

Financial Valuation and Litigation Expert

IEWS AND TOOLS FROM LEADING EXPERTS ON VALUATION, FORENSIC/FRAUD AND LITIGATION SERVICES



Editor's Outlook

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An Overview of the Duff & Phelps 2014 Valuation Handbook – Guide to Cost of Capital

First I must apologize for the tardiness of this issue! However, I'm confident you'll find the articles interesting and helpful. First off is our front page article coauthored by Don Wisheart. Don presents a concise review of the new Duff & Phelps 2014 Valuation Handbook – Guide to Cost of Capital. You probably already know that the Valuation Handbook now combines the old Morningstar/Ibbotson "SBBi"-type data (now called CRSP Deciles Size Premia Study data) with the traditional Duff & Phelps Risk Premium Report data (which was previously a stand-alone publication). What you might not know is that there are some very interesting and useful data and data changes that have not been part of the prior Ibbotson books or the Risk Premium Reports.

Derald Lyons takes a look at mergers and acquisitions. He explains how the structure of a deal— sale of stock versus sale of assets— can have a big impact on both the buyer and the seller.

Next up, John Stockdale reminds us that the objective of a financial analysis is to "determine the price likely to prevail in the marketplace." John takes us through the process of reaching a conclusion of value through the use of market data.

Continued on next page

First, we would like to extend our thanks to the authors of the Duff & Phelps (D&P) 2014 Valuation Handbook – Guide to Cost of Capital (Valuation Handbook), Roger Grabowski, James Harrington and Carla Nunes, as well as their D&P colleagues and reviewers. As valuation analysts, we will all benefit from this fine contribution to our profession. The Valuation Handbook includes data previously available in the Ibbotson® SBBi® Valuation Yearbook as published by Morningstar, Inc. and data available in the Duff & Phelps Risk Premium Report as published by Duff & Phelps, LLC.

To keep things straight, Duff & Phelps refers to the "old" Ibbotson SBBi Valuation Yearbook size premia data as the "CRSP Deciles Size Premia" exhibits. The CRSP stands for the Center for Research in Security Prices at the University of Chicago Booth School of Business www.crsp.com. The data published in the Duff & Phelps Risk Premium Report is still referred to as the "Risk Premium Report" exhibits.

In 2011, Duff & Phelps went online with the Risk Premium Calculator, which relied solely upon Duff & Phelps data. The 2014 version of the

Continued on page three

EXPERTS in this Issue

Jim Hitchner Editor's Outlook.....	1
Don Wisheart, co-author, on Duff & Phelps 2014 Valuation Handbook.....	1
Derald Lyons on Stock vs. Asset Sales	10
John Stockdale on Reflections on the Use of Market Data	12
Mike Crain on Capital Structure of Private Firms	14
Chris Hamilton on Valuing Contract Earn-out Provisions.....	15
Mike Mard and Corey Rubenstien on Strategically Selling Business Valuation Services	16
Panel of Experts	21
Cost of Capital Corner	24

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Mike Crain takes a look at the capital structure of private firms and points out what one must consider when valuing them.

Chris Hamilton tackles the issue of earn-out provisions. He explains how they add an element of complexity when doing a valuation and offers both insight and guidance to our readers.

Rounding out this issue, Mike Mard and Corey Rubenstein take a look at practice management. The simple answer to "selling," they explain, is to "get your butt out the door."

2014 AICPA Business Valuation School Completely Revised and Updated!

The AICPA BV School has been substantially revised and updated by Jim Hitchner, based on important feedback from participants, instructors, and AICPA committee members and staff.

The class is based on *Financial Valuation Applications and Models*, coauthored by 30 of the leading valuation analysts in the U.S. including 24 CPAs, 20 ABVs, 19 ASAs, and 12 CVAs and the *Financial Valuation Workbook*.

CHANGES INCLUDE:

- More hands-on exercises, calculations, examples and case study
- Update on use of various data sources/applications for the cost of capital
- How to reconcile all the data and cost of capital conclusions, including Duff & Phelps and Ibbotson-type data in the modified capital asset pricing model and the build-up model
- Added benchmarks for understanding cost of capital and growth rates
- Addition of important topics in divorce valuation
- Update on S corps, transaction databases, and BV standards
- Detailed guideline public company method example and exercise
- A fresh look at discounts for lack of marketability

There is one more opportunity this summer, offered in the following location with these stellar instructors:

- Denver, July 28-August 1 - Harold Martin, CPA/ABV/CFF, ASA, CFE and Kevin Yeanoplos, CPA/ABV/CFF, ASA

To register, click here: www.cpa2biz.com/BVSCH314 or call (888) 777-7077

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Risk Premium Calculator includes key data from both prior sources (the Duff & Phelps *Risk Premium Report* and the data previously published in the Morningstar/Ibbotson *SBBi Valuation Yearbook*) that, again, are now in the *Valuation Handbook*. For further clarification and expanded discussions on certain issues, the *Valuation Handbook* includes references to Shannon Pratt's and Roger Grabowski's fifth edition of *Cost of Capital – Applications and Examples*.¹

Before we get into the details, let's cut to the chase here. The following data (some old, some new, and some changed) is now available in the *Valuation Handbook*. See *Cost of Capital Corner*, last page, for additional detail.

THE EQUITY RISK PREMIUM (ERP)

"The ERP (often interchangeably referred to as the market risk premium) is defined as the extra return (over the expected yield on risk-free securities) that investors expect to receive from an investment in the market portfolio of common stocks, represented by a broad market index (e.g., S&P 500 Index or the NYSE Index)."²

Duff & Phelps categorizes the computation of the estimated ERP into two groups, the *ex post* or the *ex ante* approaches. "For example, some valuation analysts define expected returns on common stocks in terms of averages of realized (historical) single-period returns while others define expected returns on common stocks in terms of realized multi-year compound returns. These are *ex post* approaches."³

Conversely, if the valuator is estimating ERP "using the returns on the diversified portfolio implied by expected (future) stock prices or expected dividends,"⁴ he or she is using an *ex ante* approach.

"The ERP can be thought of in terms of an unconditional ERP (i.e., the long-term average through the business cycle) and a conditional ERP based on current levels of the stock market and economy relative to a long-term average."⁵

UNCONDITIONAL ERP

- Long-term "Historical" ERP (1926 to 2013)
- Long-term "Supply-side" ERP (1926 to 2013)
- "Historical" ERP minus WWII interest rate bias (1926 to 2013 excluding 1942 to 1951)
- "Supply-side" ERP minus WWII interest rate bias (1926 to 2013 excluding 1942 to 1951)
- "Historical" ERP (1963 to 2013)

The range within these five types of ERPs is 4.95% to 6.96%.

Unconditional ERP

An unconditional ERP is based on long-term historical data, not adjusted for current market conditions through the business cycle. The *Valuation Handbook* uses the same period of time, 1926 to the latest period, here 2013, which was used in the previous *Ibbotson SBBi Valuation Yearbook*. In other words, the long-term historical ERP and the long-term supply-side ERP are consistent with the process previously used by Morningstar.

Supply-side ERP

Roger Ibbotson and Peng Chen brought the supply-side ERP concept to light in their 2003 article.⁶ "They forecasted the ERP through supply-side models built from historical data by removing the price-to-earnings ratio inflation."⁷ D&P's methodology is consistent with the *Ibbotson SBBi Valuation Yearbook* and uses a normalized three-year average price-to-earnings ratio in the most recent period. This three-year average is "based on the prior-year's earnings, the current year's earnings estimated at year end and the forecast earnings in the following year."⁸ While the supply-side ERP uses data back to 1926, note that the growth in price-to-earnings ratios occurred primarily in the last 25 years.

World War II Interest Rate Bias

World War II interest rate bias is due to government-imposed stability in the U.S. government bond interest rates

from 1942 to 1951. This caused high average realized return premiums that some perceive as overstating the overall ERP from 1926 to 2013.

"We consider the years 1942 through 1951 particularly problematic as they reflected a period of government-imposed stability in U.S. government bond interest rates. During World War II, the U.S. Treasury (Treasury) decreed that interest rates had to be kept at artificially low levels in order to reduce government financing costs.... After World War II, the Fed continued to maintain an interest rate ceiling due to the Treasury's pressure and, to a lesser extent, a fear of returning to the high unemployment levels of the Great Depression....The Treasury and the Fed ended the pegging of interest rates on T-bills in July 1947. But interest rate controls on long-term rates continued until postwar inflationary pressures caused the Treasury and the Fed to reach an accord announced March 4, 1951, freeing the Fed of its obligation of pegging interest rates."⁹

Historical ERP (1963 to 2013)

This is the historical ERP from the *Risk Premium Report* data and exhibits. It is an unconditional ERP that is not adjusted by D&P. It is also calculated the same way as the historical ERP from the *Ibbotson SBBi Valuation Yearbook* but relies on data from 1963 to 2013 versus 1926 to 2013.

CONDITIONAL ERP

- 5.0% conditional ERP matched with a normalized risk-free rate of 4.0% as of December 31, 2013. This implies a base U.S. cost of equity capital of 9.0% (5.0% + 4.0%).

A conditional ERP is "based on current levels of the stock market and economy relative to the long-term average."¹⁰ In the *Valuation Handbook*, it is D&P's recommended ERP as of a certain period, here December 31, 2013. To learn more, download a free copy of "Duff & Phelps Decreases U.S. Equity Risk Pre-Continued on next page

mium Recommendation to 5.0%” at www.duffandphelps.com/CostofCapital.

CORROBORATING EVIDENCE (CONDITIONAL ERP)

- Dr. Aswath Damodaran’s implied ERP (adjusted by D&P) against a risk-free spot rate
- Dr. Aswath Damodaran’s implied ERP (adjusted by D&P) against a normalized risk-free rate of 4.0%
- Default spread model (DSM) ERP

D&P uses Dr. Damodaran’s implied ERP model and the default spread model as corroborating evidence for their recommended ERP. D&P does not report the underlying data. For further information on these models see Shannon P. Pratt and Roger J. Grabowski, *Cost of Capital: Applications and Models*, 5th ed. (Hoboken, NJ: John Wiley & Sons, 2014), Chapter 8, Appendix 8A, “Deriving ERP Estimates.”

Damodaran Implied ERP

Dr. Damodaran solves for the discount rate that equates the current S&P 500 index level with his estimates of future cash distributions (dividends and stock buybacks). Dr. Damodaran uses geometric averages and a 10-year bond rate. As published in the *Valuation Handbook*, D&P then converts this to an arithmetic average in excess of the 20-year U.S. government bond rate as of the beginning of 2014. For additional detail on Dr. Damodaran’s ERP calculations and historical and updated ERPs (not converted by D&P), visit Dr. Damodaran’s website <http://pages.stern.nyu.edu/~adamodar/>

Default Spread Model

The DSM “is based on the premise that the long-term average ERP (the unconditional ERP) is constant and deviations from that average over an economic cycle can be measured by reference to deviations from the long-term average of the default spread (Baa – Aaa).”¹¹

The ERP Adjustment

Duff & Phelps also expands its discussion of the “Equity Risk Premium (ERP) Adjustment” in the new *2014 Handbook*.

The ERP Adjustment is needed to account for the difference between the forward-looking ERP as of the valuation date that the analyst has selected to use in his or her cost of equity capital calculations, and the historical (1963–present) ERP that was used as a convention in the calculations performed to create the *Risk Premium Report* exhibits. In other words, if a user’s estimate of the ERP on a forward-looking basis is materially different from the historical ERP as measured over the time horizon 1963–present, it is reasonable to assume that the other historical *Risk Premium Report* portfolio returns reported in the *Handbook* would differ on a forward-looking basis by a similar amount. The ERP Adjustment accounts for this difference.¹²

The *Valuation Handbook* states that the ERP Adjustment is necessary and easy to apply. You only need to remember two things: if you are using the *2014 Handbook’s Risk Premium Report* exhibits to estimate cost of equity capital and you are using the build-up method (BUM), apply the ERP Adjustment; if you are using the *2014 Handbook’s Risk Premium Report* exhibits to estimate cost of equity capital and you are using the CAPM method, do not apply the ERP Adjustment.¹³

While the online *Risk Premium Calculator* automatically calculates and properly applies the ERP Adjustment (which makes it very easy), we recommend that everyone read Chapter 9 in the *2014 Handbook*, in which Duff & Phelps does a great job of explaining the adjustment (see the section entitled “Proper Application of the Equity Risk Premium (ERP) Adjustment” that begins on page 9-3).

THE RISK-FREE RATE: THE SPOT RATE OR THE NORMALIZED RATE

The *Valuation Handbook* devotes several pages to help validate the need to consider a “normalized” risk-free rate instead of using a spot risk-free rate currently used by many, if not most, valuation analysts. Duff & Phelps states that “During periods in which risk-free rates appear to be abnormally low due to flight to quality or massive central bank monetary interventions, valuation analysts may want to consider normalizing the risk-free rate.”¹⁴ Duff & Phelps uses the 2008 Financial Crisis as an example. “During these periods, using a non-normalized risk-free rate (with no corresponding adjustments to the ERP) would likely lead to an underestimated cost of equity capital, and so a ‘normalization’ adjustment may be considered appropriate.”¹⁵ This also begs the question as to whether or not “artificially repressed treasury yields” can be sustained over the life of the business or asset being valued.

Duff & Phelps explains that risk-free rates can be normalized by a simple averaging method or by the use of various build-up methods (not to be confused with the build-up method used to estimate the cost of equity capital). For example, taking a simple average of the monthly yield on 20-year U.S. Treasury bonds over the past 10 years may provide reliable evidence. However, it may be difficult to determine an appropriate period of time to average. The 10-year average ending December 31, 2013 was 4.1%. The build-up method isolates the “real rate” from the “inflation rate” and then adjusts the “inflation rate.” By then adding the real rate to the new and adjusted inflation rate, an analyst would be able to normalize the risk-free rate. The range of estimated long-term normalized risk-free rates was 3.1% to 4.7%, with a midpoint of 3.9%.¹⁶

If a spot rate was used in lieu of a normalization rate during periods where it is highly unlikely that the spot

Continued on next page

rate can be sustained over a long-term period, then the cost of equity capital could be either understated or overstated (assuming no other adjustments were made to the cost of equity). That said, "If the valuation analyst chooses to use the spot yield to estimate the cost of capital during periods when those yields are less than 'normal,' the valuation analyst must use an estimated ERP that is *matched* to (or implied by) those *below-normal* yields."¹⁷

SIZE PREMIUMS (RP_S)

- Ordinary least squares (OLS) betas and RP_S
- Annual betas and RP_S
- Sum betas and RP_S
- In-depth data and comparisons of the characteristics of CRSP category 10z companies, and the characteristics of D&P portfolio 25 companies

Size premiums are based on the difference between the actual returns and the estimated returns using the capital asset pricing model (CAPM). This is frequently referred to as the return "in excess" of CAPM. The *Valuation Handbook* calculates the expected return based on three types of beta: ordinary least squares (OLS) betas, annual betas, and sum betas. Each one of these is inserted into the CAPM to determine the expected return based on that particular beta.

The CRSP deciles size premium exhibits show the size premium for 10 deciles as well as a further breakdown of decile 10 into 10a and 10b and also 10w, 10x, 10y and 10z. This is the same breakout that was published in the *Ibbotson SBBI Valuation Yearbook*.

The *Risk Premium Report* size exhibits show the size premium for 25 size portfolios (versus 10 deciles in the CRSP data). Furthermore, there are eight measures of size (versus the sole size measure of market capitalization used in the CRSP data): market value of equity; book value of equity; five-year average net income; market value of invested capital; total assets; five-year average earnings before interest,

taxes, depreciation and amortization (EBITDA); sales; and number of employees.

The *Risk Premium Report* data also includes the premium (RP_{m+s}) over the risk-free rate. This combines the market premium (RP_m or ERP) with the size premium (RP_S). This data also includes 25 size portfolios and eight measures of size as described above. This risk premium is added to the risk-free rate.

Industry Risk Premiums (RP_i)

Industry risk premia were previously published in Table 3-5, "Industry Premia Estimates" in the Morningstar/*Ibbotson SBBI Valuation Yearbook*. In the new *Valuation Handbook*, these premia are still called "industry risk premia," but the nomenclature used within equations for this term is changed from "IRP" to " RP_i ." The formula for calculating an industry risk premium is $RP_i = (FIB \times RP_m) - RP_m$ where RP_i is the risk premium for the industry (i.e., industry risk premium), *FIB* is the full-information beta for the industry, and RP_m is the risk premium for the market (ERP). The *Valuation Handbook* uses three measures of RP_m or ERP (historical ERP, supply-side ERP, and the D&P recommended ERP) to derive three measures of RP_i .

As with the old *Ibbotson SBBI Valuation Yearbook*, Duff & Phelps continued the reporting of industry risk premiums, which are calculated using a "full-information" beta. However there are differences in calculating the industry risk premium in the *Valuation Handbook*. Instead of requiring that each company have 36 months of return data in the previous 60 months (*Ibbotson SBBI Valuation Yearbook*), the *Valuation Handbook* requires "36 months of contiguous return data, ending December 31, 2013."¹⁸ Further, the *Ibbotson SBBI Valuation Yearbook* required a minimum of five companies to be included in the full-information beta; the *Valuation Handbook* requires a minimum of 10 companies. Also, keep

in mind that industry risk premia are a measure of beta risk. "[The] *Industry risk premium should not be used within the context of the CAPM or any method of cost of capital estimation that already has a beta because by doing so you will be double-counting beta risk.*"¹⁹

In summary (RP_i):

- Now requires at least 10 companies vs. 5 companies (as in the *SBBI Valuation Yearbook*)
- Based on 36 months of contiguous return data vs. 36 months within 60 months (as in the *SBBI Valuation Yearbook*)
- Provides full information beta
- Based on three different estimates of ERP:
 - Historical ERP (as in old Ibbotson)
 - Supply-side ERP (new)
 - D&P recommended ERP (new)

A SAMPLE OF OTHER INTERESTING INFORMATION, EXPLANATIONS AND CONCEPTS

The Basics of the Cost of Capital

The *Valuation Handbook* is very clear on the points that are at the very essence of cost of capital:

- It is forward-looking
- It is a function of the investment, not the investor
- It is based on market value
- It is usually expressed in nominal terms
- It is usually an "after-tax" return applied to after-tax cash flows
- It is as-if publicly traded
- It is the same for a minority interest and a controlling interest²⁰

The Weighted Average Cost of Capital (WACC)

Of interest to those that value highly leveraged companies is the following statement:

To the extent that an entity's capital structure (at market value weights) varies over time, using a constant capital structure and constant WACC to discount the projected

Continued on next page

cash flows in each period will misstate the value of the entity. When dealing with overlevered entities, to the extent that the proportion of debt is expected to migrate downwards over time, using a constant WACC with the initial capital structure would likely undervalue the business (assuming that appropriate adjustments had been made to increase the cost of debt and equity to reflect current excess debt levels, which would result in the current WACC being greater than the optimal target WACC).²¹

This suggests that the valuation analyst, when discounting multiple years, should not use the current highly leveraged capital structure weights and costs as the sole cost of capital when the company is paying down its debt, e.g., to an optimal capital structure.

Methods for Determining the Cost of Equity Capital

Duff & Phelps presents two methods available to the valuation analyst to determine a subject company's cost of equity capital: 1) the build-up method and 2) the modified CAPM method. Both the *Risk Premium Report* data and the CRSP Decile Size Premium data can be used with either cost of equity capital methods. When using the modified CAPM, where appropriate, you would use an industry beta. When using the build-up method, where appropriate, you would use the industry risk premium data.

Beta is forward-looking and "measures the sensitivity of excess total returns (total returns over the risk-free rate of return) on any individual security (or portfolio of securities) to the excess total returns on some measure of the market."²² The industry risk premium is a mathematical derivative of the industry beta, so in essence, it is beta, expressed in amounts scaled around zero. If the industry risk premium is less than zero then the implication is that the industry is less risky than the market and vice versa.

Unconditional vs. Conditional ERPs

Unconditional ERP is generally based on historical realized premium data (*ex post*), which is the more common and preferred approach in developing the cost of capital. Valuation analysts will add the long-term average ERP to the risk-free rate. Again, Duff & Phelps uses the 2008 Financial Crisis as an example of why using the conventional long-term average ERP might miss the mark on value. "For example, the yield on 20-year U.S. government bonds was 4.8% on October 31, 2008. But due to the increase in economic risks as the 2008 Financial Crisis unfolded, the yield had fallen due to the flight to quality to 3.7% as of November 30, 2008. Following common practice, the 7.1% would have been added to the lower yield even though risk had increased."²³

ERP Time Periods

Duff & Phelps lists arithmetic averages of returns at different periods of time and over different lengths of years ending at December 31, 2013. For example, the average ERP was 6.06% for the past 20 years; 6.27% over the past 30 years; 4.67% over the past 50 years and so on. It was interesting to note that the 6.96% over the past 88 years (1926-2013) was the largest arithmetic average.²⁴

Supply-side ERP

Recent court case decisions have supported and adopted the Ibbotson and Chen (updated in the *SBBI Valuation Yearbook*) supply-side ERP estimate; as a result, it would be an error to blindly assume that the post-1925 average of realized risk premiums is to be used as an ERP estimate by default.²⁵ However, there have also been many court cases where the historical ERP was applied and accepted by the courts. It's noteworthy that by deducting the 1.12% WWII Interest Bias from the long-term (1926 - 2013) supply-side ERP of 6.18% to arrive at 5.06% brings one pretty close to Duff & Phelps' early 2014 conditional/recommended ERP estimate of 5.0%.²⁶

Size Premium

The *Valuation Handbook* points out early on that "The size effect is not without controversy, nor is this controversy something new."²⁷ Duff & Phelps summarizes the size effect by saying that "Traditionally, small companies are believed to have greater required rates of return than large companies because small companies are inherently riskier. It is not clear, however, whether this is due to size itself, or to other factors closely related to or correlated with size (e.g., liquidity)."²⁸

Duff & Phelps highlights the following issues to consider:²⁹

- A \$1 investment in decile 1 of the CRSP would have grown to \$2,510 by the end of 2013. Over the same period, a \$1 investment in decile 6 would have grown to \$16,115; decile 10 to \$68,670. These indicate that the size effect is not "linear" and over longer periods of time the size effect is not just evident for the smallest companies.
- Large-cap companies sometimes outperform small-cap companies.
- As the holding periods increase, the size effect appears to stabilize. For example, given a one-year holding period, 53.8% of the small-cap companies outperformed large-cap companies, but over a 30-year holding period, 90.2% of the small-cap companies outperformed large-cap companies.
- Betas calculated by using sum beta are generally larger for smaller companies than when using OLS (Ordinary Least Squares) to compute betas. This generally results in a smaller size premium.
- Duff & Phelps recommends using sum betas for the development of size premium, and to also use sum beta within the CAPM.

Betas

Duff & Phelps defines beta as a "Measure of the systematic risk of a stock; the tendency of a stock's price to correlate with changes in the market."³⁰ The larger the beta; the riskier the business. *Continued on next page*

While beta is forward-looking, “the most widely used techniques for estimating beta generally use historical data over a sample or look-back period and assume that the future will be sufficiently similar.”³¹

Duff & Phelps uses excess returns in all of their beta computations. Others use “total returns for the subject security and for the market returns instead of excess returns”; however, it “makes little difference in the aggregate.”³²

Duff & Phelps notes that:

Significant differences can exist among beta estimates for the same stock published by different financial reporting services. One of the implications of this is that a valuation analyst should try to use betas for guideline companies used in a valuation from the *same source*. While we recommend that valuation analysts calculate their own beta estimates, if you are not calculating beta yourself, and if the betas for all of the selected guideline companies are not available from a single source, the best solution probably may be to use the source providing betas for the *greatest* number of guideline companies, and not use betas from other sources. This helps to avoid ‘an apples-and-oranges’ mixture of betas calculated using different methodologies.³³

Company-specific Risk Premium

Duff & Phelps devotes the entirety of Chapter 6 to this risk factor. Company-specific risk is referred to in the *Valuation Handbook* as C-SRP. C-SRP adjustments are 1) those differences between guideline companies and the subject company, 2) to account for risk associated with net cash flows as well as biased projections, and 3) made by investors that may not hold diversified portfolios.

As stated in the *Valuation Handbook*, beta estimates suffer from measurement error. “In estimating the beta using a regression of excess returns over a look-back period, one can only

estimate expected *future* beta with error. Valuation analysts are accustomed to adjusting subject company historical financial statements for non-recurring events that are unrepresentative of the expected future financial results, but it is quite another thing to separate the relationship between expected returns that are likely to continue and be priced by the market from observations during the look-back period that one would consider non-recurring.”³⁴

Valuators have two choices when estimating the cost of capital. One is to estimate a proxy beta and the other is to estimate additional risk factors. As the *Valuation Handbook* points out, the task of identifying “pure-play”³⁵ public companies is extremely difficult, if not impossible. The *Valuation Handbook* states that “if a sample of guideline public companies provides a poor or even meaningless estimate of the market risk that the subject company would experience were it public, it is appropriate to add or subtract a C-SRP to mimic the hypothetical pricing of the subject company’s market risk as a whole.”³⁶

The C-SRP adjusts for those projections that “do not adequately capture the range of possible outcomes or there is bias, management or otherwise, reflected in the projections.”³⁷ The recommendation is “that an analyst closely examine the probability of a zero net cash flow scenario in the distribution of possible net cash flows as a check on any C-SRP added to the discount rate to account for the chance that the subject company may be forced to shut down because of a company-specific risk factor.”³⁸

A Comparison of the CRSP Deciles Size Premia Studies and the Risk Premium Report Studies

The authors’ Exhibit 7.4, showing the differences in the two studies, is replicated with permission on page 9.

The Last Three Chapters (8, 9 and 10)

The last three chapters of the *Valuation Handbook* are primarily devoted to

detailed examples and the data to apply the CRSP Decile Size Premia or *Risk Premium Report* studies to develop the subject company’s cost of capital. However, there are still important statements made that should not be overlooked or ignored. When using the CRSP Decile Size Premia be aware that:³⁹

- A size premium is added to both the build-up and CAPM estimates of cost of equity capital.
- The size premia are beta adjusted; the portion of excess return that is not attributable to beta is controlled for, or removed, leaving only the size effect’s contribution to excess return.
- The industry risk premia is a function of beta risk. Therefore, one would be “double counting” if the industry risk premia was added to cost of capital where beta was used.
- The size premia data was calculated using ordinary least squares (OLS).

When using the *Risk Premium Report* be aware that:⁴⁰

- The exhibits include the Size Study, the Risk Study, the High-Financial Risk Study, and the Comparative Risk Study.
 - Financial services companies are excluded in the data sets. As such, the data should not be used in valuing the cost of equity capital for financial services companies.
 - If you are using a *Risk Premium Report* size premium (RP_S) then the ERP Adjustment is never needed, regardless of what ERP you select to use in your cost of equity capital estimates.
 - “The ‘smoothed’ average risk premium is generally the most appropriate indicator for most of the portfolio groups.”⁴¹
 - The report provides two ways for valuation analysts to match their subject company’s size characteristics with the appropriate smoothed premium to be used to estimate the cost of equity capital: the “guideline portfolio” method and the “regres-
- Continued on next page*

sion equation" method.

Chapter 10, the final and largest chapter, explains the reasons why additional size factors, other than the market value of equity, are worth measuring. More important, however, are the detailed examples that explicitly explain the following methods for determining cost of capital estimates:

- Build-up 1 using guideline company portfolios (levered and unlevered)
- Build-up 1 using regression equations (levered and unlevered)
- CAPM using guideline company portfolios
- CAPM using regression equations
- Build-up 2 using guideline company portfolios
- Build-up 2 using regression equations
- Build-up 3 using guideline company portfolios (levered and unlevered)
- Build-up 3 using regression equations (levered and unlevered)
- CAPM for "High-Financial Risk" companies
- Build-up for "High-Financial Risk" companies

SUMMARY

This brand new *Valuation Handbook* is very well done and contains a treasure chest of pertinent information and data. There is data similar to the previous Ibbotson *SBBI Valuation Yearbook* and the Duff & Phelps *Risk Premium Report*. However, there are also new ways of developing some of the data and, most importantly, new data to consider using. We recommend that valuation analysts take the time to become familiar with this valuable resource. It will be worth it.

WHAT'S COMING NEXT

Valuation Handbook iPad App: An electronic version of the *2014 Valuation Handbook* will be available by the end of July 2014. This new version, delivered via an iPad app, provides users with ready and searchable access to the full content of the *Valuation Handbook*. The iPad app version of the Duff & Phelps *Valuation Handbook* will include quarterly updates to approximately

250 industry risk premia for use within the build-up method. The app will be available on its own, as well as an add-on for those who have already purchased the *Valuation Handbook*.

In the second half of 2014, Duff & Phelps is planning two additional cost of capital resources for possible release:

Valuation Handbook – Industry Cost of Capital:

The planned *Industry Cost of Capital* book is expected to provide: (i) industry betas; (ii) industry valuation ratios (e.g., price-to-book, market-to-book, price-to-sales, etc.); (iii) leverage ratios (e.g., debt-to-equity, debt-to-total capital); (iv) industry cost of equity capital estimates (CAPM, build-up, Fama-French three-factor model, three-stage discounted cash flow—DCF); (v) industry cost of debt estimates; and (vi) industry weighted average cost of capital (WACC) estimates. The new *Industry Cost of Capital* book will be a resource for industry-level cost of capital benchmark information for use in valuation reports and will serve as an excellent resource for the valuation analyst to support (and check) his or her own custom analysis of the subject company's industry. The *Industry Cost of Capital* book is intended to replace the (now discontinued) Morningstar/Ibbotson *Cost of Capital Yearbook*.

Valuation Handbook – International Cost of Capital:

The planned *International Cost of Capital* book is expected to provide country-level cost of equity capital estimates for more than 150 countries, from the perspective of investors based in any one of more than 30 countries. The *International Cost of Capital* book is intended to replace the (now discontinued) Morningstar international reports.

The timing, pricing, and content of these planned books are dependent upon coming to satisfactory licensing agreements with data providers. ☞

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All footnotes except 1, 6, and 35 refer to the *2014 Valuation Handbook*.

¹ Shannon P. Pratt and Roger J. Grabowski, *Cost of Capital: Applications and Examples*, 5th ed. (Hoboken, NJ: John Wiley & Sons, 2014).

² p. 3-8.

³ p. 3-9.

⁴ p. 3-9.

⁵ p. 3-9.

⁶ Roger G. Ibbotson and Peng Chen, "Long-Run Stock Market Returns: Participating in the Real Economy," *Financial Analysts Journal* (January-February 2003), pp. 88-98.

⁷ p. 3-18.

⁸ p. 3-18.

⁹ p. 3-15.

¹⁰ p. 3-9.

¹¹ p. 3-22.

¹² p. 9-4.

¹³ pp. 9-4 to 9-5.

¹⁴ p. 3-2.

¹⁵ p. 3-2

¹⁶ pp. 3-2 to 3-7.

¹⁷ p. 3-8.

¹⁸ p. 5-16.

¹⁹ p. 5-15.

²⁰ pp. 1-7 to 1-8.

²¹ p. 1-13.

²² p. 2-11.

²³ p. 3-12.

²⁴ p. 3-14.

²⁵ p. 3-23.

²⁶ p. 3-19.

²⁷ p. 4-2.

²⁸ p. 4-23.

²⁹ pp. 4-4 to 4-11.

³⁰ p. 2-13.

³¹ p. 2-11.

³² p. 5-5.

³³ p. 5-7.

³⁴ p. 6-3.

³⁵ Pure-play companies are those "(companies whose revenues are mostly derived from a single line of business such that the business risk would be similar to the subject company), p. 6-4.

³⁶ p. 6-4.

³⁷ p. 6-5.

³⁸ p. 6-7.

⁴⁹ p. 8-6.

⁴⁰ p. 9-11.

⁴¹ p. 9-11.

EXHIBIT 7.4: RISK PREMIUM REPORT STUDY
AND THE CRSP DECILES SIZE PREMIA STUDY COMPARISON TABLE (7-14)

	<u>CRSP Deciles Size Premia Study</u>	<u>Risk Premium Report Study</u>
Time horizon over which data is analyzed	1926 - present year	1963 - present year
Size study included	Yes	Yes
Size measures used	Market Cap	Market Cap + 7 alternative size measures
Premia over CAPM (i.e., size premia)	Yes	Yes
“Risk premia over the risk-free rate”	No	Yes
Unlevered premia (in addition to levered premia)	No	Yes
Risk Study (in addition to Size Study)	No	Yes
Risk measures used	NA	Operating Margin, CV Operating Margin, CV ROE
Can be used to estimate COE using build-up method	Yes	Yes
Can be used to estimate COE using CAPM model	Yes	Yes
Number of portfolios	10 Deciles + 10w, 10x, 10y, 10z	25
Regression formulas available for estimating “exact” interpolated premia “in between” portfolios, or for estimating premia for very small companies	No	Yes
Portfolio overlap*	Yes	No
Exclusion of financial companies	No	Yes
Exclusion of high-financial-risk companies	No	Yes
Analysis of high-financial-risk companies	NA	Yes
Specific information about the companies that comprise the portfolios	Yes	Yes
Mechanism to further refine cost of equity estimates by gauging how “alike or different” the subject company is when compared to the companies that make up the portfolios	No	Yes
Online <i>Risk Premium Calculator</i> included	Yes**	Yes

* Portfolio overlap refers to whether a subject company can be properly placed in multiple size groupings or portfolios.

** Scheduled to be released first half of 2014