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PROPERTY TAX

Property-Specific Risk Premium and Unit Principle Valuations

Analysts always consider—and frequently apply—the income approach in the unit principle property valuation.

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Ad valorem property taxation, by definition, is based on the value of the subject taxable property. Valuation analysts ("analysts") apply generally accepted property valuation approaches to estimate the value of the subject taxable property. This statement is true for

analysts who work for tax assessment authorities and for analysts who work for taxpayer property owners. The three generally accepted property valuation approaches are the income approach, the cost approach, and the market (or sales comparison) approach. Applying these three property valuation approaches, the taxpayer property can be valued based on (1) the summation principle of property valuation or (2) the unit principle of property valuation.

Applying the summation principle, each component of the taxpayer taxable property is appraised separately. That is, each component of taxpayer land, land improvements, buildings, and tangible personal property may be appraised separately. Then all of the individual component values are "summed" to conclude the total value of the taxpayer property. Applying the unit valuation approach, in contrast, all of the taxpayer property is appraised collectively—in the aggregate—as a single "unit" of taxpayer property. That is, all components of the taxpayer land, land improvements, buildings, and tangible personal property are appraised as part of a total assemblage—or unit—of property.

This discussion focuses primarily on the unit principle of property valuation. Analysts always consider—and frequently apply—the income approach in the unit principle property valuation. The generally accepted income approach property valuation methods include the discounted cash flow method (often called the yield capitalization method) and the direct capitalization method. All income approach methods typically include the application of either a present value discount rate (often referred to as a yield capitalization rate) or a direct capitalization rate. Depending on the measure of income included in the unit principle valuation, the corresponding discount rate or direct capitalization rate may be (1) a weighted average cost of capital, (2) a cost of equity capital ("K_e"), or (3) some other opportunity cost or expected rate of return measurement.

When the K_e is one component of the appropriate discount rate or capitalization rate, there are several generally accepted methods that the analyst may apply to measure the taxpayer unit K_e. Several of these methods are summarized in this discussion. One consideration of just about every K_e measurement method is a component related to investment-specific (or property-specific) risk. This property-specific risk component is called by many names in the professional literature, including unsystematic risk, asymptomatic risk, nondiversifiable risk, nonsystematic risk, project-specific risk, residual

risk, investment-specific risk, and company-specific risk. In the professional literature, this property-specific risk component is sometimes called alpha—or the remaining risk component that is not measured by the other K_e variables. Whatever name is applied to this risk component, it does relate to a nondiversifiable element of risk. This type of risk is one consideration in the analyst's selection of the discount rate or capitalization rate to be applied in the unit principle valuation.

The identification and quantification of alpha—or the property-specific risk component—is sometimes a controversial issue in the property tax valuation. This statement is true for property tax compliance, appeal, or litigation purposes. It is sometimes the source of disagreement between analysts working for the tax assessment authority or the taxpayer property owner in the property tax dispute. And, it is sometimes the explanation for any material difference in the unit principle values concluded by the various analysts in a property tax dispute. This discussion focuses on what is included in—or should be considered in—the analysis of this K_e alpha component (or unsystematic risk component).

Taxpayer Property Owner Cost of Capital

The K_e is the expected rate of return that an equity investor expects on the capital invested in a particular investment. Equity investors expect to earn a certain return on investment in order to be attracted to that particular investment. In economic terms, the K_e for a particular investment is the opportunity cost of capital. That is, the K_e is the opportunity cost to the investor—or the rate of return that the investor forgoes by not investing the same amount of funds in the next best alternative investment available at a comparable level of risk. The K_e is a forward-looking expectation of investment return and is the rate of return that the investor expects to receive in the future on that investment. The K_e incorporates the following expectations regarding the investment return:

- The “real” rate of return—The amount of return that an investor would expect to earn on a risk-free investment.
- The expected inflation rate—The anticipated depreciation in purchasing power while the investor's wealth is tied up in the particular investment (i.e., during the expected

investment holding period).

- The risk-related return—The return component related to the uncertainty as to when and how much current period income—or capital appreciation—the investor will receive from the particular investment.

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The K_e metric enables the investor to convert (or to discount) an estimate of expected future income to a present value. This present value procedure allows the investor to (1) make informed pricing decisions with respect to the purchase or sale (real or hypothetical) of the taxpayer unit and (2) compare one investment opportunity to alternative investment opportunities. There are several generally accepted K_e measurement methods (often called K_e measurement "models"). Most of the K_e measurement models include the following components: (1) a risk-free rate of return ("R_f "), (2) a general equity risk premium ("ERP"), (3) an industry-related risk premium ("IRP"), (4) a size-related risk premium ("S_p "), and (5) an unsystematic risk premium. This discussion generally refers to that unsystematic risk premium as the property-specific risk premium—or the "PSRP."

For the first four above-listed K_e components, there are generally accepted data sources that analysts can access to quantify that particular return component. For the fifth above-listed K_e component (i.e., the unsystematic risk premium), there is no easily identifiable data source that analysts can access to specifically quantify that particular return component. There is no data source available as a reference for the property-specific risk measurement. This is because, by definition, the property-specific risk by definition is unique to the individual taxpayer taxable unit.

There are numerous qualitative factors that analysts can consider, and there are several quantitative proxies that analysts can consider—to develop a supportable estimate for the fifth K_e component. Ultimately, the estimate of the unsystematic risk component of the private company K_e is a matter of the analyst's professional judgment. For purposes of this discussion, the PSRP is referred to and explained in the context of the valuation of a total taxpayer unit of operating assets. That is, the consideration and estimation of a *property*-specific risk premium is discussed. It is important to note that the PSRP concept may also be considered in the context of other types of investments. In addition, when

valuing individual components of real estate or tangible personal property, analysts may also consider a property-specific risk premium in the estimation of the discount rate or direct capitalization rate.

The S_p and the PSRP are sometimes referred to collectively as the “alpha” or “” component of investment risk. Alpha is sometimes defined as the excess return on an investment above the rate of return that is predicted by the application of the capital asset pricing model (“CAPM”). The term alpha is often attributed to the academic research of Michael Jensen. Jensen taught finance at the University of Rochester between 1967 and 1988. During that time period, Jensen compared the rates of return actually earned on diversified investment portfolios to the rates of return that were predicted by the CAPM. The formula for this comparison—or this measurement of what is often called “Jensen's alpha”—follows: $\alpha = R_i - [R_f + \beta \times (R_m - R_f)]$, where α = Jensen's alpha; R_i = Actual rate of return on the investment; R_f = Risk-free rate of return; $(R_m - R_f)$ = Long-term equity risk premium (measurement of the overall equity risk premium); and β = Industry beta.

The investment portfolio's actual rate of return in excess of the CAPM-predicted rate of return may be positive, negative, or zero. The CAPM measures the risk-adjusted rates of return on investment securities (i.e., the CAPM accounts for the risk of the security). If the security is efficiently priced, then the actual return on investment will be same as the return on investment predicted by the CAPM. The alpha in that case (i.e., the actual rate of return equals the expected rate of return) will be zero. If, however, the equity security actually earns a higher rate of return than the CAPM-predicted rate of return, then it will have a positive alpha. A negative alpha indicates that the portfolio actually did not earn its CAPM-predicted expected rate of return. While capital markets are typically considered to be efficient (and, therefore, an alpha should theoretically not be observed in the actual application of the CAPM), Jensen noted that an alpha was actually observable—and measurable.

The following discussion describes several generally accepted models that may be applied to measure the taxpayer unit K_e, summarizes the empirical evidence that analysts may consider to estimate the PSRP component in the taxpayer unit K_e measurement, and

presents several benchmarking procedures or best practices that analysts may consider in the PSRP estimate.

Cost of Capital Measurement Models

Investors and finance professionals have developed numerous models for analyzing and measuring the K_e component of an investment in a taxpayer unit. These K_e measurement models include (1) the dividend yield plus capital gain model (also called the discounted cash flow model or "DCF" model), (2) the arbitrage pricing theory (or "APT") model, (3) the Fama-French multi-factor model, (4) the CAPM, (5) the modified capital asset pricing model (or "MCAPM"), (6) the build-up model (or "BUM"), (7) the Duff & Phelps risk premium report model (or "RPM"), (8) the R_f plus risk premium model, (9) the Gordon growth model, and (10) many other models.

The following discussion focuses on the application of the BUM, the CAPM, the MCAPM, and the RPM to measure the K_e to value a taxpayer unit for property tax purposes. This discussion of estimating the PSRP component applies to all of the above-listed K_e models. Due to space constraints, this discussion focuses primarily on the BUM, CAPM, MCAPM, and RPM. However, analysts should be aware that the PSRP (or unsystematic risk premium) is a consideration in just about every discount rate and capitalization rate measurement. And, the PSRP is a consideration in just about every taxpayer unit principle valuation.

In each K_e measurement model, the R_f is the rate of return available on a security

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that the market generally regards as free from the risk of default. Additionally, the R_f serves as an inflation adjustment mechanism.[1] Typically, analysts measure the R_f by reference to the 20-year U.S. Treasury bond. This is because the 20-year U.S. Treasury bond is often used as the empirical benchmark in the measurement of the general ERP. In most K_e measurement models, the ERP is the incremental rate of return that the investor expects to receive as compensation for the risk of investing in equity investments (e.g., stocks) instead of investing in a risk-free asset. Conceptually, the ERP should be forward-looking. However, most data sources available to measure the ERP actually rely on

historical market returns. One proxy to measure the ERP for U.S. stocks is the Standard and Poor's ("S&P") 500 index. This index is based on the market capitalizations of 500 large companies with common stock listings on either (1) the New York Stock Exchange ("NYSE"), (2) the National Association of Securities Dealers Automated Quotations ("Nasdaq"), or (3) the CBOE BZX Exchange. In many K_e measurement models, the ERP is generally calculated as follows: $ERP = R_m - R_f$, where ERP = Equity risk premium; R_m = Expected rate of return on the stock market; and R_f = Risk-free rate of return.

Build-Up Model

The BUM is an additive model that incorporates the various risk factor components of the K_e, including (1) an R_f, (2) an ERP, (3) an IRP, (4) an S_p, and (5) a PSRP. In the BUM, the K_e is generally calculated as follows:[2] $K_e = R_f + ERP + IRP + S_p + PSRP$, where K_e = Cost of equity capital; R_f = Risk-free rate of return; ERP = Equity risk premium; IRP = Industry risk premium; S_p = Size-related risk premium; and PSRP = Property-specific risk premium.

Capital Asset Pricing Model

According to the textbook *Understanding Business Valuation*, the CAPM was "originally developed in the context of portfolio theory as a way to measure the risk an individual stock contributes to a well-diversified portfolio."[3] Further, "CAPM has been modified to be used as a method of determining a discount rate, commonly used in the valuation of larger companies. It has little, if any, applicability to small- and medium-sized businesses . . ."[4] The basic CAPM formula does not include an alpha component. This is because the basic CAPM is applicable to measure the expected rate of return of a well-diversified portfolio of publicly traded (i.e., perfectly liquid) securities. For that application, unsystematic risk can be diversified away. Accordingly, an investor in a well-diversified portfolio of publicly traded (i.e., perfectly liquid) securities would not expect to earn a PSRP. In addition, the CAPM is based on a number of fundamental assumptions. Some of the fundamental assumptions underlying the development of—and the application of—the CAPM include the following:

- Financial markets are competitive, and returns provide full range of investment opportunities.
- All investors plan to invest over the same time horizon.
- There are no distortionary income taxes or transaction costs.
- All investors can borrow and lend at the same risk-free rate.
- Investments are infinitely divisible.
- Investors can access all information and are equally well informed.
- The risk measure used remains constant (i.e., a nonvarying beta). That is, the market portfolio that is used to determine beta will consist of all publicly traded securities.
- The variance of returns is an adequate measurement of risk. That is, the CAPM assumes that investment rates of return will be normally distributed.

The above-listed fundamental assumptions of the CAPM typically do not apply in the taxpayer unit valuation. Further, the fundamental assumptions of the CAPM do not always apply when estimating the K_e of a well-diversified portfolio of publicly traded securities. Analysts know this because alpha is still able to be observed in the public capital markets. The basic CAPM formula is presented below:[5] $K_e = R_f + \beta \times (R_m - R_f)$, where K_e = Cost of equity capital; R_f = Risk-free rate of return; $(R_m - R_f)$ = Long-term equity risk premium (measurement of the overall equity risk premium); and β = Industry beta.

Modified Capital Asset Pricing Model

The MCAPM measurement method expands the basic CAPM measurement method. The application of the MCAPM is appropriate for measuring the K_e that would be applicable to the taxpayer unit valuation. The MCAPM formula is:[6] $K_e = R_f + \beta \times (R_m - R_f) + S_p + PSRP$, where K_e = Cost of equity capital; R_f = Risk-free rate of return; $(R_m - R_f)$= Long-term equity risk premium (measurement of the overall equity; risk premium); β = Industry beta; S_p = Size-related risk premium; PSRP = Property-specific risk premium (measurement of other risk factors). Similar to the CAPM, in the application of the MCAPM, the long-term ERP is adjusted by an industry beta. Beta is a measure of the systematic risk (i.e., the systematic risk relative to the return measure of the overall equity market, such as the S&P 500 index) inherent in a company's investment return. Published

betas for publicly traded stocks typically reflect the capital structure of each respective public company. These betas are often referred to as levered betas, or betas that reflect the amount of the debt/equity leverage in the public company's capital structure.

Duff & Phelps Risk Premium Report Model

Duff & Phelps, LLC, annually publishes a measurement of the ERP based on the

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factors included in the "Risk Premium Report Study." The Risk Premium Report Study is primarily intended to be used in the development of K_e estimates for private companies (1) that are financially healthy and (2) for which a "going-concern" premise of value is appropriate. (These factors could also apply to a taxpayer's unit.) The Risk Premium Report Study develops estimates of the ERP based on eight size factors. The application of the Risk Premium Report Study to measure the K_e is often referred to as the risk premium report model (or "RPM"). The RPM also includes data that may be used to estimate the ERP based on three risk factors. A detailed explanation of the size factors and the risk factors presented in the Risk Premium Report Study is beyond the scope of this discussion.

The RPM provides regression formulas that may be used to estimate the ERP, and the risk premiums are "smoothed" across 25 portfolios of different sized companies. To calculate the ERP, the analysts can apply the corresponding regression equation. Alternatively, analysts can select the portfolio that most closely resembles the size—or the risk characteristic fundamental—of the taxpayer unit. Analysts rely on the subject investment (e.g., the taxpayer unit) operating fundamentals and the corresponding regression equation in order to estimate the ERP over the R_f for the investment. Analysts may include a PSRP component to the indicated ERP in order to measure the investment's K_e . For example, let's assume that the analyst is valuing an illustrative taxpayer unit (this example assumes a public utility taxpayer) as of June 2017. Let's assume that the taxpayer unit reports a historical five-year average net income of $0.7 million. Applying the RPM regression formulas, the applicable regression equation variables are as follows:[7] (1) Constant of 14.722 percent; (2) Coefficient of -2.565 percent. The calculation of the ERP

over the R_f in this example is (1) 14.722 percent plus (2) -2.565 percent multiplied by (3) the common logarithm (or $Log_{1\ 0}$) of $0.7 million. The resulting ERP over the R_f would equal 15.12 percent.

The RPM relies on an estimated ERP by Duff & Phelps in the calculation of the regression variables. Therefore, an ERP adjustment is needed. One frequently applied procedure for making this adjustment is to reconcile the difference between (1) the ERP used in other K_e models (e.g., the MCAPM) and (2) the estimated ERP by Duff & Phelps used to calculate the regression variables. Let's assume that (1) the "ex post" ERP that the analyst relies on in the application of the MCAPM is equal to 6.94 percent and (2) the Duff & Phelps estimated ERP used in the regression variable calculation is 5.00 percent. In this example, the RPM "ERP adjustment" would be 6.94 percent minus 5.00 percent, or 1.94 percent. The estimated K_e in this example would be the (1) R_f (let's assume 2.60 percent) plus (2) the ERP of 15.12 percent plus (3) the ERP adjustment of 1.94 percent plus (4) the PSRP (let's assume 3 percent). Therefore, the estimated K_e would be 22.66 percent. The MCAPM is one generally accepted model to measure the K_e for a taxpayer unit. In the application of the MCAPM, analysts should understand both the conceptual basis for—and the empirical data considered in the measurement of—the S_p and the PSRP. To understand both the conceptual foundation and the empirical evidence for the development of the PSRP, it is important to understand the concepts of systematic risk and unsystematic risk.

Systematic Risk and Unsystematic Risk

In order to understand the importance of both the S_p and the PSRP in measuring the K_e for the analysis of a taxpayer unit, it may be helpful to identify the differences between systematic risk and unsystematic risk. According to the textbook *Valuing a Business*:[8]

> . . . *systematic risk* is the uncertainty of future returns resulting from the sensitivity of the return on the subject investment to movements in the return on the investment market as a whole. *Unsystematic risk* is a function of characteristics of the industry, the individual company, and the type of investment interest.

The basic CAPM assumes that the K_e risk premium component is a function of the investment's systematic risk only. One fundamental principle of the basic CAPM is that the investor expects a return on investment assuming that the investment is both (1) perfectly liquid and (2) part of a perfectly diversified portfolio of liquid investments. In addition, another fundamental principle of the basic CAPM is that beta encompasses all the risk inherent in the subject investment. Because unsystematic risk is associated with the characteristics of the individual investment, the CAPM does not incorporate an adjustment for PSRP. However, MCAPM was developed as a method for measuring K_e for an investment that is either—or both—(1) not perfectly liquid and/or (2) not part of a perfectly diversified portfolio of liquid investments. In other words, MCAPM is applicable to the K_e measurement for the taxable property of a taxpayer unit. Unsystematic risk is incorporated in the MCAPM measurement of K_e by including the consideration of both S_p and PSRP (or, collectively, alpha).

Size-Related Risk Premium

In addition to the ERP, the MCAPM also incorporates consideration of an S_p (this S_p is sometimes also referred to as a small company risk premium). For a particular size of subject investment, the S_p represents the difference between the actual historical excess return and the excess return predicted by beta. This “size effect” is based on the empirical observation that companies of smaller size are generally associated with greater investment risk and, therefore, have to provide a greater rate of return on investment in order to attract equity investors.

Property-Specific Risk Premium

The PSRP is the risk premium associated with the level of unsystematic risk inherent in a particular taxpayer unit. The PSRP can be positive or negative depending on the facts and circumstances of the taxpayer unit. The PSRP represents the additional risk premium required to compensate an equity investor for the uncertainty of investing in a particular taxpayer unit. The following discussion

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considers (1) the conceptual principles for the PSRP component of the K_e and (2) the practical procedures for estimating the PSRP component of the K_e .

In the professional literature related to investment analysis and portfolio management, "property-specific risk" is interchangeably referred to as "investment-specific risk," "company-specific risk," "nonsystematic risk," "unsystematic risk," "nondiversifiable risk," and "idiosyncratic risk." This discussion sometimes uses the term "investment-specific risk." However, the term "property-specific risk" is frequently used in the valuation professional literature. Therefore, this discussion generally uses the term "property-specific risk."

When estimating the appropriate discount rate or capitalization rate related to an investment, the PSRP is generally the last component applied when measuring the K_e . The PSRP is the component of risk that makes an investment unique and different from other benchmark investments that may be used to measure taxpayer unit capitalization rates, valuation pricing multiples, and/or other pricing metrics. The inclusion of a PSRP in the K_e measurement is a generally accepted valuation procedure. However, a few issues make estimating a supportable level of property-specific risk difficult. Issues that can make PSRP estimation difficult include risk identification, measurement, and correlation with the appropriate incremental rate of return.

Because the PSRP is based on *property-specific* risk, there is no database, empirical study, measurement model, formula, or the like that can be applied to calculate a PSRP for an individual investment. Therefore, while both qualitative analysis and quantitative empirical data proxies may be useful in the PSRP estimation, the PSRP estimate is ultimately a matter of the analyst's professional judgment. In many (but not all) transactions involving taxpayer unit interests, investors (or potential willing buyers) expect to be compensated for assuming property-specific risk. However, investors (or potential willing buyers) do not expect to be compensated for a PSRP in transactions where property-specific risk can be easily diversified away.

The CAPM was originally developed to estimate the K_e of a well-diversified portfolio of perfectly liquid investments. Accordingly, the CAPM is less applicable for estimating the K_e of a nondiversified portfolio of illiquid investments. With the development of the MCAPM, a CAPM-based model can be applied to estimate a discount rate or

capitalization rate for purposes of a taxpayer valuation. This is because the MCAPM incorporates a component for the increased risk associated with property investment factors—factors that are not mitigated by perfect diversification and perfect liquidity. For taxpayer unit ownership interests that lack the risk-mitigating influences of liquidity, diversification, and/or limited liability, company-specific risk cannot be diversified away. In contrast, the expected K_e of an investment that does possess the risk and expected return attributes of diversification and liquidity is likely not influenced by a PSRP.

The PSRP is considered directly in the application of the income approach when analysts select a discount rate or capitalization rate for the valuation of a taxpayer unit ownership interest.[9] Further, the PSRP is considered indirectly in the application of the market approach and the cost approach in the valuation of a taxpayer unit ownership interest. The PSRP is considered directly in the unit valuation income approach when analysts estimate the K_e for purposes of calculating a cash-flow-based (enterprise) discount rate or capitalization rate or a net-income-based (equity) discount rate or capitalization rate.

The PSRP is considered indirectly in the unit valuation market approach when:

- selecting guideline publicly traded companies and guideline merger and acquisition transactions and
- extracting subject-interest-specific pricing multiples from the selected guideline publicly traded companies or the guideline merger and acquisition transactions.

The PSRP is considered indirectly in the unit valuation cost approach when:

- measuring any intangible value in the nature of goodwill, particularly through the application of the capitalized excess earnings method (“CEEM”) of intangible personal property valuation or
- measuring any economic obsolescence in the cost approach valuation of the taxpayer unit real estate and personal property, particularly through the application of the capitalization of income loss method (“CILM”) of economic obsolescence measurement.

To a certain extent, the magnitude of the selected PSRP may be influenced by the

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purpose of the valuation.[10] For example, the selection of the PSRP to be considered in the valuation may be influenced by the following considerations:

- The statutory, regulatory, judicial, or other standard of value selected—or required—for the valuation assignment (e.g., fair market value, fair value, investment value).
- The statutory, regulatory, judicial, or other level of value selected—or required for—the valuation assignment (e.g., controlling marketable, noncontrolling marketable, controlling nonmarketable, noncontrolling nonmarketable).
- The statutory, regulatory, judicial, or other premise of value selected—or required for—the valuation assignment (e.g., value in continued use as a going concern, value in exchange as part of a disposition of assets).

The following discussion summarizes (1) the analyst's qualitative considerations related to the PSRP and (2) the analyst's quantitative considerations related to the PSRP.

Analysts may rely on a qualitative analysis to estimate a supportable PSRP. The following sections present (1) the qualitative factors that analysts may consider and (2) the qualitative procedures that analysts may apply to those factors in order to estimate a PSRP.

Qualitative Factors

Three sets of qualitative factors that analysts consider are presented below. For purposes of this discussion, these factors are categorized as follows: (i) The National Association of Certified Valuators and Analysts ("NACVA") factors; (ii) Taxpayer unit competitive analysis factors; and (iii) Taxpayer unit functional analysis factors.

NACVA Factors In its various publications, NACVA has recommended various factors that analysts may consider in the PSRP estimate. The factors may be grouped in the following six categories: (1) Competition; (2) Financial strength; (3) Management ability and depth; (4) Profitability and stability of earnings; (5) National economic effects; (6) Local economic effects. NACVA indicates that analysts make individual quantitative and qualitative assessments within each of the first four categories of PSRP factors. In order to determine an appropriate PSRP, the analyst assigns a specific point value (ranging from 1

point for low risk to 10 points for high risk) to each factor. This point assignment is based on the analyst's professional judgment with regard to the taxpayer unit operations.

The final two categories are economic factors that analysts assign points of minus one, plus one, or zero—based on a strong economy, weak economy, or neutral economy, respectively. These categories and factors are also scored based on the analyst's professional judgment. Finally, analysts calculate the sum of (1) all of the point values in the first four categories (weighted by the number of individual factors in each category) and (2) all of the point values in the last two categories. This summation provides an indication for analysts to consider in the judgment-based PSRP estimate. The NACVA analysis is considered a "numerical procedure." An example of a numerical procedure is presented later in this discussion.

Taxpayer Unit Competitive Analysis Factors The analyst's strategic assessment of the taxpayer unit's competitive position provides an analysis structure—based on a competitive advantage and strategy analysis—for estimating the PSRP. This competitive analysis aggregates the PSRP factors into three categories that consider the unit's strengths, weaknesses, opportunities, and threats ("SWOT"). These categories of factors are presented as follows: (1) Macroenvironmental factors; (2) Taxpayer industry factors; (3) Taxpayer company factors. The competitive analysis includes a subgroup of factors for analysts to consider within each of the three categories. This competitive analysis is based on an application of Michael Porter's "Five Forces" strategic planning and analysis model. In this procedure for analyzing the PSRP, a competitive analysis should be part of the analyst's judgment in estimating the PSRP. The competitive analysis may be applied by considering any of the qualitative factor analysis procedures presented later in this discussion.

Taxpayer Unit Functional Analysis Factors A functional analysis considers the assets employed, the functions performed, and the risks assumed by the taxpayer unit. Such a functional analysis includes the analyst's consideration of various categories of individual quantitative and qualitative PSRP factors. One of the functional analysis categories of PSRP considerations relates to the following taxpayer unit risk factors: Economy risk; Operating risk; Asset risk; Market risk; Regulatory risk; Business risk; Financial risk; Product risk; Technological risk; Legal risk. Such a functional analysis further presents a

category of PSRP considerations relating to the following taxpayer unit nonfinancial factors: Economic conditions; Location of business; Depth of management; Barriers to entry into market; Industry conditions; Competition; Quality of management; the bottom line. The analyst's property-specific assessment of all these factors is relevant to the PSRP estimate. Moreover, like all of the PSRP factors considered, analysts rely on informed professional judgment when estimating the PSRP.

Documentation Procedures of a Qualitative Factor Analysis

Some analysts apply three procedures for (1) estimating a PSRP based on the qualitative analysis of the property-specific risk factors and (2) documenting the analyst's due diligence and ultimate estimate of the PSRP. These three documentation procedures are sometimes called (1) the plus/minus procedure, (2) the numerical procedure, and (3) the listing procedure. All three of these procedures start with a listing of the relevant PSRP factors selected by the analyst. These due diligence and analysis documentation procedures are discussed below.

The Plus/Minus Procedure In the plus/minus (or +/-) documentation procedure, analysts indicate either a “+” notation or a “-” notation next to the test of each factor considered. The plus notation indicates that the factor increases the amount of the PSRP; the minus notation indicates that the factor decreases the amount of the PSRP. A blank notation indicates that the factor has a neutral impact on the amount of the PSRP. Double or triple notations (e.g.,

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++ or) indicate that the individual factor has a particularly positive or a particularly negative impact on the quantum of the PSRP. Each plus/minus notation, however, does not necessarily represent one percentage point. Ultimately, the quantum of the PSRP is based on the analyst's professional judgment. The PSRP estimate should not be considered as the mathematical summation of “plus” and “minus” indications.

The Numerical Procedure Using the numerical documentation procedure, analysts assign a specific percentage number to each PSRP factor considered. If the analyst assigns “2.0” to a particular factor, that indicates that the analyst adds two percentage points to the quantum of the PSRP factor. If the analyst assigns “(1.0)” to a particular factor, that means that the analyst subtracts one percentage point from the quantum of the PSRP. And, if the analyst assigns “0” to a particular factor, that factor has no impact on the quantum of the PSRP. In contrast to the previously described “plus/minus” procedure, in the numerical procedure, the analyst's PSRP estimate is informed by the numerical summation of all of the individual values for each PSRP factor.

The Listing Procedure Applying the listing documentation procedure, analysts list all of the negative—and all of the positive—property-specific risk factors. Analysts do not assign a numerical quantum to either the negative factors or the positive factors. And, analysts do not indicate the relative importance of any individual PSRP factor. Applying the listing procedure, the analyst estimates the PSRP based on professional judgment.

Exhibit 1 depicts the three above-mentioned PSRP documentation procedures as applied to a simplified illustrative taxpayer unit valuation. In this simplified illustrative example, the analyst identified the strategic, financial, and operational risk factors that most affect the taxpayer unit. Based on a functional analysis, the analyst assessed each positive and each negative company-specific risk factor affecting the illustrative taxpayer unit. In Exhibit 1, the analyst prepared three alternative documentation procedures related to the property-specific risk due diligence and analysis. Exhibit 1 illustrates the three alternative documentation formats or procedures (i.e., plus/minus, numerical, and listing) of the analyst-selected PSRP factors in this illustrative taxpayer unit valuation. In this illustrative example, regardless of the due diligence documentation procedure selected, the analyst consistently estimated 4 percent as the PSRP. In this simplified illustrative example, the analyst concludes that 4 percent is the most supportable PSRP estimate.

Conclusion

The PSRP estimate is an important component in the cost of capital measurement for any taxpayer unit valuation. And, the PSRP is often a source of disagreement between analysts preparing valuations of taxpayer property for property tax compliance, appeal, or litigation

purposes. The first part of this two-part discussion summarized (1) the generally accepted cost of capital measurement models, (2) the impact of the PSRP on the cost of capital measurement, and (3) the qualitative factors that analysts may consider in the PSRP estimate. The second part presents various quantitative analyses that analysts may consider as a proxy or benchmark or approximation in the taxpayer unit PSRP estimate. These quantitative analyses are intended to be considered by analysts as a proxy or benchmark or approximation to provide general guidance in the PSRP estimate.

Exhibit 1. Taxpayer Company, Taxpayer Unit Valuation, Documentation of the Analyst's PSRP Assessment, Example of Qualitative Factor Analysis

	Plus/Minus Documentation Procedure	Numerical Documentation Procedure	Listing Documentation Procedure
Analysis of Taxpayer Company Negative Risk Factors			
1. Operating history, volatility of revenue and earnings	+ + +	3.0	X
2. Lack of service line diversification	+ +	1.0	X
3. Obsolete information technology systems	+	0.5	X
4. Key employee dependence	+ +	1.0	X
Analysis of Taxpayer Company Positive Risk Factors			
1. Long-term contracts with established customers	- -	-1.0	X
2. Ownership/license of proprietary patents, copyrights, trademarks, and trade secrets	-	-0.5	
Indicated Taxpayer Unit PSRP (%)	4.0	4.0	4.0
Analyst's Estimated PSRP (%)			**4.0**

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[1] 2018 Cost of Capital: Annual U.S. Guidance and Examples, Duff & Phelps Cost of Capital Navigator.

[2] Gary R. Trugman, *Understanding Business Valuation: A Practical Guide to Valuing Small to Medium Sized Businesses*, 5th ed. (Hoboken, NJ: John Wiley & Sons, 2017), 545.

[3] Ibid., 546.

[4] Ibid.

[5] Ibid.

[6] Ibid., 552.

[7] Duff & Phelps *2017 Valuation Handbook – U.S. Guide to Cost of Capital* (Hoboken, NJ: John Wiley & Sons, 2017), Exhibit A-3.

[8] Shannon P. Pratt and Alina V. Niculita, *Valuing a Business: The Analysis and Appraisal of Closely Held Companies*, 5th ed. (NY: McGraw Hill Companies, 2008), 185.

[9] PSRP may also be relevant when valuing real property, personal property, and other types of illiquid investments. When applying an *investment*-specific risk premium in analyses where the subject to valuation is not a business interest, similar considerations should be made with regard to the (1) validity of the investment-specific risk premium, (2) the legal/statutory limitations on the use of an investment-specific risk premium, and (3) appropriate level of the subject- investment-specific risk premium.

[10] The inclusion of a PSRP in an analyst's assignment is not necessarily limited to valuations. The PSRP may also be applied in damages engagements, transfer price engagements, and numerous other analyst engagements.

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