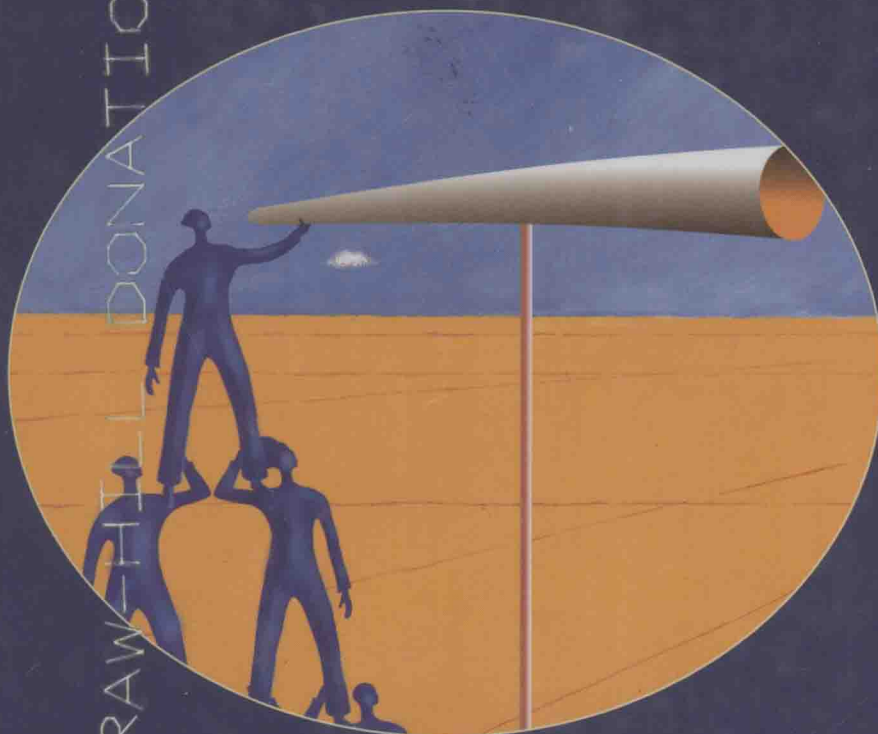


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EQUITY VALUATION
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Equity Valuation and Analysis with eVal

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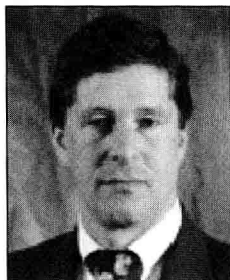
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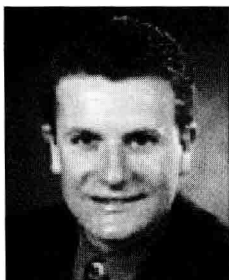
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Preface

Why This Book?

We wrote this book because we saw a void between the abstract theoretical treatment of equity valuation and the practical problem of valuing an actual company using real world data. We give serious treatment to the underlying theory of financial analysis and valuation, but our main goal is to be able to arrive at a pragmatic answer to the all-important question, “What is this company really worth?” To answer this question, we adopt a very different approach from other textbooks. The key differences can be summarized as follows:

1. Our overriding focus is on generating good financial statement forecasts.
2. We provide detailed practical guidance on how to obtain and analyze relevant real-world data.
3. We demystify the mechanics of equity valuation.

We believe that good forecasts of the future financial statements are the key input to a good valuation. Most other aspects of the valuation process are mechanical and can be programmed into a computer. In fact, this text is supplied with eVal, an Excel-based computer program that takes care of these mechanical tasks. As with many other textbooks, we discuss topics like business strategy analysis, accounting quality analysis, financial ratio analysis, etc. However, we always do so with a clear view to how these analyses help us to generate better financial forecasts.

We also provide plenty of advice on where to go to obtain the most relevant raw data. eVal is supplied with historical financial statement data for over 8,000 companies and you can use eVal to access these companies’ SEC filings, investor relations websites, analysts forecasts and new releases. Armed with such a rich source of data, we are able to provide you with plenty of practical examples on how to generate good forecasts using real world data and sound financial analysis.

A final goal of this book is to demystify the valuation process. In the past, we have seen students become lost in a sea of valuation formulas and inconsistent spreadsheet models. For example, students get confused as to whether they should use the DDM, DCF or RIM valuation formula and whether they need to compute a WACC or just a simple cost of equity capital. They become obsessed with learning acronyms and formulas, but flounder when asked to determine a plausible valuation for an actual company. Using eVal, we demonstrate that these different formulas are easily reconciled and refocus students on developing the best set of financial forecasts to plug into them. This reinforces our main point that the key to good valuations is good forecasts.

The eVal Software

We wrote the software because we realized that students were spending way too much time building and debugging their valuation spreadsheets and, consequently, way too little time thinking about the forecasts that they put into their spreadsheets. The tail was definitely wagging the dog. They also couldn't talk to one another because each student tackled the spreadsheet problem differently—it could take hours just to figure out why Jill's value estimate differed from Jack's value estimate. By building one “mother-of-all-spreadsheet valuation models” and making it completely transparent and completely general, we turned our students' attention back to the real problem at hand, which is forecasting the future financial statements. Thus, eVal was born. As we used the early version of the program with students, we discovered that we could use eVal to organize the entire historical analysis, forecasting and valuation process. All the pieces of the puzzle could finally be kept in one place. Later we realized that if we loaded the program with tons of company data and provided web links to even more data, eVal could become the final one-stop-shop for valuation analysis. We also found that once we had familiarized students with eVal, we could effectively teach complex valuation cases that would otherwise become bogged down in the details of the spreadsheet model.

The eVal software helps in doing valuation and it helps in *learning* valuation. There are many software products and web services today that take a few forecast inputs from you and then spit out a valuation, as if by magic, but how they arrived at the results is hidden in a black box. In contrast, this book and the eVal software that accompanies it are designed to be completely transparent at every stage of the valuation process. The software displays the valuation implications of your forecasts in both discounted cash flow models and residual income models, and it shows exactly how the flows of value from these models are linked to your financial statement forecasts.

Why Is This a Good Idea?

Besides the practical value of focusing our book in this way, we think that students find financial analysis and forecasting much more compelling when the theory of valuation is closely linked to real world applications. The abstract theory of financial statements, ratios and valuation formulas can be covered in one or two very boring lectures. What makes this topic exciting is seeing how an organized approach to studying a real company leaves you so much better informed about the firm's future. Is Dell really the highly efficient manufacturer of computers that everyone claims? The answer is yes, as you can see in their turnover statistics. Royal Caribbean Cruises wants to build six more cruise ships in the next three years but can they generate enough cash from the existing ships to pay for the new ones? A careful study of their cashflows shows that they will almost certainly be borrowing lots of money to buy these boats. Salton Inc., maker of the George Foreman grill, toils away in the very unexciting small appliance industry, but has

been generating stellar earnings. With a price-to-earnings ratio of only five, are they undervalued? The answer is probably not, because their most popular products have just peaked and their earnings quality is suspect. Financial statements, accounting rules, financial ratios and valuation models are all pretty dull beasts on their own, but if we can use them to answer questions like this, then their usefulness becomes clear. By blending the theory of equity analysis with practical application we feel that students learn both better.

As a working example, the retail department store chain Kohl's is used throughout the book. It is also the default company in eVal, so you can readily see how the theory translates into real forecasts and valuation implications. Because eVal comes preloaded with data for over 8000 public companies, you can also compare Kohl's to Saks, Target, and Sears with just a few mouse-clicks.

Cases and the Website

We have posted a number of cases on the eVal website (www.mhhe.com/eval), and have included short descriptions of each at the end of the relevant chapter. Most of the cases come with data input files for eVal, and most of the cases are based on real companies. These cases are “freeware;” instructors should feel free to modify them as they wish. For most cases, we have also included the Power-Point slides from the lecture where we used the case in our MBA class. The website also includes other tidbits, such as installation instructions, notices about any changes in the URLs reference in the book or the software, and FAQs.

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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

Value_0 = value of equity at time 0

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

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