision for income taxes	78	**Total investing cash flows**	719
Net income	$ 295		
		Cash flows from financing activities	
EBITDA	1,246	Increase (decrease) in notes payable	0
		Increase (decrease) in long-term debt	(95)
EBITDA/interest expense	6.63	Dividends	(98)
		Total cash flows from financing activities	(193)
Long-term debt/EBITDA	3.8		
Total debt/EBITDA	4.1	**Net change in cash**	$ (4)

Balance sheet

Cash and marketable securities	203	Notes payable	171
Accounts receivable	1,017	Accounts payable	925
Inventories	1,664	Current portion of long-term debt	225
Total current assets	2,885	Total current liabilities	1,321
Property, plant, and equipment	9,133	Long-term debt	4,680
		Deferred income taxes	599
Total assets	$12,018	Shareholders' equity	5,418

EXHIBIT 12.2 EARNINGS FORECAST

Colossal Chemical Corporation Projected Income Statement ($000,000 omitted)	
	2021
Sales	$9,617
Cost of goods sold	6,636
Selling, general, and administrative expense	1,442
Depreciation and amortization	731
Research and development	240
Total costs and expenses	9,049
Operating income	568
Interest expense	178
Interest income	2
Earnings before income taxes	389
Provision for income taxes	82
Net income	307
EBITDA	1,298

EXHIBIT 12.3 COLOSSAL CHEMICAL CORPORATION RESULTS BY INDUSTRY SEGMENT ($000,000 OMITTED)

	2016	2017	2018	2019	2020
Sales					
Basic chemicals	$3,650	$3,748	$4,078	$4,277	$4,528
Plastics	1,732	1,718	1,853	1,960	2,011
Industrial chemicals	2,141	2,206	2,466	2,536	2,708
Total	**$7,524**	**$7,673**	**$8,397**	**$8,773**	**$9,247**
Operating income					
Basic chemicals	$209	$184	$231	$291	$333
Plastics	92	145	89	57	85
Industrial chemicals	99	110	99	124	145
Total	**$401**	**$440**	**$419**	**$472**	**$564**
Depreciation					
Basic chemicals	$264	$264	$287	$293	$316
Plastics	109	115	126	144	155
Industrial chemicals	178	178	201	207	213
Total	**$552**	**$558**	**$615**	**$644**	**$684**
Identifiable assets					
Basic chemicals	$4,618	$4,632	$5,077	$5,290	$5,570
Plastics	2,117	2,151	2,412	2,528	2,672
Industrial chemicals	3,124	3,131	3,494	3,631	3,775
Total	**$9,860**	**$9,915**	**$10,983**	**$11,449**	**$12,018**

Basic industries such as chemicals, paper, and capital goods tend to lend themselves best to the macroeconomic-based approach described here. In rapidly growing technology sectors and hits-driven businesses such as motion pictures and toys, the connection between sales and the general economic trend will tend to be looser. Forecasting in such circumstances depends largely on developing contacts within the industry being studied. The objective is to make intelligent guesses about the probable success of a company's new products.

A history of sales by geographic area (Exhibit 12.4) provides another input into the sales projection. An analyst can modify the figures derived from industry segment forecasts to reflect expectations of unusually strong or unusually weak economic performance in a particular region of the globe. Likewise, a company may be experiencing an unusual problem in a certain region, such as a dispute with a foreign government. The geographic sales breakdown can furnish some insight into the magnitude of the expected impact of such occurrences.

Cost of Goods Sold The $6,636 million cost-of-goods-sold figure in Exhibit 12.2 represents 69 percent of projected sales. That corresponds to a gross margin of 31 percent, unchanged from the previous year. The projected gross margin for a company in turn reflects expectations about changes in costs of labor and material. Also influencing the gross margin forecast is the expected intensity of industry competition, which affects a company's ability to pass cost increases on to customers or to retain cost decreases.

In a capital-intensive business such as basic chemicals, the projected capacity utilization percentage (for both the company and the industry) is a key variable. At full capacity, fixed costs are spread out over the largest possible volume, so unit costs are minimized. Furthermore, if demand exceeds capacity so that all producers are running flat out, none will have an incentive to increase volume by cutting prices. When such conditions prevail, cost increases will be fully (or more than fully) passed on, and gross margins will widen. That will be the result, at least, until new industry capacity is built, bringing supply and demand back into balance. Conversely, if demand were expected to fall rather than rise in 2021, leading to a decline in capacity utilization, Exhibit 12.2's projected gross margin would probably be lower than in 2020, rather than higher. (For further discussion of the interaction of fixed and variable costs, see Chapter 1 of course 21802B.)

As with sales, the analyst can project cost of goods sold from the bottom up, segment by segment. Since the segment information in Exhibit 12.3 shows only operating income, and not gross margin, the analyst must add segment depreciation to operating income, then make assumptions about the allocation of selling, general, and administrative (SG&A) expense and research and development (R&D) expense by segment. For example, operating income by segment for 2020 works out as shown in Exhibit 12.5, if SG&A and R&D expenses are allocated in proportion to segment sales.