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Cost of Capital

APPLICATIONS AND EXAMPLES

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following the discrete projection period. Many analysts assume capital expenditures to equal depreciation when estimating the terminal value, which results in overestimation of expected net cash flow and overvaluation, where real growth in excess of inflation is expected.[8]

USING AN UNATTAINABLE GROWTH RATE IN CALCULATING THE TERMINAL VALUE

The growth rate assumed in calculating the terminal value is a compound growth rate *in perpetuity*, which is a very long time. At a growth rate of 20% compounded annually, the company's revenues would soon exceed the gross domestic product (GDP) of the United States and eventually that of the world. Long-term growth rates exceeding the real growth in GDP plus inflation are generally not sustainable. Most analysts use more conservative growth rates in calculating the terminal value. Generally, the long-term growth rate only applies to the existing enterprise or core business net cash flows, consistent with the net cash flow projections in the discounted cash flow method (see discussion in Chapter 34).

Using Market Multiples without Adjusting for Differences in Growth

Some practitioners use a market multiple, such as the industry average multiple of earnings before interest, income taxes, depreciation, and amortization (EBITDA) to estimate a terminal value.

As we discussed in Chapter 4, the authors believe that use of a market-derived multiple for calculation of the terminal value is not appropriate, as it mixes elements of the market and income approaches and does not represent a true income approach.

In addition to mixing valuation approaches, it is not clear that a current average industry multiple reflects a long-term estimate of growth consistent with the sustainable long-term growth rate in net cash flows of the existing enterprise or core business. If the growth rate embedded in the multiple is inconsistent, utilizing this method will either overvalue or undervalue the business.

As an example, current multiples in an industry reflect the consensus growth estimates of the market, which are built upon analysts' estimates of earnings. Analysts include both the earnings of the company expected from the existing business and the earnings expected from reinvestment of retained net cash flows and reinvestment of those retained net cash flows in investments that are unspecified. Typically, the net cash flow estimates used in the DCF method valuation are based on the core business

[8]For a good discussion of this common error, see Gilbert E. Matthews, "Cap X = Depreciation Is Unrealistic Assumption for Most Terminal Values," *Shannon Pratt's Business Valuation Update* (March 2002): 1–3. See also Gilbert E. Matthews, "Errors and Omissions in DCF Calculations: A Critique of Delaware's Dr. Pepper Appraisal," *Business Valuation Update* (October 2007): 1–5. In this article, the author states: "In a perpetuity model with a 3% growth rate and assuming a 10-year average life for fixed assets, capital expenditures would exceed depreciation by 15.5% using straight-line depreciation and 11.6% using double-declining method."