Notes

1 From a theoretical perspective, it is preferred to express equity *per share* as a function of dividends *per share*. This is because only the discounted dividends *per share* model accurately accounts for the wealth transfer from new shareholders to the current shareholders that occurs when a firm offers shares to new shareholders in future years at a price that is not equal to the prevailing market price. To simplify the discussion of the other valuation models, however, we describe all models on a "total equity value basis," thereby implicitly assuming that future capital transactions do not affect the firm's current equity value per share – that is, are value neutral.

2 In practice, firms do not have to pay out all of their free cash flows as dividends; they can retain surplus cash in the business. The conditions under which a firm's dividend decision affects its value are discussed by M.H. Miller and F. Modigliani in "Dividend Policy, Growth, and the Valuation of Shares," *Journal of Business* 34 (October 1961): 411–433.

3 The incorporation of all non-owner changes in equity into profit is called clean surplus accounting. It is analogous to "comprehensive income," the concept defined in Chapter 1.

4 Changes in book value also include new capital contributions. However the dividend discount model assumes that new capital is issued at fair value. As a result, any incremental book value from capital issues is exactly offset by the discounted value of future dividends to new shareholders. Capital transactions therefore do not affect firm valuation.

5 Appendix B to this chapter provides a simple proof of the profit-based valuation formula.

6 The abnormal profit growth model and its properties are extensively discussed in the following articles: J.A. Ohlson and B.E. Juettner-Nauroth, "Expected EPS and EPS Growth as Determinants of Value," *Review of Accounting Studies* (2005): 349–365; J.A. Ohlson, "On Accounting-Based Valuation Formulae," *Review of Accounting Studies* (2005): 323–347; S.H. Penman, "Discussion of 'On Accounting-Based Valuation Formulae' and 'Expected EPS and EPS Growth as Determinants of Value,'" *Review of Accounting Studies* (2005): 367–378.

7 It may seem surprising that one can estimate value with no explicit attention to two of the cash flow streams considered in DCF analysis – investments in working capital and capital expenditures. The accounting-based technique recognizes that these investments cannot possibly contribute to value without impacting abnormal profits, and that therefore only their profit impacts need be considered. For example, the benefit of an increase in inventory turnover surfaces in terms of its impact on ROE (and thus, abnormal profit), without the need to consider explicitly the cash flow impacts involved.

8 This model must not be confused with the PEG ratio. The PEG ratio, which is defined as the price-earnings ratio divided by the short-term profit growth rate, is a rule-of-thumb used by some analysts to determine whether a share is overpriced. The rule suggests that shares whose PEG ratio is above one are overpriced. Valuation using the PEG ratio has, however, no clear theoretical basis.

9 See P.M. Dechow, A.P. Hutton, and R.G. Sloan, "An Empirical Assessment of the Residual Income Valuation Model," *Journal of Accounting and Economics* 23 (January 1999): 1–34.

10 This formulation is a variant of a model proposed by James Ohlson, "Earnings, Book Values, and Dividends in Equity Valuation," *Contemporary Accounting Research* 11 (Spring 1995): 661–687. Ohlson includes in his forecasts of future abnormal profits a variable that reflects relevant information other than current abnormal profit. This variable then also appears in the equity valuation formula. Empirical research by Dechow, Hutton, and Sloan, "An Empirical Assessment of the Residual Income Valuation Model," *Journal of Accounting and Economics* 23 (January 1999), indicates that financial analysts' forecasts of abnormal profits do reflect considerable information other than current abnormal profit, and that this information is useful for valuation.

11 This specification is similar to the model for dividends developed by J. Lintner, "Distribution of Incomes of Corporations among Dividends, Retained Earnings, and Taxes," *American Economic Review* 46 (May 1956): 97–113.

12 Unbiased accounting is that which, in a competitive equilibrium, produces an expected ROE equal to the cost of capital. The actual ROE thus reveals the presence of economic rents. Market value accounting is a special case of unbiased accounting that produces an expected ROE equal to the cost of capital, even when the firm is *not* in a competitive equilibrium. That is, market value accounting reflects the present value of future economic rents in book value, driving the expected ROEs to a

normal level. For a discussion of unbiased and biased accounting, see G. Feltham and J. Ohlson, "Valuation and Clean Surplus Accounting for Operating and Financial Activities," *Contemporary Accounting Research* 11(2) (Spring 1995): 689–731.

13 In Bennett Stewart's book on EVA valuation, *The Quest for Value* (New York: HarperBusiness, 1999), he recommends a number of accounting adjustments, including the capitalization of research and development.

14 S. Penman and T. Sougiannis, "A Comparison of Dividend, Cash Flow, and Earnings Approaches to Equity Valuation," *Contemporary Accounting Research* (Fall 1998): 343–383, compares the valuation methods using actual realizations of profits, cash flows, and dividends to estimate prices. J. Francis, P. Olsson, and D. Oswald, "Comparing Accuracy and Explainability of Dividend, Free Cash Flow, and Abnormal Earnings Equity Valuation Models," *Journal of Accounting Research* 38 (Spring 2000): 45–70, estimates values using *Value Line forecasts.*

15 See C. Lee and J. Myers, "What Is the Intrinsic Value of the Dow?" *The Journal of Finance* 54 (October 1999): 1693–1741.