DAMODARAN ON VALUATION

Security Analysis for Investment and Corporate Finance

Includes disk

ASWATH DAMODARAN

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Aswath Damodaran

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Preface

There is nothing so dangerous as the pursuit of a rational investment policy in an irrational world.

John Maynard Keynes

Lord Keynes was not alone in believing that the pursuit of "true value" based upon financial fundamentals is a fruitless one in markets where prices often seem to have little to do with value. There have always been investors in financial markets who have argued that market prices are determined by the perceptions (and misperceptions) of buyers and sellers, and not by anything as prosaic as cash flows or earnings. I do not disagree with them that investor perceptions matter, but I do disagree with the notion that the perceptions are all that matter. It is a fundamental precept of this book that it is possible to estimate value from financial fundamentals, albeit with error, for most assets and that the market price cannot deviate from this value, in the long term. But then again, as Keynes would have said, "In the long term, we are all dead." From the tulip-bulb craze in Holland in the Middle Ages to the South Sea Bubble in England in the 1800s to the stock markets of the present, markets have shown the capacity to correct themselves, often at the expense of those who believed that the day of reckoning would never come.

In the process of presenting and discussing the various models available for valuation, I have tried to adhere to four basic principles. First, I have attempted to be as comprehensive as possible in covering the range of valuation models that is available to an analyst doing a valuation, while presenting the common elements in these models and providing a framework that can be used to pick the right model for any valuation scenario. Second, the models are presented with real-world examples, warts and all, so as to capture some of the problems inherent in applying these models. There is the obvious danger that some of these valuations will appear to be hopelessly wrong in hindsight, but this cost is well worth the benefits. Third, in keeping with my belief that valuation models are universal and not market-specific, illustrations from markets outside the United States are interspersed throughout the book. Finally, I have tried to make the book as modular as possible, enabling a reader to pick and choose sections of the book to read without a significant loss of continuity.

In applying valuation models to real-world examples throughout this book, I have used the capital asset pricing model (CAPM) as my model for risk and beta as my measure of risk. I am well aware of the controversy surrounding the CAPM and have discussed its limitations as well as alternative models in the chapter on estimating discount rates. There are four reasons for my dependence on the CAPM in this book. First, the estimation of the cost of equity, which is where I have used the CAPM, is just one component of valuation. The valuation models described in this book require a cost of equity, and any model that provides one can be used instead of the CAPM, without any loss of generality. Second, the data that is available often determines usage. The betas of both domestic and foreign firms are estimated by a number of information services and are easily accessible. I could have attempted to estimate the parameters of an alternative model for the stocks that I have valued, but that would have diverted me from my primary focus, which was valuation. Third, the CAPM provides a convenient forum for discussing more general issues that are important in valuation, such as the effects of financial leverage on risk and the relationship between risk and growth opportunities. Finally, in spite of all the criticism of the CAPM, I am not convinced that alternative models do much better in predicting expected returns, though there is evidence that they do better at explaining past returns.

OUTLINE OF THE BOOK

Chapter 1 of this book examines the general basis for valuation models and the role that valuation plays in different investment philosophies. Chapter 2 provides an overview of the three basic approaches to valuation: discounted cash-flow valuation, relative valuation, and contingent-claim valuation. The rest of the book delves into the details of using these models.

Discounted Cash-Flow Valuation Models

The first section of the book presents different discounted cash-flow models to value both equity and the firm. Chapter 3 examines different approaches for dealing with risk and estimating the cost of equity and for calculating the weighted average cost of capital. Chapter 4 provides a background on financial statements and cash-flow calculation and distinguishes between cash flow to equity and cash flow to the firm. Chapter 5 explores the process of estimating future growth in earnings and cash flows, starting off with a discussion of the relationship between past growth and future growth, and proceeding with an examination of how analysts estimate growth, how accurate their predictions are, and how best to use analysts' forecasts of growth in valuation. It also discusses the relationship between growth and financial fundamentals—how good or bad the firm's projects are, how much leverage the firm has, and what its dividend policy is.

Chapter 6 describes the basic dividend-discount model and its variants. First, the Gordon growth model, which assumes steady-state growth, is described and applied. Next, the two-stage and three-stage dividend-discount models are developed and contrasted, and the value of extraordinary growth is separated from the value of assets in place. The information requirements for each model are summarized, in conjunction with a description of the firms on which these models work best. Finally, the results of past studies on the efficacy of the dividend-discount model in estimating value and finding undervalued and overvalued stocks are presented.

Chapter 7 starts off with a discussion of why free cash flows to equity (FCFE) are different from dividends for most firms. The two-stage and three-stage FCFE discounted cash-flow models are described and applied to high-growth firms, which do not pay dividends. Chapter 8 examines the alternative of valuing the firm by discounting free cash flows to the firm at the weighted average cost of capital. The advantages of this approach are discussed together with caveats on its usage.

Chapter 9 is dedicated to the valuation of those firms that do not fit easily into traditional discounted cash-flow models. In particular, the problems in valuing cyclical and troubled firms are discussed, and possible solutions are suggested. Chapter 13 examines the issues associated with valuing firms that are in the process of being restructured and provides a framework for analyzing the valuation effects of the many dimensions of restructuring: realigning of assets, changes in financial leverage, and shifts in dividend policy. Chapter 14 analyzes the key issues that arise in takeover valuation: the value of synergy and the value of control. It lays out the sources of synergy and shows how it can be valued explicitly, and also provides the theoretical basis and an analytical framework for valuing a control premium.

Relative Valuation Models

The section on relative valuation covers three chapters. Chapter 10 discusses the use and misuse of price/earnings (P/E) and price/cash-flow ratios, beginning with an examination of the determinants of P/E ratios and continuing with an analysis of why P/E ratios change over time and why earnings multiples are different across industries and countries. It also talks about the estimation of P/E ratios for firms using the information in the cross-section and the empirical evidence on the relationship between P/E ratios and excess returns. Finally, the use of P/E ratios for pricing initial public offerings is examined, with an application.

Chapter 11 explores the relationship between price and book value and attempts to clear misconceptions about the relationship. The determinants of price/book value (P/BV) ratios are examined, and a rationale is presented for why some firms sell for less than book value while others sell for more. Finally, there is a discussion of how to use P/BV ratios sensibly in investing.

Chapter 12 examines the price/sales (P/S) ratio and reasons for differences across firms and industries on this multiple. The P/S ratio is also a useful tool to use to examine the value of a brand name and the effects of changes in corporate strategy.

Contingent-Claim Valuation Models

The section on contingent-claim valuation is presented in two chapters. Chapter 15 develops the basis concepts of option pricing. It describes the payoff diagrams on call and put options and provides the rationale for option-pricing models. The binomial and the Black-Scholes models are presented and contrasted, and extensions of these models and their limitations are described. Chapter 16 applies these models in the pricing of a number of contingent-claim securities, such as warrants, and explores the use of option-pricing models in pricing assets that have optionlike features, such as equity in a firm, natural-resource rights, and product patents.

Choosing the Right Model

The problem in valuation is not that there are not enough models for valuations; it is that there are too many. Consequently, the final chapter, Chapter 17, may be the most important one in this book. It provides a framework for picking the right model for any occasion, based upon the characteristics of the asset being valued.

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