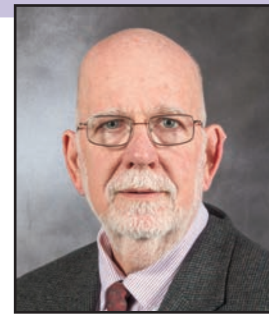
Quantitatively Adjusting Guideline Public Company Multiples



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I wrote an article published in the March 2017 *Financial Valuation and Litigation Expert* (Issue 65) entitled, "Pitfalls to Avoid in the Guideline Public Company Method." That article included a discussion of problems in adjusting guideline public company (GPC) multiples and proffered a couple suggestions for making supportable adjustments. In this article, I want to take a deeper dive into both the basis and "how-to" of making these types of adjustments.

I should explain why I think this is an important topic for practitioners. The valuation profession has materially advanced over the past decades in terms of sophistication of analysis in many areas: cost of capital, intangible asset valuation, and discounts for lack of marketability to name three—but not in the application of the guideline public company method. One only has to look at how our understanding of cost of capital has developed, from a qualitative rule-of-thumb analysis of expected risks,[1] to Roger Ibbotson's market return analysis by decile size of market capitalization,[2] to Roger Grabowski's portfolio and regression analysis of size risk by several types of size measurements,[3] and Professor Damodaran's own observations and analyses of market returns.[4] Yet the analysis and application of the GPC method is essentially the same as it was 40 years ago—albeit with much more readily available data on our GPCs.

I have reviewed more than 400 reports over the past three years from firms large and small, and the vast majority still use a qualitative "fundamental adjustment" to select market multiples, using the intuitive logic that public companies that are larger and are growing more quickly than the subject company will have fundamentally larger multiples that need a downward adjustment to make them comparable to the subject company, which is smaller and growing at a slower rate. But how much to adjust? 25 percent? 40 percent? We figuratively hold up our thumb and come up with an estimate. Not coincidentally, more often than not, adjustments are made that bring the market value indication pretty darn close to the income approach value indication. Here's a quote from a report I read recently:

> Based on our analysis contained in the income approach and the company specific risk analysis, an adjustment is warranted. Therefore, we adjusted the multiples by 35.0% to account for the qualitative and quantitative factors we previously identified.

Now using your income approach as a sanity check to your market approach is not necessarily a bad thing if you have a really solid income approach analysis. After all, the business is worth what it is. Sadly, some of us think our income approach analysis is more solid than it is, and our qualitative assessment for adjusting market multiples masks that fact.

There's more than enough market evidence to quantify an adjustment to market multiples that will give us a reliable indication of value and help support our income approach value indication.

How is that? Let's look at the basic income approach formula:

$$\text{Value} = \frac{\text{Economic Benefit}}{(\text{Risk} - \text{Growth})}$$

Of course, this formula assumes constant growth of the Economic Benefit. When growth is not constant, we employ a discounted future earnings model.[5]

As I noted before, the valuation profession has an abundance of market evidence of market returns in terms of measuring risk, which we use in our income approach. Indeed, the bulk of a well-written valuation report is used to support these three value inputs—economic benefit, risk, and growth—often with very detailed and well-documented development of an equity rate of return or a weighted average cost of capital (WACC).

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expert TIP

Having a fundamental understanding of the relationship between the cost of capital in the income approach and the market multiple in the market approach can be key to resolving differences in value indications between the two approaches.

We can use some of that same market evidence to identify and support our market multiple adjustments. After all, the denominator in the income approach formula above is a capitalization rate (risk minus growth), and the inverse of a market multiple is an earnings capitalization rate. For example, a price/earnings multiple of 8 is an implied earnings capitalization rate of 12.5 percent *(or 1 ÷ 8)*. Once we understand this, we can use our knowledge of what goes into the development of a capitalization rate to support our adjustment to the market multiple by considering the input differences between the GPC and the subject company.

Exhibit 1 below identifies the simplest illustration of this principle. This illustration assumes an equity multiple (as opposed to an invested capital multiple) and breaks down the equity discount rate using a build-up method (BUM). We know that in a BUM model, the risk-free rate and the market-equity risk premium (ERP) are the same for all companies at a given point in time. When developing the cost of capital in the income approach, we layer on possible additional and identifiable risk issues, including size risk, industry risk, and a company-specific risk premium (CSRP), and we look to market evidence for these adjustments.

For purposes of this illustration, let's assume for the moment that there are no industry or CSRP differences between the GPC and the subject company. We've now narrowed down the potential differences between the GPC and the subject company to growth and size-related risks.

ADJUSTING FOR DIFFERENCES IN GROWTH

Adjusting the market multiple for differences in growth is a straightforward process: convert the GPC multiple to a capitalization rate, adjust the capitalization rate for the difference between the GPC growth rate and the subject company growth rate, and then convert the growth-adjusted capitalization rate back to a market multiple—adjusted for differences in growth. See **Exhibit 2** below, which assumes the GPC growth rate is 5 percent and the subject company growth rate is 3 percent.

All other things equal, faster growth translates to higher value. Here the GPC is expected to grow at a 5 percent rate and the subject company at a 3 percent rate. Adjusting the GPC multiple of 8.0x for the differences in growth generates an adjusted multiple of 6.9x. Most of us would have made that type of adjustment intuitively; now it is documented.

ISSUES IN ADJUSTING FOR GROWTH

While the computation is straightforward, the growth assumption inputs may be less so. First, if we have applied an income approach to value, we know what our long-term sustainable growth rate is, and hopefully we have adequately supported that input. If we employed a DCF model in our income approach, I would suggest that a weighted growth rate that includes both the discrete forecast period growth and the terminal growth is appropriate; the long-term sustainable growth rate used in a terminal value computation is not the appropriate growth assumption. After all, the varying discrete period forecast growth is part of expected growth.

Second, and more difficult to address, is the assumed growth for the GPC. We cannot always find growth expectations for the metric underlying our market multiple. Often public company growth expectations that are published are limited to revenues and earnings (and sometimes EBITDA). If we are using a different multiple, we're going to have to make some reasoned assumptions as to its

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EXHIBIT 1

$$1 \div (\text{Risk} - \text{Growth})$$

$$\cong$$

$$1 \div (\text{Discount Rate} - \text{Growth})$$

$$\cong$$

$$1 \div ((R_F + R_{ERP} + \underbrace{R_{SIZE} + R_I + R_{CSR}) - \text{Growth}}_{\text{Documentable differences between subject company \& GPC}})$$

Documentable differences between subject company & GPC

EXHIBIT 2

GPC Market Multiple	**8.0**
Implied Cap Rate	12.50%
Risk	17.50%
less: GPC Growth	–5.00%
Capitalization Rate	12.50%
Risk	17.50%
less: Subject Company Growth	–3.00%
Capitalization Rate	14.50%
Growth-adjusted Multiple:	**6.9**

growth. Additionally, the growth forecasts we observe are typically not long-term growth forecasts. They are usually one-year, two-year, or maybe five-year estimates. Consequently, you will have to consider adjusting those growth rates to long-term forecasts on some basis or adjusting the expected growth rate for the subject company to match. The bottom line is that you need to make a reasoned "apples to apples" adjustment for growth in the market multiple, or your adjustment will be less accurate than if you ignore these differences.

ADJUSTING FOR DIFFERENCES IN SIZE

Business appraisers have had clear empirical evidence of the strong negative correlation between size and risk for over 40 years. When looking at publicly traded company returns, the smaller the company, the higher the required rate of return, and, by inference, the higher the market perception of risk. Nearly all of us apply this principle on some basis when developing a required rate of return in the income approach to value. We can take this knowledge and apply it to an adjustment to market multiples for differences in risk based on size differences between the GPC and the subject company.

For purposes of this illustration, let's focus on a BUM model and adjust an equity market multiple. Let's also assume a risk-free rate of 2.5 percent, industry risk of 2 percent, and a CSRP of zero, and ignore for the moment any differences in growth. This will isolate the impact of size on the adjustment of the market multiple.

Let's walk through the adjustment process.

Step 1: Calculate the Implied Discount Rate

Let's use the illustration we used in adjusting for growth differences: an equity multiple of 8.0x and an assumed expected growth rate of 5 percent. The inverse of the 8.0x multiple is 12.5 percent. This derives an equity capitalization rate. Add the growth rate to the capitalization rate to derive an equity discount rate of 17.5 percent, as shown in **Exhibit 3.1**.

EXHIBIT 3.1

GPC Market Multiple	**8.0**
Implied Cap Rate	12.50%
Equity Risk	17.50%
less: GPC Growth	- 5.00%
Capitalization Rate	12.50%

Step 2: Deconstruct the Equity Discount Rate

We know the components necessary for a BUM discount rate model. Using the assumptions we have made and having an equity discount rate of 17.5 percent, we can solve for the size-adjusted ERP; in this case 13 percent *(GPC Equity Rate – Risk-Free Rate – Industry Risk – CSRP)*. See **Exhibit 3.2.**

EXHIBIT 3.2

	BUM
Risk-free Rate	2.50%
Size-adjusted ERP	**13.00%**
Industry Risk	2.00%
CSRP	0.00%
GPC Equity Rate	**17.50%**

Step 3: Adjust for the Size Differences Between the GPC and the Subject Company

We can use the size differences between the GPC and the subject company to identify the size premium differences much in the same way we develop size premiums in our cost of capital computation. Essentially, whatever source you use for a size premium in your cost of capital is useful for making this adjustment.

For illustrative purposes, I'm using the Duff and Phelps "A Table" for size by revenues and using the regression formula to measure size-adjusted ERP.[6] You can use other sources[7] of size premiums for this analysis as well. Regardless of the source, I would argue that if you believe your source of size premium data is valid enough to make a size adjustment for risk in your income approach's cost of capital model, you should believe it valid enough to make size adjustments for risk in your market approach multiples.

Let's assume my subject company reports \$49.1 million in revenue and the GPC reports \$951.6 million in revenue. **Exhibit 3.3** illustrates the adjustment.

EXHIBIT 3.3

13.7%	Size-adjusted ERP for Subject Company
	$ 49,130,000 Subject Company Revenues
10.5%	Size-adjusted ERP for GPC
	$ 951,600,000 GPC Revenues
3.2%	Raw Difference
30.5%	**Percent Difference**
17.0%	**GPC Size-adjusted ERP x (1 + % Difference)**

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In this case, the size-adjusted ERP is 13.7 percent for the subject company and 10.5 percent for the GPC. While the raw difference between the two is 3.2 percent, the size-adjusted ERP for the smaller subject company is 30.5 percent larger than the size-adjusted ERP for the GPC.

Why didn't I make the adjustment of 3.2 percent to the ERP? The market evidence referenced for size premiums is based on market returns for *after-tax cash flow to equity*, so making the adjustment in terms of raw difference *only* works if you are considering an after-tax cash flow to equity multiple. If I apply the raw difference to a different multiple, I will make an erroneous adjustment because multiples (and therefore capitalization rates) are different for different economic returns (more on this later).

Therefore, I must adjust the GPC size-adjusted ERP by the percent difference—in this case 30.5 percent, as illustrated above.

Step 4: Reconstruct the Discount Rate

Once I have adjusted the ERP for the size differences between the GPC and the subject company, I can reconstruct the discount rate by substituting the adjusted ERP, as illustrated in **Exhibit 3.4.**

EXHIBIT 3.4

Risk-free Rate	2.50%
Size-adjusted ERP	**17.00%**
Industry Risk	2.00%
CSRP	0.00%
Subject-adjusted Equity Rate	**21.50%**

Step 5: Reconstruct the Capitalization Rate and Convert Back to Market Multiple

Subtracting the GPC's growth rate of 5 percent from the adjusted equity discount rate generates a size-adjusted capitalization rate. I can then take the inverse of the capitalization rate to get the size-adjusted market multiple, as shown in **Exhibit 3.5**.

EXHIBIT 3.5

Subject-adjusted Discount Rate	21.50%
less: Subject-company Growth	– 5.00%
Capitalization Rate	16.50%
Market Multiple	**6.06**
Implied % Adjustment	**–24.3%**

The GPC multiple of 8.0x has now been adjusted to 6.06x to account for the risks associated with size differences. Since the subject company is smaller than the GPC, the adjustment should be downward. In this case, it was by –24.3 percent.

BUM VERSUS CAPM

In the prior illustration, I used a BUM model to deconstruct the equity discount rate. I could have just as easily used a CAPM model to do the same. Instead of industry risk as a risk tranche stated as a percent and added to risk-free and size-adjusted equity risk, I would use the CAPM model and state industry risk in terms of beta. Using a little algebra,[8] I can solve for the CAPM ERP (making an additional assumption regarding beta). **Exhibit 4.1** shows the CAPM deconstruction.

EXHIBIT 4.1

	CAPM
Risk-free Rate	2.50%
ERP	5.00%
Beta	1.20
ERP Size	9.00%
CSRP	0.00%
GPC Equity Rate	**17.50%**

I then adjust the CAPM size premium for the size differences as I did for the BUM in Step 4.

EXHIBIT 4.2

6.7%	Size-adjusted ERP for Subject Company
	$ 49,130,000 Subject Company Revenues
4.5%	Size-adjusted ERP for GPC
	$ 951,600,000 GPC Revenues
2.2%	Raw Difference
48.9%	**Percent Difference**
13.4%	**GPC Size-adjusted ERP x (1 + % Difference)**

Since I am adjusting a CAPM ERP and using size premium data from the Duff and Phelps portfolio analysis, I am referencing the "B Tables" and related regression formula for size premia data. Two things should be noted. First, the size premia data do not exactly match the "A Tables" and generate a size premium spread that is not exactly the same as the "B Tables." Second, since the "B Tables" consider size over CAPM, the size differential is larger than the size

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differential under a BUM model, where the total size-adjusted ERP is compared.

I then reconstruct my equity discount rate using the CAPM formula and continue with the adjustment process, as shown in **Exhibits 4.3** and **4.4**.

EXHIBIT 4.3

	CAPM
Risk-free Rate	2.50%
ERP	5.00%
Beta	1.20
ERP Size	13.40%
CSRP	0.00%
Subject-adjusted Equity Rate	**21.90%**

EXHIBIT 4.4

Subject-adjusted Discount Rate	21.90%
less: Subject-company Growth	– 5.00%
Capitalization Rate	16.90%
Market Multiple	**5.92**
Implied % Adjustment	**–26.0%**

EQUITY VERSUS INVESTED CAPITAL MULTIPLES

In the first illustration, I assumed an equity multiple. What if I need to adjust an invested capital multiple?

I cannot use the exact same multiple-to-return rate model for adjusting an invested capital multiple that I can use in adjusting an equity multiple, just like I cannot use the same cost of capital model for both equity and invested capital returns in the income approach. Why? Because invested capital includes returns for both equity components and debt components of invested capital, whereas equity includes only equity components. For an invested capital rate of return, I derive a weighted average cost of capital (WACC). The WACC additionally takes into account the after-tax cost of debt and the relative levels of each source of invested capital (equity, debt, preferred, etc.), as illustrated in **Exhibit 5** at top right.

So, to adjust an invested capital multiple, I still need to get to an equity cash flow discount rate in order to apply the observed market evidence for differences in required rates of return based on size. I therefore must add one additional step into the process: deconstructing the WACC.

EXHIBIT 5

1 ÷ (Risk – Growth)

≅

1 ÷ (WACC – Growth)

≅

1 ÷ [(Cost of E x %E) + (Cost of D x %D)] – Growth)

$(R_F + R_{ERP} + R_{SIZE} + R_I + R_{CSR})$

Documentable differences between subject company & GPC

In order to deconstruct the WACC, I need additional input and/or assumptions: the relative amount of equity, the relative amount of debt, and the after-tax cost of debt. Let's assume the EBITDA multiple for the GPC in my example is 4.72 times. Given the same 5 percent growth rate, that translates to a 26.19 percent WACC [*(1 ÷ 4.72) + 0.05*]. See **Exhibit 6.1** below.

EXHIBIT 6.1

GPC Market Multiple	**4.72**
Implied Cap Rate	21.19%
GPC WACC	26.19%
less: GPC Growth	– 5.00%
GPC Capitalization Rate	21.19%

Let's make assumptions regarding the other inputs: 66 percent equity, 34 percent debt, and an after-tax cost of debt of 4.23 percent. Using a little more algebra,[9] I can solve for the cost of equity after inputting all the known variables into the traditional WACC formula, as shown in **Exhibit 6.2** below.

EXHIBIT 6.2

Cost of Equity	**37.50%**	
% of Equity	66.00%	24.75%
Cost of Debt (after tax)	4.23%	
% of Debt	34.00%	1.44%
WACC		26.19%

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I now have an implied cost of equity of 37.5 percent and can apply the same adjustment model that I used in Step 3. That 30.5 percent difference between the two size-adjusted ERPs (the subject company and the GPC) translates to a size-adjusted EBITDA ERP of 43.1 percent (GPC Size-adjusted ERP x (1 + % Difference)). See **Exhibit 6.3** below.

EXHIBIT 6.3

13.7%	Size-adjusted ERP for Subject Company
	$ 49,130,000 Subject Company Revenues
10.5%	Size-adjusted ERP for GPC
	$ 951,600,000 GPC Revenues
3.2%	Raw Difference
30.5%	**Percent Difference**
43.1%	**GPC Size-adjusted ERP x (1 + % Difference)**

This amount is used to rebuild the equity discount rate[10] below.

EXHIBIT 6.4

Risk-free Rate	2.50%
Size-adjusted ERP	**43.10%**
Industry Risk	2.00%
CSRP	0.00%
Subject-adjusted Equity Rate	**47.60%**

I can now reconstruct my WACC and then rebuild the size-adjusted EBITDA market multiple, as shown in **Exhibit 6.5** and **Exhibit 6.6** below.

EXHIBIT 6.5

Cost of Equity	47.60%	
% of Equity	66.00%	31.42%
Cost of Debt (after tax)	4.23%	
% of Debt	34.00%	1.44%
WACC		32.86%

EXHIBIT 6.6

Subject-adjusted WACC	32.86%
less: GPC Growth	– 5.00%
Capitalization Rate	27.86%
Market Multiple	**3.59**
Implied % Adjustment	**–23.9%**

To reiterate an earlier point, it is important to remember that the impact of the size adjustment is different for each multiple. Following is the GPC income statement with observed multiples computed assuming the market capitalization implied in the example above. Adjusting the multiples for size differences generates different size adjustments as a percentage of the adjustment for each multiple.

Some of the multiples are invested capital multiples, and some are equity multiples. While all the adjustments are in the same range, the difference between the earnings multiple adjustment and the revenue adjustment is about 8 percent, enough to potentially impact a value conclusion if I get this wrong. See **Exhibit 7** below.

EXHIBIT 7

GPC 1	($000s)	Observed Multiple	Size-adjusted Multiple	% Adjusted	Equity or Invested Capital
Revenue	951,648	1.00	0.77	23.0%	Invested Capital
less: COGS	(500,000)				
Gross Profit	451,648	2.11	1.63	22.7%	Invested Capital
less: Operating Expenses	(250,000)				
EBITDA	201,648	4.72	3.70	21.6%	Invested Capital
less: Depreciation	(30,000)				
EBIT	171,648	5.54	4.36	21.3%	Invested Capital
less: Interest Expense	(20,000)				
Pre-tax Income	151,648	6.28	4.95	21.2%	Equity
less: Taxes	(32,700)				
Net Income	118,948	8.00	6.37	20.4%	Equity

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COMBINING GROWTH AND SIZE RISK ADJUSTMENTS

I can combine the growth and size risk adjustments to capture the impact of the differences in the GPC and the subject company. Let's assume all the inputs from my first example, which adjusted an equity multiple using a BUM cost of capital model (Exhibit 3).

Step 1: Calculate the Implied Discount Rate

As I did in Exhibit 3.1, I converted the GPC's market multiple into an implied cap rate and discount rate using the GPC's expected growth rate, as shown in **Exhibit 8.1**.

EXHIBIT 8.1

GPC Market Multiple	**8.00**
Implied Cap Rate	12.50%
GPC Equity Discount Rate	17.50%
less: GPC Growth	– 5.00%
GPC Capitalization Rate	12.50%

Step 2: Adjust for the Size Differences Between the GPC and the Subject Company

Using market evidence for size risk, I adjust the GPC's implied ERP for this multiple by the percentage difference between the size-adjusted ERPs implied by the market evidence (see Exhibits 3.2 and 3.3).

Step 3: Reconstruct the Discount Rate

Then, as I did in Exhibit 3.4, I reconstruct the equity discount rate with the ERP adjusted for the size risk associated with the subject company, as shown in **Exhibit 8.2**.

EXHIBIT 8.2

Risk-free Rate	2.50%
Size-adjusted ERP	**17.00%**
Industry Risk	2.00%
CSRP	0.00%
Subject-adjusted Equity Rate	**21.50%**

Step 4: Convert Back to Market Multiple, Adjusting for Growth Differences

Finally, I subtract the subject company's growth expectation, rather than the GPC's growth expectation, to derive a size- and growth-adjusted capitalization rate, which I then covert to a size- and growth-adjusted market multiple. Notice that the implied adjustment for both size and risk differences is a total of 32.4 percent. See **Exhibit 8.3.**

EXHIBIT 8.3

Subject-adjusted Discount Rate	21.50%
less: Subject-company Growth	– 3.00%
Capitalization Rate	18.50%
Market Multiple	**5.41**
Implied % Adjustment	**–32.4%**

OTHER MARKET-MULTIPLE ADJUSTMENT ISSUES

I have now identified an analytical framework that allows me to adjust for differences in measurable growth expectations and size risk issues as between a GPC and my subject company. I could potentially use this framework to consider other measurable risk adjustments. Five adjustments stand out: company-specific risk (CSRP), industry risk, cost of debt, leverage risk, and tax rates.[11]

Company-specific Risk

Company-specific risk is a topic we always address in the income approach. Business valuation professionals observe market return data to derive and support rates of return for size-adjusted equity risk, which addresses market returns for our industry using either a BUM or a CAPM model. Both models include an "alpha" risk factor for CSRP. If I can identify the CSRP in my income approach, then I potentially have the input necessary to consider differences in CSRP, as between the subject company and the GPC. Often appraisers will assume zero CSRP for GPCs, arguing that investors in public companies generally have found ways to diversify non-size CSRP issues away. Whatever your position on this is, you can use this analytical model to adjust for the differences, using the GPC's CSRP when deconstructing the discount rate and then substituting the subject company's CSRP when reconstructing the discount rate.

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Industry Risk

In a similar manner one could adjust for differences in industry risk. When a CAPM model is employed in the valuation process, the betas of the GPCs are typically used to derive the beta input for the income approach's cost of capital computation. An industry average beta (unlevered and relevered) is computed and assumed. For the purposes of this discussion, I'm ignoring the levering issues associated with CAPM in our cost of capital models.

But what is "average," and how does that compare to any specific GPC's beta? More often than not, when I observe betas of several GPCs, there is a wide variance between the high and low beta. Many factors can impact that fact, but it should be pretty obvious that it is a big assumption that "average" represents the industry. However, if I am okay with this assumption in the income approach, then this should logically lead me to accept that it is logically okay to adjust market multiples for the differences in implied volatility to the market between any particular GPC and the average applied to the subject company in the cost of capital computation.

Therefore, I could consider adjusting for industry risk by using the GPC's beta in a CAPM model when deconstructing the equity discount rate, substituting the same average beta used in the income approach, as representative of industry risk, when reconstructing the equity discount rate and computing an adjusted market multiple.

Cost of Debt

When adjusting an invested capital multiple by deconstructing a WACC, identifiable differences in the cost of debt between the GPC and the subject company can be made by replacing the GPC's cost of debt with the subject company's cost of debt in the WACC reconstruction step.

Leverage Risk

In a similar manner, when adjusting an invested capital multiple, I could in theory consider the differences in leverage between the GPC and the subject company. Just as I considered an industry average beta to address differences in industry risk, many appraisers use an industry average leverage assumption when building a WACC. I can deconstruct my WACC based on the GPC's leverage structure, and after adjusting for other differences in the cost of capital, I can reconstruct my WACC based on the industry average, thus potentially removing the differences in the market multiples implied by leverage risk.

Tax Rates

Market evidence for equity rates of return is developed on an after-tax basis, but not all publicly traded companies pay taxes at the same rate. Generally, our subject company pays taxes (if any) at rates that differ from large publicly traded companies. Adjustments can be made for these differences in terms of the after-tax cost of debt or beta adjustments in a WACC model, just as we might in the income approach.

A CAVEAT

Most of the market return evidence we have considered is for more mature operating companies. I would caution against using this model for multiple adjustments when valuing companies, which would be considered startups. They are just too different from companies we observe for market returns and developing cost of capital in terms of both risk and growth. In fact, growth forecasts for startups are often built on a "wing and a prayer" and market participant (or hypothetical buyer) estimates of required rates of return can be speculatively qualitative in nature. Therefore, trying to quantify differences between publicly traded companies and a subject company in startup mode could turn into an exercise in futility, creating a false precision.

ONE LAST THOUGHT

Recently I reviewed a report that had material differences in value indications from the two approaches to value. A quick review of the inputs revealed an industry risk premium in a BUM cost of capital computation of 1.5 percent and an average beta in the GPCs of 0.25. This is a material difference in industry risk, which the appraiser never resolved. If there had been resolution, a good portion of the difference between the income and market approach value indications might have been identified and eliminated.

Even if you don't buy into the idea of quantitatively adjusting market multiples—and I will readily admit that it adds a layer of additional work, having a fundamental understanding of the relationship between the cost of capital in the income approach and the market multiple in the market approach can be key to resolving differences in value indications between the two approaches.

CONCLUSION

Value conclusions will always require a good dose of professional judgment. There are just too many variables impacting value, and some cannot be adequately modeled in a quantitative manner. That said, if we have good market evidence and procedures for the cost of capital that are nearly universally recognized as a best practice, it should be as useful in a market approach, either directly in deriving appropriate market multiples, or indirectly as a sanity check when reconciling material differences between income approach and market approach value indications. ℘

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[1] See, for example, James H. Schilt, “Selection of Capitalization Rules for Valuing a Closely Held Business,” *Business Valuation Review*: June 1982, vol. 1, no. 2, pp. 2-4.

[2] Roger Ibbotson first published the *Stocks, Bonds, Bills, and Inflation (SBBI) Yearbook* in 1983.

[3] Roger Grabowski and David King, “The Size Effect and Equity Returns,” *Business Valuation Review*: June 1995, vol. 14, no. 2, pp. 69-74, annual updates.

[4] Aswath Damodaran, “Equity Risk Premiums (ERP): Determinants, Estimation and Implications,” (Sept. 2008) and updated annually thereafter.

[5] Nevertheless, we can convert a discounted future earnings model to this basic formula by back-solving for implied constant growth, and some of us do so when we sanity check our income approach by converting the value into an implied income multiple of some sort.

[6] I am assuming the reader understands quantitative size adjustments in estimating the cost of capital. For more information on the data illustratively used, see Roger Grabowski’s publications such as *Cost of Capital, Applications and Examples,* fifth edition (co-authored with Shannon Pratt); *2017 Valuation Handbook–U.S. Guide to Cost of Capital*; or the Duff and Phelps Cost of Capital Navigator (https://dpcostofcapital.com/).

[7] Depending on your source of empirical return data, the BUM model illustrated here may have to be modified to fit the data/model you use in your cost of capital computation.

[8] ERP = Discount Rate – Risk-free Rate – (ERP x Beta) – CSRP

[9] Equity Discount Rate = (WACC – (Cost of Debt x % of Debt)) ÷ (1 – % of Debt)

[10] In this (and the remaining) illustration I used a BUM model. I could have also used a CAPM model.

[11] Throughout this article I have ignored potential issues and impacts of varying costs of debt and tax rates.