VALUATION

The Capex Adjustment

by John F. Coffey, MAS, CPA/ABV, CVA, CFF, PFS

was recently hired by one of the spouses to prepare a valuation for purposes of divorce. The other spouse also hired an experienced CVA. Both valuators selected the capitalization of after-tax cash flows method. I assumed we would come to similar conclusions, given the same set of facts. When the reports were issued, however, my valuation was nearly double that of the other.

When I drilled down in the two reports, I found that one of the largest differences was the assumption of necessary future capital expenditures (capex). The case went to trial, and the capex adjustment was hotly debated.

In preparing for trial, I searched at great length for literature on normalizing capex. I found that little had been published on the topic, and I spent considerable time generating trial exhibits to explain the concept for the court. This article is the fruit of those efforts. In applying the capitalization of earnings method, valuators are typically taught to normalize the last five years of historical financial statements. The intent is to determine the company's expected future cash flows into perpetuity. As part of the normalization process, it is necessary to estimate cash flows required to continue funding capex. After all, this cash is not available to shareholders.

A proper normalization of capex will happen in two steps.¹ First, depreciation is added back to net income, because depreciation is an expense that does not use cash. Second, capex is subtracted from net income, because capex is a use of cash that does not affect income until the assets are depreciated.

As an illustration, let's start with a simple example based on the facts in Table 1, below.

The two-step process to normalize capex is illustrated in Exhibit A.

In this example, capex (Step 2) was determined by reference to historical book depreciation (Step 1). But will historical book depreciation always equal estimated future capex? Stated differently, is historical depreciation always an appropriate proxy for capex? This was the issue to be debated at my recent trial.

Which came first, the chicken or the egg? I cannot answer that age-old question, but I can tell you that capital expenditures always come before depreciation. A company cannot expense depreciation on an asset it has not acquired. Thus, future depreciation into perpetuity can only come from future capex. It is an error to capitalize cash flows into perpetuity where depreciation exceeds capex, because that is impossible.²

With that in mind, it is important to understand that depreciation should be adjusted to capex. To do the reverse

TABLE 1	
Five-year average pretax net income	\$1,500,000
Five-year average book depr/amort	\$1,000,000
Federal income tax rate	30%
State income tax rate	5%

Pretax Net Income	\$1,500,000
State Income Tax	\$(75,000)
Income Before Federal Tax	\$1,425,000
Federal Income Tax	\$(427,500)
Subtotal	\$997,500
Step 1: Add Depr/Amort	\$1,000,000
Step 2: Subtract Capex	(\$1,000,000)
Cash Flow to be Capitalized	\$997,500

1 James R. Hitchner, *Financial Valuation Applications and Models*, 2nd Edition, Wiley & Sons, New Jersey, 2006, pg. 1288.

2 Ibid., pg. 118.

will distort the capitalized cash flow and ultimately distort the value conclusion. Into perpetuity, depreciation expense will equal the cash needed to purchase capital assets, absent growth and inflation. The goal is to first determine the level of ongoing capex required to sustain the existing level of cash flows, and then adjust depreciation accordingly.

Furthermore, is it proper to presume that the historical assemblage of assets is required to produce the same level of cash flows into perpetuity? Five years is clearly not perpetuity, and most valuators have encountered circumstances where book depreciation exceeds capital expenditures over a five-year period. The following are a few examples of how this can happen:

- Accelerated depreciation methods (e.g., the IRC Section 179 election)
- Failure to consider salvage values
- Depreciation on a building (or other long-lived asset)
- Purchased goodwill (or other in-tangibles)
- Discontinued operations
- Non-operating assets

Therefore, before accepting historical depreciation as a proxy for estimated future capital expenditures, it is imperative for the valuator to understand the company's future capex needs. Some factors

that can influence future capex include the company's business plan and depreciation policy, the nature of the industry, and technology advances.

BUSINESS PLAN

Changes in the company's underlying business model can impact future capex. For example, adding or discontinuing a product line will likely precede fixed asset additions and/or disposals. Certain assets may not be replaced, and new assets not yet existing at the company may be required. Accordingly, the valuator should understand the company's business plan because the historical assemblage of assets is not always indicative of future capex needs.

DEPRECIATION POLICY

The depreciation policy must be reviewed when assessing future capex needs. Circumstances that may require adjustment include:

- Assets are not depreciated over estimated useful lives.
- Salvage values have not been considered.
- Obsolete and/or nonoperating assets have been depreciated.

NATURE OF INDUSTRY

Some industries are capitalintensive (i.e., more capital resources are consumed as opposed to labor in the production of goods). Automobile manufacturing, chemical, and oil refinery are some examples. When the subject company operates in a capitalintensive industry, greater emphasis should be placed on forecasted capex. In addition, it is important to understand the nature of the industry, as replacement needs can vary. For example, utility companies are generally characterized as having high initial capex and low asset turnover. In contrast, software research and development companies tend to have lower initial capex and higher asset turnover.

TECHNOLOGY ADVANCES

Innovations in technology often impact the future capital requirements of a particular industry. New technology can create the need to retool immediately and can even render an entire industry obsolete. For example, the digital age has dramatically changed both the film processing and analog television industries. Equipment prices are also influenced by new technology. Hightech medical equipment prices generally increase with improved technology, for example, while the cost of better cell phones and computers has dropped.

Continuing with our example, a detailed review of the fixed assets revealed the following information:

Over the last five years, the company purchased and immediately expensed \$50,000 of equipment in year 1 and \$20,000 of equipment in year 4. Both pieces of equipment have an estimated useful life of 10 years with no salvage value. As shown in Exhibit B,

EXHIBIT B						
Year	1	2	3	4	5	Totals
Purchase 1	\$50,000					\$50,000
Purchase 2				\$20,000		\$20,000
Total Cash Flow	\$50,000			\$20,000		\$70,000
Historical Depreciation	\$50,000			\$20,000		\$70,000
Estimated Life Depreciation	\$5,000	\$5,000	\$5,000	\$7,000	\$7,000	\$29,000
Excess Depreciation	\$45,000	\$(5,000)	\$(5,000)	\$13,000	\$(7,000)	\$41,000

depreciation per books was \$70,000 over the five-year historical period, but the useful life depreciation was only \$29,000. The average excess depreciation on this equipment over the last five years was \$8,200 per year (\$41,000 ÷ 5 years).

- The company purchased a building eight years ago for \$2,500,000. The building is expected to last for 40 years with a salvage value of \$1,000,000. It is being depreciated on the books over 25 years on a straight-line basis without regard to salvage value. For each of the last five years, the annual book depreciation was \$100,000 per year (\$2,500 ÷ 25 years), and the useful life depreciation was \$37,500 ([\$2,500,000 1,000,000] ÷ 40 years). The excess depreciation expense in each of the last five years was therefore \$62,500.
- The company commenced operations 10 years ago under an asset purchase where goodwill of \$750,000 was acquired. Amortization has been taken over 15 years on a straight-line basis. Amortization for each of the last five years was \$50,000 per year

(\$750,000 ÷ 15 years). The company is not expected to make such a purchase in future years.

- In year 3, the company discontinued a product line. A portion of the related equipment was sold in the same year. The average impact on historical depreciation for the last five years from this equipment was \$16,000 per year.
- Some of the assets in the discontinued product line were obsolete and could not be sold. However, the company continued to record depreciation expense of \$4,800 in each of the last five years.
- All other fixed assets are used in production of cash flow, will be replaced when exhausted, and have been depreciated over estimated useful lives. Salvage values have been considered. Thus, historical depreciation is representative of future depreciation for these remaining assets.

The valuator can now estimate future capex needs as outlined in Exhibit C.

Based on this new information, the two-step process for normalizing capex is illustrated in Exhibit D.

Cash flow in Exhibit D exceeds cash flow in Exhibit A by the after-tax capex adjustment. In this example, a failure to understand the fixed asset detail would result in understating the worth of this company by overstating capex.

GROWTH AND INFLATION

Until now, we have not considered the impact of growth and inflation. Absent growth and inflation, it is reasonable to assume that depreciation will equal capex into perpetuity, because current depreciation is based on past capex. However, when the company is growing and subject to inflation, it is natural to assume that future capex will outpace past capex (i.e., current depreciation). There are varying opinions as to whether this difference is material to the conclusion of value.

According to James R. Hitchner, "Many valuation analysts will normalize depreciation and capital expenditures by making them equal. This equalization process is a simplifying assumption,

EXHIBIT C		EXHIBIT D	
Historical Depr/Amort	\$1,000,000	Pretax Net Income	\$1,500,000
		Capex Adjustment	\$141,500
Expensed Equipment	\$(8,200)	Adjusted Pretax Net Income	\$1,641,500)
Excess Building Depreciation	\$(62,500)	State Income Tax	\$(82,075)
Goodwill Amortization	\$(50,000)	Income Before Federal Tax	\$1,559,425
Discontinued Operations	\$(16,000)	Federal Income Tax	\$(467,828)
Non-operating Assets	(\$4,800)	Subtotal	\$1,091,597
Capex Adjustment	\$(141,500)	Step 1: Add Depr/Amort (Adjusted)	\$858,500
		Step 2: Subtract Capex	\$858,500
Estimated Future Capex	\$858,500	Cash Flow to be Capitalized	\$1,091,597

since capital expenditures will slightly exceed depreciation due to inflationary pressure in a stable business. However, this simplification usually, but not always, has a nominal effect on the value."³

In contrast, Gilbert E. Matthews advocates computing capex in excess of depreciation based on asset life, depreciation method, and assumed rate of growth. In a 2002 article appearing in *Shannon Pratt's Business Valuation Update*, Matthews illustrates how capex exceeds depreciation by 15.5 percent based on a 10-year, straight-line, 3 percent growth rate assumption. Matthews states, "Many valuation reports overstate depreciation in growth models, and thus, overestimate free cash flow."⁴ He attributes this material error to nonrecognition of the impact of growth and inflation on capex.

FUTURE CAPEX REQUIREMENTS

To properly normalize capex, it is critical for the valuator to first make an appropriate determination of future capex requirements. This includes an understanding of the business plan, depreciation policy, nature of the industry, and impact of technology. Depreciation is then adjusted based on projected capex. Finally, the valuator should determine whether to increase capex to account for the impact of growth and inflation. issue, your client will be grateful when you clearly explain the appropriate way to compute the capex adjustment. VE

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retained as an expert and has testified at trial or depositions in valuation cases in Illinois.

3 Ibid., pg. 1288.

4 Gilbert E. Matthews, "Capex = Depreciation is Unrealistic Assumption for Most Terminal Values," Shannon Pratt's Business Valuation Update, March 200, pg. 3.

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