

JUDGES & LAWYERS BUSINESS VALUATION

UPDATE
A Business Valuation Resources® publication

Timely news, views and analysis for defensible valuations

SHANNON PRATT, EDITOR-IN-CHIEF

VOL. 3, ISSUE 3, MARCH 2001

Guest Article:

Understanding the income valuation approach – a primer for judges who must hear valuation cases

By George B. Hawkins, ASA, CFA*

In determining the price to pay for a company, a buyer of a business ultimately looks to the return he will receive on his investment. That return might come in the form of annual dividends, growth in the



George Hawkins

value of the business over time (as eventually realized by a sale at some future point in time), or some combination of the two. The quantification of the value, in today's dollars, of these expected future sources of return is at the essence of business valuation and the income valuation approach. The income approach focuses on the value of a company's income streams. Whether derived from historic results or future forecasts, the value of a business is based on the present worth today of an anticipated series of future income streams. In other words, what income does the buyer receive as a return on his investment after taking into account the risk that the income may not continue as expected?

Two different income methods are available to quantify the value of a company's income stream. The first, the discounted future income method, involves forecasting year-by-year results and then converting these individual future income streams into their present worth using a discount rate, a rate of return required by a buyer for risk. The second method is the capitalization of income method. This method is a math-

ematical simplification of the discounted future income technique and enables the single year's earnings or cash flow of a company to be divided by a capitalization rate to arrive at an estimate of value.

This article explains the underlying theory of the capitalization approach and gives an example of its application. While it reviews the components that make up the capitalization rate, this article does not provide a detailed explanation of how the specific capitalization rate is developed, the data used to do so, or how to assess if a capitalization rate is reasonable. This treatment is considered in past issues of *Fair Value*. This article also explains and gives an example of the discounted future income method and outlines in what particular circumstances it might be the method of choice.

The capitalization of income method explained in general

The capitalization of income method looks to the actual historic results of the company as an indicator of its results in the future. This technique typically involves dividing a company's annual historic earnings by a "capitalization rate" which incorporates risk (the discount rate) and a factor for future annual growth. The measure of "income" that is capitalized is most frequently the after-tax income of the business, although the approach can also be used with pre-tax earnings, earnings before interest and taxes, measures of cash flow, and other

TABLE I: FORMULA FOR THE USE OF THE CAPITALIZATION OF INCOME METHOD

$$\text{Value} = \frac{\text{Income Stream for the Coming Year}}{(d-g)}$$

Where: $d =$ Discount Rate (Required Annual Rate of Return For Risk)

$g =$ Annual Future Growth Rate

measures which will be discussed.

Theoretically, in every business valuation the valuator could forecast year-by-year results into the future and then discount each individual income stream back to its present worth, as in the discounted future income method explained later. That may be unnecessary, however, if the enterprise's annual historic income is expected to grow in the future at a more or less stable annual rate of increase. In this circumstance, math comes to the rescue with elegant simplicity.

Continued to page 2

INSIDE...

Must distinguish between enterprise & personal goodwill in Rhode Island 7

DEPARTMENTS

Court Case Update 5
Literature & Internet Update 9
News 11
Reader/Editor Exchange 11
Calendar 11

* George B. Hawkins, ASA, CFA, is Managing Director of Banister Financial, Inc. He can be reached at 704-334-4932, or ghawkins@businessvalue.com. © Copyright 2001, Banister Financial, Inc. (Charlotte, NC), All Rights Reserved. Reprinted with permission from the Summer 1999 Issue of *Fair Value*™.

Understanding the income valuation approach

Continued from front page...

If a company's annual income grows at a constant rate into the future, the valuator can obtain exactly the same value as with year-by-year forecasts simply by dividing the company's historic income stream by a capitalization rate. Also called a "single period" valuation method, the formula is shown in Table 1 (*see p. 1*).

In short, the "d-g" component above is called the capitalization rate and is determined by subtracting the estimated future long term annual growth rate of income from the rate of return for risk required for that income. The capitalization method simply says that value is a function of the elements of a company's income, the risk associated with that income (reflected in the discount rate), and the income's expected rate of future annual growth.

Example using the capitalization of earnings method

The use of numbers illustrates how the method actually results in a value estimate (Table 2, above right). Suppose ABC Co. had historic annual net income for 1998 of \$1,000,000. Further, assume that income is expected to grow at the inflation rate (3.0%) plus 2% real growth annually, or a total of 5% (the "g" or annual growth rate), a "perpetuity" growth rate. Since 1998 income is expected to grow at this constant rate, the income for 1999 is an estimated \$1,050,000 (\$1,000,000 of 1998, plus 5% growth in 1999). After a full analysis of the business, the industry and other factors, assume the valuator has estimated the annual rate of return required by a buyer for risk to be 25% (the "d" or discount rate). Therefore, the preliminary value of the Company by the capitalization of earnings method is \$5,250,000 as calculated as shown in Table 2 (*see above, right*).

Said another way, a capitalization rate of 20% is the same as saying that the multiple applied to coming year earnings is 5 times (inverse of 0.20), assuming that earnings grow at a constant annual growth rate of 5%. Alternatively expressed, the buyer is expected to recoup his or her purchase price in five years.

Note that the method illustrated above was calculated by dividing coming year earnings by the capitalization rate. Suppose, instead, that the desire is to use the latest actual year earnings results. Since the capitalization method cap rate is to be applied to coming year earnings, it must be adjusted

downward to back out the coming year's assumed annual growth in earnings before the cap rate can be applied to the latest year's actual results, as shown in Table 3 (*see below*). The effect of backing out the coming year's growth is to lower the capitalization rate.

If the latest year's actual income of \$1,000,000 is divided by the capitalization rate of 19.05%, the result is a value of \$5,249,344, differing from the earlier value only due to rounding in adjusting the cap rate to back out the coming year's growth.

Capitalizing earnings is not just a theory

It is a common reaction of business owners, attorneys and others not familiar with valuation theory to react with disbelief and skepticism at the idea of capitalizing a company's earnings into a value estimate. Typically, either the math makes no sense to them or they react with the notion that this is all just an exercise made by esoteric academics in ivory towers.

For the best real world laboratory of why these theories actually work, simply follow the stock market daily and see what happens to company share values. If a business comes out with a new product that brightens its future earnings outlook, the share value rises as investors, in effect, "capitalize" the higher anticipated future stream of income. Or consider two competitors in the same industry and with the same annual income. One has just become the target of a product liability lawsuit, calling into doubt its future survival. Its share value is driven down due to an increase in its perceived risk (the "d" or discount rate), possibly combined with a diminished future earnings outlook (a change in the "g" or annual growth factor).

Values of private companies large and small are impacted by the same factors of

TABLE 2: CALCULATING THE VALUE BY THE CAPITALIZATION OF EARNINGS METHOD

Company Income, Coming Year	Divided By: Capitalization Rate	Equals: Value Estimate
\$1,050,000	0.20 (25%-5%)	\$5,250,000

risk and growth. If two companies have the same risk profile but one has a higher anticipated growth rate of earnings, the rational investor will pay more for the one with growth. Similarly, if two companies have the same income and growth outlook but one is much riskier, the one with greater risk will be worth less.

When future near-term growth is not expected to be slow-growing or stable

The previous example involved ABC Co. whose earnings are expected to grow at a more or less stable future percentage rate of increase. What if ABC were instead in a rapid growth phase where revenues and earnings were expected to grow quickly for several years as a result of the introduction of a new product line gaining an initial foothold in the market? After the point of full market acceptance is reached, it is anticipated that revenue and earnings growth will slow to a more normal and sustainable long-term stable rate as the product and Company reach maturity.

Fast near-term growth calls for the discounted future income method

Since value is based on the present worth of a future stream of income, the closer in the future to the valuation date that the growth occurs, the more of an effect that income will have on the present value of the business. Since the capitalization method assumes a slow, stable long-term growth rate, it would usually lead to an undervaluation of the rapidly growing company. When a company is experiencing a normal near-term rate of growth that is

above a sustainable long-term trend, or where there are cyclical or unusual near-term factors that are influencing results, the discounted future income method can more reliably capture the valuation

Continued...

TABLE 3: ADJUSTING THE CAPITALIZATION RATE FOR USE WITH HISTORIC RESULTS

Capitalization Rate, Coming Year	20.00%
Times: Adjustment For Assumed Growth 1/(1 + annual growth rate), or 1/(1 + 0.05) for 5% growth	X 0.9524
Equals: Capitalization Rate Used for Actual Latest Year Results	19.05%

TABLE 4: ABC Co. Discounted Future Income Method (\$000'S)

	Actual 1998	1999	2000	2001	2002	2003	Terminal Year
Revenues	\$33,345	\$40,014	\$48,017	\$55,220	\$59,638	\$63,216	\$66,377
Cost of Goods Sold	\$25,519	\$30,623	\$36,747	\$42,260	\$45,641	\$48,379	\$50,798
Gross Profit	\$7,826	\$9,391	\$11,270	\$12,960	\$13,997	\$14,837	\$15,579
EXPENSES							
General and Administrative Expenses	\$6,439	\$7,300	\$8,760	\$10,074	\$10,880	\$11,533	\$12,110
Operating Profit	\$1,387	\$2,091	\$2,510	\$2,886	\$3,117	\$3,304	\$3,469
Other Income (Expense)	\$280	\$310	\$310	\$321	\$356	\$368	\$381
Pre-Tax Profit (Loss)	\$1,667	\$2,401	\$2,820	\$3,207	\$3,473	\$3,672	\$3,850
Provision For Taxes (40%)	(\$667)	(\$960)	(\$1,128)	(\$1,283)	(\$1,389)	(\$1,469)	(\$1,540)
Net Income (Loss) (Note 1)	\$1,000	\$1,441	\$1,692	\$1,924	\$2,084	\$2,203	\$2,310
Times: Present Value Factor (at Discount Rate) (Mid-Period) (Note 2)		0.8944	0.7155	0.5724	0.4579	0.3664	
Equals: Present Value Today of Net Income Streams		\$1,289	\$1,211	\$1,101	\$954	\$807	

Calculation of Company Value (\$000s):

A. Annual Discount Rate for Risk (%)	25%
B. Total Present Value of Net Income Streams, 1999-2003	\$5,362
C. Plus Present Value of Future Co. Sale	\$3,785
D. Equals: Total Company Value	\$9,147

Calculation of Final Year Terminal Sale Value (\$000s):

A. Final Year Expected Income, 2004	\$2,310
B. Divided by Capitalization Rate (Note 3)	20%
C. Equals Value of Company Sale, End of 2003	\$11,550
D. Times: Present Value Factor from End of 2003	0.3277
E. Equals: Present Value of Future Sale	\$3,785

Notes:

1. For valuation purposes we would ideally use free cash flow rather than income in most circumstances. However, net income is used in the example for simplicity to show how the discounted cash flow method captures the impacts of rapid growth, whereas the capitalization method does not.
2. This assumes that the earnings would be received by the shareholder in the middle of the year. Depending upon the situation an end of period assumption might be appropriate.
3. This is based on the discount rate (here 25%), minus the long-term growth rate in earnings from the terminal year forward into perpetuity of 5%. Thus, the discounted future income method also incorporates a capitalization approach in the final year to estimate the continuing value at that point.

Understanding the income valuation approach

Continued...

impacts than can the capitalization method.

The discounted projected future income method involves projecting a company's anticipated future income streams (e.g., earnings or cash flow) on a year-by-year basis into the future. Forecasts are usually for five or seven years during the rapid growth phase with a convergence in the final years of the forecast to a long-term stable growth rate. Each of these future annual income streams is then discounted back to its present worth today at an appropriate discount rate (required rate of return on investment for risk) required by a buyer. At the final projection year a "terminal value" is determined that represents the estimated value of the sale of the company at that time. This sale value is based on the capitalized value of the company's future income stream from that point onward. In other words, if the business were sold in the final forecast year on the basis of its earnings or cash flow, this terminal value is what would be received at that point in time.

This terminal value (which is to be received five or seven years hence) is then discounted back (at the discount rate) to its present value today. The summation of the present value of each of the forecasted annual income streams, along with the present worth today of a future sale value of the company at the final forecast year, results in a fair market estimate of the company.

Revenues, expenses and earnings for ABC Co. are forecasted each year for five years, followed by the final sixth year, as shown in Table 4 (*see p. 3*), taking into account its expected faster growth in the first few years, and slowing to reach a long-term stable growth rate in the final year.

The effect of this rapid near term growth is to substantially increase the Company's value to \$9,147,000. By contrast, the capitalization method used earlier only estimated a value of \$5,250,000. Because the capitalization method cannot accurately capture the impacts of near-term expected rapid growth, it seriously undervalued the Company. Obviously, the skill in using the discounted future method lies in developing a reasonable forecast.

In the previous example the measure of income used was the Company's net earnings. However, in many instances our firm and many other valuers instead use a company's actual expected free cash flow as the measure of income. This is because

earnings do not necessarily equal the return an investor can put in his or her pocket. By contrast, the calculation of free cash flow takes into account other uses for cash, such as working capital and capital expenditure needs.

Opinion of skeptics concerning the discounted future income method

Skeptics of the discounted future income method maintain that the past is the best indicator of the future and that forecasting is inexact. However, by capitalizing past results these skeptics are by definition making a prophecy about future results despite the fact that the business environment may be rapidly changing. For this reason, and owing to the unique factors at work in a given company, both approaches might be judiciously used where appropriate.

Conclusion

Techniques such as the capitalization of earnings and discounted future income methods are powerful tools to value the closely held business. Both methods fundamentally focus on the present worth today of an anticipated future income stream (however defined) to a buyer. Determining which of the two (or both) methods is appropriate in a given situation involves determining the fundamental expected future outlook. In rapidly growing companies, the discounted future income method is often the appropriate technique. Where a company is expected to exhibit stable growth rates in the future, the capitalization of income method is usually more suitable. 