

Amortization Should be Excluded from Terminal Value Calculations

This article is adapted from a forthcoming article in Business Valuation Review entitled "Capital Expenditures, Depreciation and Amortization in the Gordon Growth Model."

Companies customarily report "depreciation and amortization" as a single line item in their income and cash flow statements. However, valuers should be attentive to the substantive differences between amortization and depreciation, particularly with respect to their impact on terminal value in discounted cash flow calculations.

Amortization and depreciation are both non-cash charges that reduce reported income. Tax-deductible amortization is similar to depreciation in that it reduces both accounting income and taxes, while non-tax-deductible amortization reduces only accounting income. However, there is an important difference between amortization and depreciation that must be recognized by valuers when calculating terminal value. Intangible assets have a limited life and, importantly, differ from fixed assets because specific intangible assets are not systematically replaced in the ordinary course of business. Since amortization, unlike depreciation, does not grow in perpetuity, it should be separately valued in terminal value calculations.

The most common way in which intangible assets are created is through acquisitions. In an asset acquisition, the acquiror may write up acquired assets to fair market value and depreciate the tangible fixed assets based on their written-up value. The difference between the net value of the tangible assets and the acquisition price is an intangible asset. Under US GAAP, the acquirer first allocates the value of the intangible asset to such items as patents, trademarks, customer lists and contracts, and then books any excess amount as goodwill. The values of intangible assets derived from asset acquisitions generally are amortized for tax purposes on a straight line basis over a 15-year life.¹

In a non-taxable stock-for-stock transaction, tangible assets may not be written up for tax purposes, and amortization of goodwill and other intangible assets is not tax-deductible. In taxable stock acquisitions, however, if a C corporation acquires another C corporation from its shareholder, the acquiror may make an election under §338 of the Internal Revenue Code and, under certain conditions, elect to create an intangible asset by writing up the assets in the same manner as in an asset purchase.²

AMORTIZATION MUST BE EXCLUDED FROM NORMALIZED FCF IN THE GORDON GROWTH MODEL

The formula applied for calculating terminal value in the Gordon Growth Model is:

$$TV = \frac{F(1+g)}{k-g}$$

Where:

TV = terminal value

F = normalized free cash flow in the terminal year

g = expected long-term annual growth rate

k = the cost of capital

The formula is based on the assumption that free cash flow (FCF) is expected to grow at a constant rate in perpetuity. Free cash flow (F) in the Gordon Growth Model equation is *normalized* free cash flow in the terminal year. Because amortization of intangibles has a limited life, it must be excluded from free cash flow when a growth model is used to calculate terminal value.³ Amortization does not grow with inflation, so it should be excluded from the numerator in the formula. In a company's financial projections, amortization should be a flat or declining number, unless the projection specifically assumes future events,



GILBERT E. MATTHEWS, CFA

Sutter Securities Incorporated
San Francisco, CA
gil@suttersf.com

such as acquisitions, that will enable the company to create additional intangible assets.

Even though amortization should be excluded from the computation of terminal value, any tax benefit it generates has value and should be included in enterprise value. The appropriate manner to value amortization subsequent to the projection period is to separately determine the present value of the future tax benefits of the remaining amortization.

FCF must also be normalized to exclude not only amortization of intangible assets but also any other items that will not be growing over time and/or have a finite term, such as tax-loss carryforwards, royalties receivable or payable that have a limited life, non-compete agreements, and payments to former executives. The present value of future cash flows after the projection period from amortization, tax-loss carryforwards, and other limited-life items should be included in enterprise value. The value of tax-loss carryforwards after the projection period is the present value of future tax benefits. The value of future limited-life income

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streams present value of the after-tax income net of taxes, and the value of future limited-life obligations is present value of the expense net of taxes.

These adjustments are achieved by adding the present value of these net cash flows after the terminal year to enterprise value, as shown in the following equation:

$$EV = PV_F + PV_{TV} + PV_A$$

Where:

EV = enterprise value at the valuation date

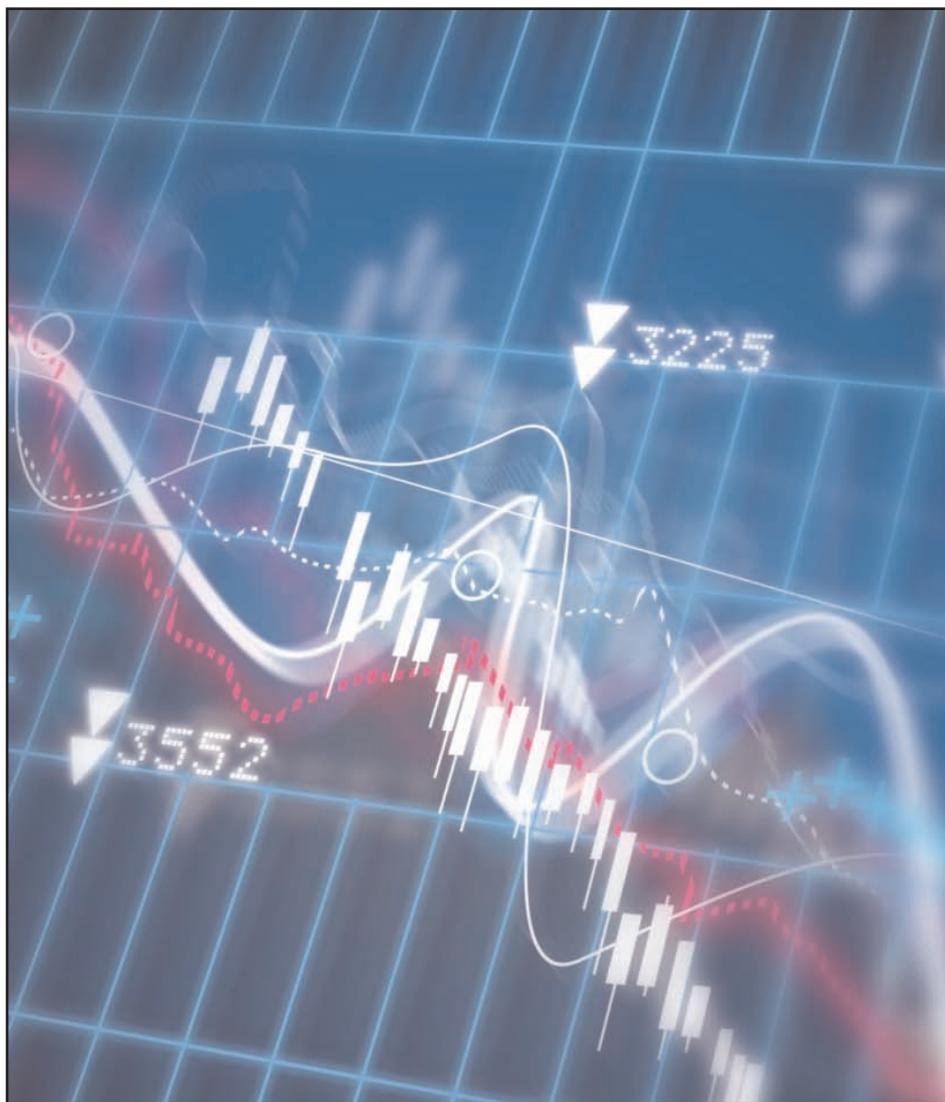
PV_F = present value of free cash flows from the valuation date through the terminal year of the projection

PV_{TV} = present value of terminal value based on normalized FCF

PV_A = present value of net benefits (costs) of amortization, tax-loss carryforwards, and limited-life income and expense items after the terminal year of the projection

ERRONEOUS TREATMENT OF AMORTIZATION BY THE COURT

An example of the erroneous treatment of amortization in a DCF analysis is the 2007 *Dr Pepper Bottling* decision. Annual tax-deductible amortization of \$5.4 million was included as a non-cash charge in the court's valuation model.⁴ Terminal value was determined by applying a growth rate to the annual free cash flow at the end of the projection period.⁵ Since amortization was part of the free cash flow that the testifying experts used in their growth models, they effectively assumed that the amortization was perpetual, which led to an overstated valuation by the court. Since the decision did not discuss the amortization's scheduled life, it is not possible to quantify its impact on the valuation. If we assume, for example, the amortization had been projected to continue for five years beyond the projection period, the court's valuation would have been reduced by more than 5 percent.⁶



CONCLUSION

Amortization of intangible assets, loss carryforwards, and other limited-life assets should be excluded from the normalized free cash flow on which terminal value is calculated. Instead, they should be separately valued. Since data supplied by management often lumps depreciation and amortization together, the valuator must obtain the granular information necessary for an appropriate analysis. *SM*

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¹ The details of tax and accounting treatment of amortization of intangible assets are beyond the scope of this article.

² This election is not permitted unless the acquiror and the seller mutually agree on the write-up prior to the closing of the transaction.

³ It also should be excluded from a multiple-based calculation of terminal value.

⁴ *Crescent/Mach I Partnership, L.P. v. Dr Pepper Bottling Co. of Texas*, 2007 Del. Ch. LEXIS 63 (May 2, 2007) at *36. The opinion does not specifically state that the projected increases in depreciation and amortization assumed flat amortization, but it seems reasonable to assume that the annual increases were attributable to depreciation.

⁵ *Id.* at *53-*54.

⁶ See Matthews, "Errors and Omissions in DCF Calculations: A Critique of Delaware's Dr Pepper Appraisal," *Business Valuation Update* (October 2007), pp. 1, 10.