

# Introduction

## 1.1 GETTING STARTED

On a typical business day, well over 2 billion shares are traded on major U.S. stock markets. The combined market value of these trades exceeds 50 billion dollars. Most of the shares traded represent equity interests in the business activities of corporations. The prices at which these trades take place determine both the fortunes of the traders and the allocation of much of the economy's scarce capital resources. Our objective in this book is to make you an expert in determining the fair value of these equity interests. If we are successful, not only will you be in a good position to make a few dollars through trading, you will also be making the whole economy more efficient.

This book and the associated eVal software will provide you with a systematic framework for pricing equity securities. There are many books written on the topic. Our approach is unique in that we seek the best possible marriage between theory and practice. By providing you a framework that is both theoretically rigorous and readily amenable to practical implementation, we believe you will better learn both. And we are certain you will have more fun doing so. The eVal software is a flexible tool for the analysis and valuation of equity securities. It will give you hands-on experience building financial models and estimating the value of equity securities. The use of spreadsheet-based financial modeling software is found everywhere in practice. Such software can be a dangerous weapon in the hands of the inexperienced user, however. Our aim is to provide you with a firm grounding in valuation theory and a good understanding of the techniques that have evolved to facilitate practical application of the theory. The end result is that your financial models should work like well-oiled machines.

Valuing equity securities necessarily involves uncertainty. We intend to give you a solid framework for thinking about the uncertainty as well as plenty of good advice about what constitutes a reasonable forecast in an uncertain world. We also point out many sources of data that are available to aid you in forming your forecast. We are living in the middle of an information explosion. The Internet puts an ever-increasing array of financial data at our fingertips. In the spirit of practical advice, we will suggest places to find the best, juiciest tidbits of information and how to incorporate them into your analysis. All this work will eliminate some of the uncertainty in equity valuation, but plenty will still remain. No one knows exactly how the future will unfold; uncertainty is the nature of the beast.

This introductory chapter outlines our equity analysis and valuation framework. We begin with an overview of the nature of business activities. Next, we provide a brief discussion of equity valuation theory. We then explain the critical importance of the financial statements in the practical application of equity valuation theory. Finally, we outline the steps in our systematic approach to valuation that will take you through the remainder of the book and show you how eVal guides you through these steps. Throughout the book we use Kohl's as a working example. In case you haven't heard of them, Kohl's is a rapidly growing department store chain featuring clothing items and housewares. This chapter provides a roadmap for the entire equity valuation process, and we will refer back to this roadmap frequently as we walk you through each of the intermediate steps.

## 1.2 OVERVIEW OF BUSINESS ACTIVITIES

Equity securities represent ownership claims in the business activities of profit-seeking entities. The valuation of an equity security must therefore begin with a thorough analysis of the underlying business activities. Business activities can be divided into three broad categories to facilitate analysis: operating activities, investing activities and financing activities. Each category is described below.

### Operating Activities

Businesses typically generate profit for their owners by providing customers with goods and services in return for cash or other consideration. As long as the consideration received exceeds the costs incurred in providing the goods and services, profit is generated. *Operating activities* are activities that are directly related to the provision of goods and services to customers. For example, in a restaurant business, the purchase, preparation and serving of food to customers are all examples of operating activities. Washing the dishes and cleaning the restrooms are also operating activities, since these are part of the package of services that a restaurant provides to its customers. The operating activities are clearly the bread and butter of any business and the primary means through which the owners of the business hope to profit from their investment.

### Investing Activities

Nearly all businesses must make investments in productive capacity before they can begin to provide goods and services to their customers. For example, a restaurant business requires a building, furniture, and cooking equipment. Purchases and sales of resources that provide productive capacity are referred to as *investing activities*. We define investing activities with respect to the nature of the goods and services that the firm is in the business of providing. If the firm is in the business of selling cooking equipment, then the purchase of an oven is an operating activity. However, if the firm is in the business of selling restaurant meals, then

the purchase of an oven is an investing activity, because it provides the productive capacity required to produce meals.

Why bother to distinguish between operating activities and investing activities? Investing activities involve resource commitments that are expected to provide benefits over long periods of time. Investments take place in anticipation of future operating activities and the profits from operating activities must ultimately provide a competitive return on the investment for the investment to have been worthwhile. Because the resources acquired in investing activities provide benefits for long periods of time, it can take a long time to find out how profitable these investments have been. In addition, the investing activities that a company makes today may be used to support operating activities of a very different scale and scope in the future. It is therefore useful to separate our analysis of the performance of a business's current operating activities from its investments in productive capacity to support future operating activities. In the long run, however, operating and investing activities are closely linked. Operating activities are made possible by a specific set of past investing activities, and the profits from operating activities should be evaluated in relation to the cost of the investing activities that made them possible.

### **Financing Activities**

Somebody needs to pay for all of this stuff. In order to acquire the resources necessary to engage in operating and investing activities, businesses require financing. The owners of the business provide the initial source of financing in the hope that the business will provide them with a competitive return on their capital. In a corporation, these owners are the holders of the common equity securities. If a business is financed solely by its equity holders, and immediately pays the entire net cash flow generated by its operating and investing activities back to its equity holders, its *financing activities* consist of these simple transactions between the business and its equity holders. In practice, however, there are many other sources of financing. A business can issue debt, preferred stock, and warrants, to name just a few. In addition, a business need not immediately pay out all the cash generated by its operating and investing activities. Instead, the business may choose to invest this cash in financial assets, such as treasury bonds or financial securities issued by other businesses. Financing activities incorporate all such transactions.

Financing activities are distinct from operating and investing activities. A firm can finance a given set of operating and investing activities many different ways without affecting the nature of the operating and investing activities. This does not mean that the firm cannot add value through financing activities. Financing activities create the opportunity for the owners of the business to leverage the return from their operating and investing activities, to minimize taxes and transactions costs, and to take advantage of inefficiencies in capital markets. Investment bankers specialize in determining the amount and type of capital that takes best

advantage of these financing opportunities, and the large fees charged by investment bankers speak to the potential value that can be created.

## 1.3 OVERVIEW OF EQUITY VALUATION THEORY

The basic theory of equity valuation is straightforward and well established. Equity securities are financial instruments, and as such, their value is equal to net present value of the future cash distributions that they are expected to generate. These cash distributions have traditionally taken the form of cash dividend payments, and so our first pass at the value of equity is based on the net present value of the expected future dividend payments, as shown in the following equation:

$$\text{Value}_0 = \sum_{t=1}^{\infty} \frac{\text{Cash Dividend}_t}{(1+r)^t}$$

where

$\text{Value}_0$  = value of equity at time 0

$\text{Cash Dividend}_t$  = expected amount of cash dividends to be paid in period t

r = discount rate (cost of capital)

This valuation model is widely known as the dividend-discounting model. However, dividends are not the only way that cash can be distributed to equity holders. Stock repurchases have become increasingly popular. While dividends represent routine cash payments made on a pro rata basis to all equity holders, stock repurchases involve the business buying back stock from specific equity holders. Nevertheless, both transactions involve distributing cash from the business to its equity holders. Another consideration in the valuation of equity securities is that companies often seek new cash infusions through the issuance of additional equity securities. These equity issuances can be thought of as negative cash distributions that should be netted against the positive cash distributions associated with dividends and stock repurchases in order to determine the net cash distributions to equity. So the dividend-discounting model is more precisely expressed as:

$$\text{Value}_0 = \sum_{t=1}^{\infty} \frac{\text{Cash Dividend}_t + \text{Stock Repurchases}_t - \text{Equity Issuances}_t}{(1+r)^t}$$

where

$\text{Cash Dividend}_t$  = expected amount of cash dividends to be paid in period t

$\text{Stock Repurchases}_t$  = expected amount of cash to be paid out via stock repurchases in period t

$\text{Equity Issuances}_t$  = expected amount of cash to be raised via equity issuances in period t

What determines the magnitude of the net cash distributions made by a business to its equity holders? Since equity holders are the owners of the business, they

have the residual claim on the net cash flows available from a business's operating, investing and non-equity financing activities. In practice cash distributions to equity holders are made at the discretion of management, based on a wide variety of factors. The major factors are:

- How much cash did the business's operating activities generate?
- How much cash was used for investing activities in order to maintain or expand the scale and scope of the business's operating activities?
- How much cash is required to make scheduled payments to providers of non-equity capital, such as interest and principal payments on loans?
- How much cash should be raised (used) issuing (retiring) non-equity capital, such as debt and preferred stock?
- How much cash should be retained in the business in the form of financial assets to provide for future cash flow needs?

In the long run, the cash flows generated by a business's operating activities are the key driver of its cash distributions. The other factors listed above, however, can make the amount and timing of a business's operating cash flows very different from the amount and timing of its cash distributions. For example, profitable firms with growth opportunities will often have negative net cash distributions as they issue additional equity to invest in expanding their operating activities, all in the hope of making even greater cash distributions in the future.

In summary, while the basic theory of equity valuation is quite straightforward, the devil is in forecasting the future net cash distributions. There are many different valuation models floating around in academia and in practice. The key difference between these models is in the variables that are substituted as proxies for future net cash distributions. For example, practitioners are fond of substituting variables such as earnings, EBITDA, and NOPAT for cash distributions. These substitutions can be justified if done in a way that maintains consistency with the underlying dividend-discounting model. All too often, however, practitioners throw caution to the wind and come up with valuation models that require heroic assumptions to be consistent with the dividend-discounting model.

## 1.4 THE ROLE OF FINANCIAL STATEMENTS

The financial statements are the primary devices for bridging the gap between theory and practice in equity valuation. Although traditional valuation texts often criticize financial statements and their underlying accounting principles on the basis that they do an imperfect job of measuring value, these criticisms represent a basic misunderstanding of the role of financial statements in equity valuation. Financial statements are not designed to estimate equity value directly, and accounting book values rarely match market values. Instead, the role of the financial statements is to provide a detailed description of the financial implications of a firm's historical business activities. In other words, the financial statements summarize the historical operating, investing, and financing activities of a firm, and

show how these activities affect the past, present, and expected future cash flows. The purpose of the historical financial statements is not to directly forecast the cash flow implications of future operating, investing, and financing activities.

Given that the historical financial statements do not directly forecast how future business activities will affect future cash flows, one might ask, What is their role in valuation? Their role is twofold:

- They provide the language for translating forecasts of future business activities into forecasts of cash flows.
- By describing the cash flow implications of past business activities, they provide a good starting point for determining the cash flow implications of future business activities.

The first role of the financial statements in valuation is to provide a language for describing how a firm's future business activities will affect its future cash flows. We cannot forecast cash flows in a vacuum. The role of the financial statements is to identify and categorize the activities of a firm that have cash flow implications. A set of financial statements tells us how the various operating, investing, and financing activities of a firm combine to produce cash flows. In order to forecast a firm's future cash flows, we first need a set of financial statements that capture the various intended operating, investing, and financing activities of the firm. We can then begin the process of forecasting the cash flow implications of each of these activities. For instance, by forecasting Sales and the change in Accounts Receivable, we can compute what the cash collections from customers will be. By constructing a complete set of forecasted financial statements we can systematically derive the cash flow forecasts.

The second role of the financial statements is to provide historical data on the cash flow implications of a firm's past business activities that may prove useful in forecasting its future cash flows. Many firms engage in similar business activities for long periods of time. Over time, these business activities are subject to changes, such as demand changes, supply changes, and technological changes. Nevertheless, these changes are rarely so drastic as to make the results of past business activities irrelevant to the prediction of future results. Thus, the most common forecasting procedure is to start with the past financial statements and then modify those statements based on changes that are anticipated to occur in the future. The effectiveness of this procedure varies widely. For firms in mature industries with established products and stable customer bases, past results can be a very good predictor of future results, and the past financial statements will be very relevant in estimating firm value. In contrast, for start-up firms in emerging industries with evolving products and growing customer bases, past results can be a very poor predictor of future results. Past results will also be a poor predictor of future results for firms making significant acquisitions or significant changes to their business strategies. But we have to start somewhere, and the past is usually the best place to start when thinking about the future.

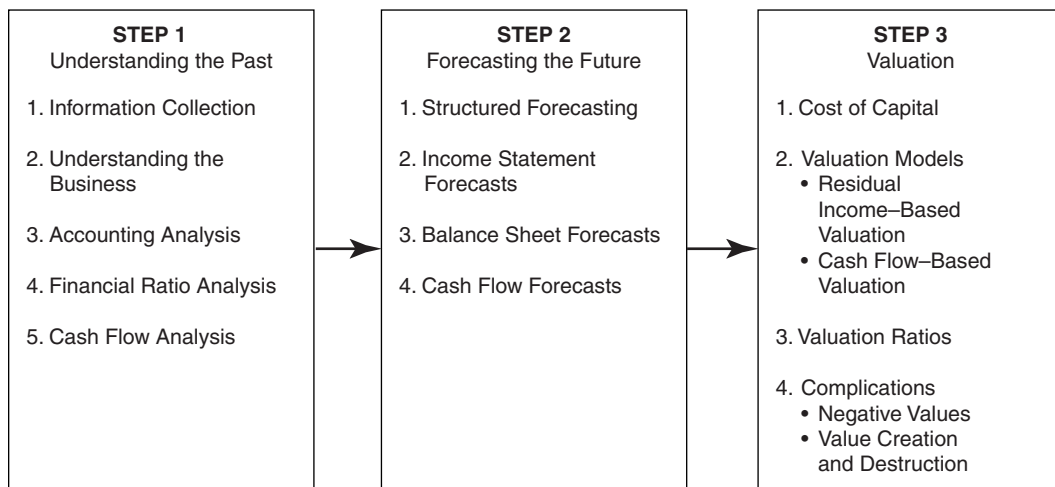
## 1.5 THREE STEPS TO EQUITY VALUATION

The discussion thus far indicates that the equity valuation process can be broken down into three distinct steps, which are illustrated in Figure 1.1. *Understanding the Past* is the first step. This analysis must go beyond simply looking at the firm's past financial results. You need to understand the firm's results in the context of the industry and economy in which the firm operates, and you need to look for clues about planned changes in the future business activities. Second, we need to use our analysis of the past in *Forecasting the Future*. This step is structured around forecasting the future financial statements, from which we will derive our estimates of future net cash distributions. The third step comprises *Valuation*. In this step, we convert our estimates of the future net cash distributions into a single estimate of intrinsic value. The eVal software provided with this book will guide you through each of these steps. In this section, we give an overview of the three steps and introduce you to eVal.

### Understanding the Past

The first step in the equity valuation process is to examine all relevant information about the business. This step begins with the systematic collection of pertinent information, which we refer to in Figure 1.1 as *information collection*. If the equity security is publicly traded in the United States, then the usual starting point for information collection is the firm's financial filings with the Securities and Exchange Commission (SEC). However, there are a myriad of other information sources that should be investigated, ranging from press releases issued by the firm to macroeconomic data. Today, much of this information is available via the click

**FIGURE 1.1** Framework for Equity Valuation



of a mouse. We provide a more detailed discussion of the most important information sources in Chapter 2.

Once the pertinent information has been gathered, we begin the process of analyzing it. The first task is *understanding the business*. This process is primarily qualitative and is aimed at developing a detailed understanding of the business activities in which the firm is engaged. What does the business make, how does it make it, and whom does it sell it to? Who are the main competitors, what are the industry characteristics, and how does this industry fit into the general economy? We also want to identify the elements of a firm's business strategy that are expected to make it more successful than its competitors. Just as investors strive to find securities that will provide abnormally high investment returns, managers strive to find real investment opportunities that will provide abnormally high profits. Competition among managers limits the availability of such investment opportunities. Your business analysis should leave you with a clear understanding of the firm's business plan, and some opinions about whether this plan represents a viable strategy for generating abnormally high profits. We cover the basics of business analysis in Chapter 3.

Armed with a thorough understanding of the business, we can start to scrutinize the historical financial statements. *Accounting analysis* is the first task (again see Figure 1.1). The objective here is to develop a thorough understanding of how the economic consequences of the firm's business activities are reflected in the financial statements. The financial statements report on the periodic financial position and operating performance of a business. Over long periods of time (many years), the cash consequences of a firm's operating and investing activities become known with perfect certainty, and so the economic consequences are easy to measure. But over short periods of time (a quarter or a year), the cash consequences can have little relation to the economic consequences. The difficulty arises because firms' operating and investing cycles often span many years. Firms can hold or produce inventory for long periods, they can advance credit to customers for long periods, they invest in assets that will generate benefits over long periods, and they reward employees with retirement benefits that will be paid over long periods. As a result, the net cash flows to a firm over short periods provide a very noisy signal of the long-run cash flow consequences of the firm's activities.

This is where financial accounting comes to our aid. The primary objective of accrual accounting is to provide a better indication of the long-run cash consequences of a firm's business activities. For instance, investing in a productive asset is not merely a cash outflow; the accrual accounting system records the store of future benefits that this investment represents by recording an asset on the balance sheet. But while the accrual accounting process undoubtedly creates useful information, it is also fraught with distortions. The distortions are sometimes the benign errors that come from estimating uncertain events, and they are sometimes intentionally created by management manipulation of the reported results. Accounting analysis is concerned with understanding a firm's accrual accounting policies and their implications for the interpretation of the financial statements. A solid accounting analysis will help you understand the key strengths and

weaknesses of a firm's financial statements, help you identify where management may have attempted to mislead you, and help you draw informed conclusions about the economic consequences of the firm's past business activities. Accounting analysis is the subject of Chapter 4.

Once you have a solid understanding of the firm's financial statements, you are set to use the financial statements to evaluate the financial performance of the firm. Chapter 5 develops a systematic *financial ratio analysis* framework to facilitate this task. This analysis shows us how the components of a firm's financial statements interact to produce overall financial performance. What margin does the firm earn on its sales, how efficiently does it manage its assets to produce those sales, and how much leverage does it apply to finance the acquisition of its assets? The analysis enables us to quickly identify the key drivers of financial performance and spot any irregularities. When combined with accounting analysis, financial ratio analysis provides the basis for evaluating the economic consequences of a firm's past business activities and the success of its business strategy.

Ratio analysis focuses almost exclusively on a firm's accrual accounting statements—the income statement and the balance sheet. In order to remain solvent, however, to fund new business opportunities, and ultimately to make cash flow distributions, a firm must also carefully manage its cash. A firm's cash flows are described in the statement of cash flows and the analysis of this information is the topic of Chapter 6. *Cash flow analysis* is concerned with understanding the articulation of the cash flows between a firm's operating, investing, and financing activities. A sound business strategy should anticipate the cash flow requirements associated with operating and investing activities and provide for their timely and efficient financing. Also, firm value is ultimately dependent on the distribution of cash flows to equity holders. Unfortunately, some firms choose to invest surplus cash flows in wasteful ways rather than to make timely distributions to equity holders. These and other related issues are discussed in more detail in Chapter 6.

## Forecasting the Future

Once you understand the past, you are ready to forecast the future. The tasks involved in this step are summarized in the second box of Figure 1.1. Our goal in this step is to forecast the future financial statements. Recall from our earlier discussion that the financial statements represent the language for converting forecasts of future business activities into forecasts of future cash flows. In Chapter 7 we introduce *structured forecasting*—the systematic way that we go about developing forecasts. Rather than attempt to forecast each line item of the financial statements in isolation, we frame the forecasting problem using the same types of ratios that you will study in Chapter 5. You express your assumptions about the firm's operating, investing, and financing activities using these ratios, and then derive the implied values for the underlying financial statement line items.

In Chapter 7, we also discuss earnings-per-share (EPS) forecasts. EPS forecasts are probably the most widely followed financial metrics on Wall Street. On the surface this computation might seem simple—take the forecasted earnings and divide by the number of shares. But what number of shares should you use? Our

forecast of the future number of shares outstanding depends on both our forecast of the amount of new equity that is expected to be issued/repurchased between now and the forecast date and the stock prices at which the issuances/repurchases are expected to occur. While our pro forma financial statements will provide us with dollar forecasts of issuances and repurchases, they do not provide us with forecasts of future issuance and repurchase prices. Thus, per-share analysis turns out to be quite a complex topic involving some thorny issues.

The eVal software requires a number of specific forecasting assumptions. In Chapter 8 we give you advice concerning *forecasting details*. The process begins with the very first line on the income statement, the Sales forecast. Most firms have business models that center around providing goods and services to customers in return for sales revenue. The sales forecast is the single most important forecast; it represents the key driver of most other business activities. For example, the remaining lines in the income statement capture the costs that are incurred in the firm's operating activities, and many of these costs depend on the level of business activity, as described by the sales forecast. But the costs also depend on the efficiency with which the business is run and the prices at which the inputs for the business (such as materials and labor) are purchased, so forecasting these costs is not as simple as taking a fixed percentage of sales.

Income statement forecasts concern operating activities. Balance sheet forecasts concern the impact of the operating, investing, and financing activities on the financial resources and obligations of a firm. The forecasting of the balance sheet can be divided into two distinct tasks. First, we must forecast the resources and obligations necessary to sustain the operating activities that we forecast on our income statement. Operating activities typically require investments in working capital (for instance, inventory) and long-term capital (property, plant, and equipment) and can also result in obligations (such as accounts payable and pension benefits for employees). The forecasted amount of operating resources and obligations depends on both the forecasted level of operating activity and the efficiency with which the firm is forecasted to conduct its operations. The second distinct task is to forecast the resources and obligations associated with the firm's financing activities. Most firms hold some financial resources (cash and marketable securities) and use some non-equity financing (debt and preferred stock). The forecasting of the individual financial resources and obligations on the balance sheet provides a systematic process for determining the amount and mix of financing that is used to support the firm's operating and investing activities.

The next task is to create cash flow forecasts. As we discussed earlier, the financial statements provide the language we use to describe the economic consequences of business activities. Ultimately, these economic consequences are represented by cash flows and the statement of cash flows reports these cash consequences. Contained within the cash flow forecasts are implied forecasts of the net cash distributions to equity holders, a key input for equity valuation, so this is an important step. Fortunately, cash flow forecasting is quite straightforward. As you may recall from your accounting classes, we can derive a statement of cash flows from an income statement and the beginning and ending balance sheets. So,

we simply use our income statements and balance sheet forecasts to construct our cash flow forecast, and the eVal software handles this step for us.

The forecasted financial statements are often referred to as “pro forma” financial statements (“pro forma” is Latin for “a matter of form”). The last step is to apply the same ratio analysis and cash flow analysis that we discussed in Chapter 5 to the pro forma financial statements. This final step provides a reality check on the plausibility of our forecasts. For example, we may find that our forecasting assumptions imply a level of profitability for a firm that far exceeds the historical industry average. Such performance may be justified through some unique feature of the firm’s business strategy. If we do not see anything particularly unique, however, we should probably revise the forecasting assumptions to bring profitability back to more reasonable levels. Similarly, our pro forma cash flow analysis may reveal that our forecasting assumptions imply that a firm must raise substantial additional capital. If the firm has no plans to raise new capital, or would have difficulty accessing capital markets on favorable terms, we should revise our forecasting assumptions accordingly.

## Valuation

With your forecasts of the future under your belt, you are ready for step three, *valuation*. The tasks involved in the valuation step are summarized in the third box of Figure 1.1. First you need to decide on the necessary valuation parameters. The most important of these is the *discount rate* or *cost of capital*, which enters the denominator of our equity valuation model. Unfortunately, there is much disagreement concerning the selection of an appropriate discount rate. In Chapter 9, we will discuss some of the most popular techniques for computing the discount rate and provide some general advice on how to handle this issue.

The remaining tasks consist of the equity valuation computations themselves. The good news here is that eVal does all the work for you. eVal provides computations using both a Residual Income Valuation Model (RIM) and a Discounted Free Cash Flow Model (DCF) model. Why do we need two valuations? Actually we don’t, and it turns out that both these valuations will give you exactly the same answer. These are simply two different algebraic formulations of our basic dividend-discounting model. Regardless of the formula used, it is your forecasts of the future financial statements, along with your valuation parameters, that ultimately determine the value of the equity. The only issue here is whether you would like to look at computations based on earnings or cash flows. Making use of both sets of computations, you will be able to effectively communicate your equity valuation work to fans of either model.

A second issue in constructing the valuation models is whether we choose to discount the cash distributions directly to equity holders using the cost of equity capital, or whether we discount cash flows to all providers of capital (common equity plus preferred stock and debt) using a weighted average cost of capital, and then subtract the value of the non-equity capital to derive equity value. Again, eVal does the valuation both ways, both ways give the same answer, and the choice between the two approaches is largely a matter of taste. Chapter 10

provides a detailed explanation of the valuation gymnastics involved in these alternative *valuation models*.

Financial analysts often communicate their beliefs about the value of the firm in terms of *valuation ratios*. Some of these ratios are quite straightforward, such as the market-to-book ratio, defined as the price divided by the book value. Others are much more complex, like the PEG ratio (don't ask). In Chapter 11 we discuss some of these ratios, what they represent, and how they can be used to spot underpriced or overpriced stocks. These ratios are commonly used shortcuts but they are just that; they are no substitute for a full-blown valuation analysis.

The final step in the equity valuation process is to consider some *complications*. If you are lucky, none of these complications will apply to the equity securities you are valuing. However, one or another of these monsters often rears its ugly head. We mention them here briefly only to alert you to their existence; Chapter 12 provides more detailed coverage.

The first complication concerns negative equity values. Stock prices cannot be negative in practice, but models can be constructed in eVal that generate negative equity values. If you find yourself with a negative equity valuation, then you should read Chapter 12. A second and related complication concerns the abandonment option. If you come up with a positive equity valuation, but your sensitivity analysis reveals that negative valuations are also reasonably likely, then you need to consider the abandonment option.

A third complication arises when we introduce the possibility that a firm may create or destroy value through transactions in its own mispriced securities. For example, if a firm's stock is overpriced relative to its intrinsic value, it can create value for its existing equity holders by issuing additional shares of the overpriced stock. Thus, not only do we have to correctly determine the intrinsic value of a firm's operating and investing activities, we also have to forecast how much additional value will be created or destroyed through the firm's financing activities. A final and related complication concerns contingent equity claims. Contingent equity claims provide their holders with the option, but not the obligation, to purchase shares of common stock for a prespecified exercise price. Firms issue contingent claims on their equity for a variety of reasons. For example, firms can raise capital by issuing warrants, firms can reduce the interest rate paid on debt by issuing convertible debt, and firms can compensate employees using employee stock options. Because the holders of contingent claims only have to exercise their claims when it is profitable to do so, the claims themselves will have value as long as there is some probability of a profitable future exercise. These claims can therefore result in equity securities being issued for consideration less than fair value.

## 1.6 THE ROLE OF eVal

We are now at an ideal point to introduce eVal, our Excel-based financial modeling software (see Appendix A for instructions on how to install eVal on your computer). Remember that you **MUST** enable macros for eVal to work. We promise that we haven't programmed anything evil, so click "Enable" when

prompted. Each time you start a new model in eVal you will be greeted by the eVal introductory screen, shown in Figure 1.2. This screen contains some boilerplate legal notices, and after acknowledging them you simply hit the OK button to start using eVal. Clicking the OK button takes you to the User's Guide worksheet, shown in Figure 1.3.

The User's Guide worksheet is eVal's control center, and you will use this worksheet to guide you through the construction of your financial models. Note that this worksheet is organized around the same three steps that we outlined in the equity valuation framework. The worksheet consists of a series of ordered buttons. Clicking a button takes you to another worksheet, where you will either input required valuation data or view financial data prepared by eVal. Each sheet that you are taken to will have a Go To User's Guide button in the top left corner. When you have finished with a sheet, click this button to take you back to the User's Guide worksheet. While we have organized the buttons so as to systematically walk you through the entire equity valuation process, you are free to skip between buttons and worksheets as you wish while you build your model.

Figure 1.4 summarizes the role played by eVal in each of the three steps of our valuation framework. The first box in Figure 1.4 summarizes how eVal assists you in step one, *Understanding the Past*. eVal begins by importing the firm's historical financial data into a standardized spreadsheet format and provides you with a variety of links to company data. Next, eVal performs systematic financial ratio analysis and cash flow analysis on the firm's historical financial statements. These

**FIGURE 1.2** eVal Splash Screen

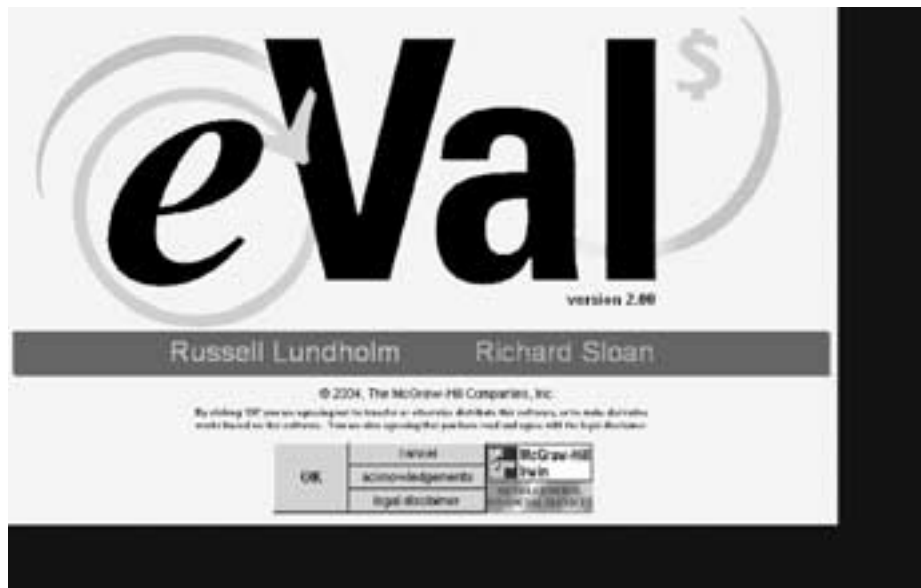
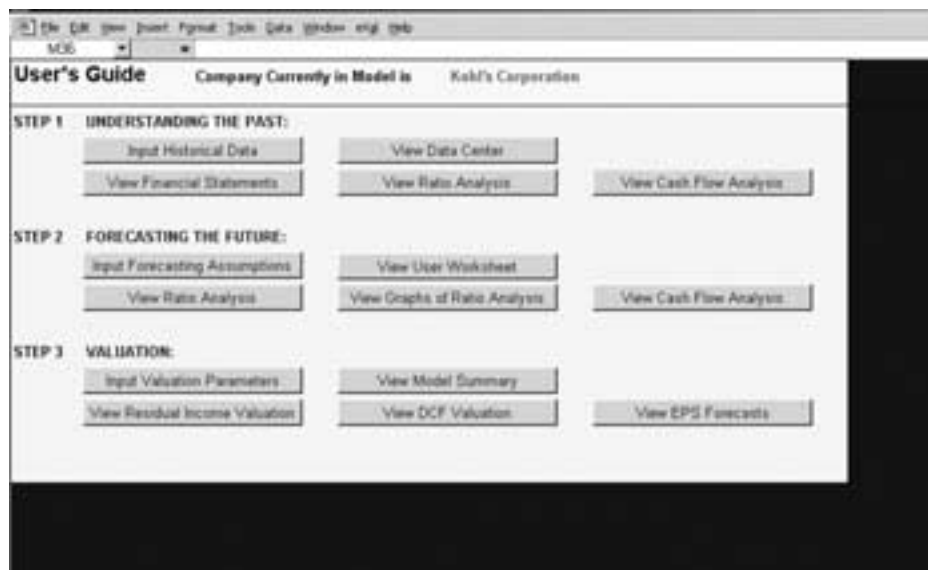


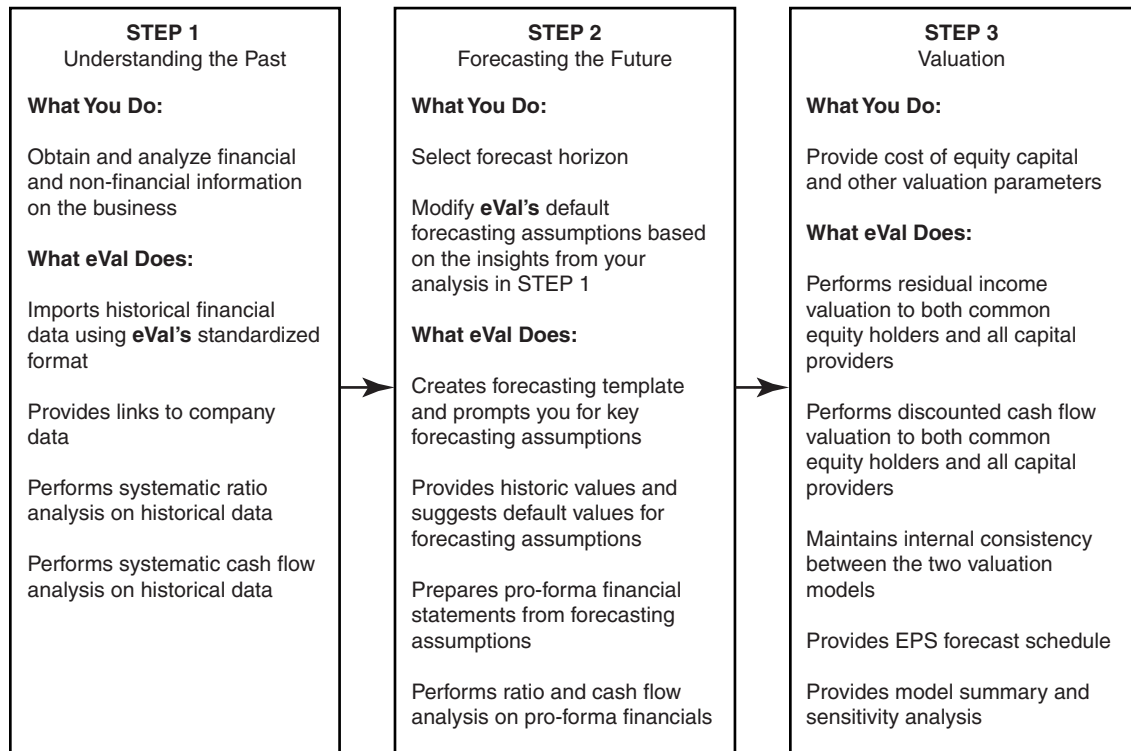
FIGURE 1.3 eVal User's Guide



repetitive and tedious data input and data manipulation tasks are done for you automatically. There is no escaping the inevitable fact that you must perform the vast majority of the work in this first step yourself, however. A thorough understanding of all the relevant information concerning a business can only be achieved through your own detailed information collection and analysis.

The second box in Figure 1.4 summarizes how eVal helps you in step two, *Forecasting the Future*. eVal will initially prompt you for a forecast horizon. It will then generate a forecasting template and prompt you for the individual forecasting assumptions required to build the forecasted financial statements. The structure in eVal is designed to simplify an otherwise daunting task, yet remain sufficiently flexible to hit any desired set of financial results. eVal also provides default forecasting assumptions that are reasonable for the average firm in the average industry in the average year. You should avoid relying too heavily on these defaults. We are not licensed soothsayers; our defaults are simply based on the naïve extrapolation of past data. You should use your detailed information analysis from step one to provide more accurate forecasting assumptions. Once you have updated the assumptions, eVal will prepare the pro forma financial statements implied by these assumptions and will perform a detailed financial ratio analysis and cash flow analysis on the pro forma financial statements.

The third box in Figure 1.4 summarizes how eVal helps you in step three, *Valuation*. You have already done most of the hard work in steps one and two, leaving eVal to do most of the work in step three. eVal begins by presenting detailed valuation calculations using both the residual income (RIM) and discounted free cash flow (DCF) valuation models. You can use the formulas in the valuation

**FIGURE 1.4** The Role of eVal in Application of the Equity Valuation Framework

spreadsheets to trace all of the amounts entering the valuation calculations back to the pro forma financial statements prepared in step two. eVal will also ensure that the valuations obtained using the RIM and DCF models are identical. While this feature is simply a reflection of the consistent application of the dividend-discounting valuation model in both cases, it is important from a practical perspective. One of our strongest motivations for creating eVal was the hundreds of hours that we spent trying to reconcile the inconsistent valuation models of students. eVal also provides a detailed analysis of the earnings-per-share (EPS) implications of your pro forma financial forecasts, which helps you to benchmark your forecasts with those of Wall Street analysts. EPS is the most closely tracked summary measure of firm performance and EPS surprises are a big catalyst for stock price changes. If your EPS forecasts are more accurate than the consensus forecasts of Wall Street analysts, the differences between your forecasts and the consensus should provide the basis for a lucrative investment strategy. Finally, eVal provides a summary of the key inputs in your valuation model and a sensitivity analysis tool that allows you to determine the sensitivity of your valuation estimate to changes in the key assumptions. These features of eVal are particularly useful for sharing the key ingredients of your valuation model with others.

## 1.7 CLOSING COMMENTS

In this chapter, we provided you with an overview of the theory and practice of equity valuation and introduced our framework for equity valuation. We also highlighted the role played by the eVal financial software in helping you to apply this framework more efficiently and to communicate the key ingredients of your analysis more effectively. If you have a reasonable background in accounting and finance, this overview is probably enough to get you up and running with eVal. However, the “garbage-in, garbage out” maxim rules the day. Even software such as eVal cannot protect you from your own bad forecasting assumptions. In the chapters that follow, our main purpose is to provide you with a framework for deriving the best possible forecasting assumptions from the available information. Let’s face it, valuation software like eVal costs just a few dollars. It stands to reason that such a tool by itself cannot give you the edge in the competitive world of Wall Street. So for those of you who want to make it big in the investment world, there are still 11 more chapters and a lifetime of diligent work ahead of you.