CONSIDERING A COMPANY-SPECIFIC RISK PREMIUM IN THE COST OF CAPITAL MEASUREMENT

Company-specific risk is a consideration in nearly every method of measuring cost of equity capital as a component of a discount or capitalization rate for the purpose of a construction company valuation.

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Forensic accountants, financial advisors, industry consultants, economists, and other professionals (collectively referred to here as analysts) are often retained to perform valuation, damages, or transfer price analyses related to construction companies, particularly those that are private. These various analyses may be performed for transaction, taxation, financing, accounting, litigation, and many other purposes.

Income approach valuation methods may be applied in the valuation of the construction company and the company ownership interests, securities, and intangible assets. Income-related methods may also be applied in construction company damages measurement analyses and construction company transfer price determination analyses.

These income-related analyses typically include the application of either a present value discount rate (sometimes referred to as a yield capitalization rate) or a direct capitalization rate. Depending on the measure of income included in the construction company valuation, damages, or transfer price analysis, the corresponding discount rate or 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.

There are several generally accepted methods that analysts may apply to measure the construction company's K_e when it is a component of the appropriate discount rate or capitalization rate, which will be summarized in this discussion.

One consideration of nearly every K_e measurement method is investment-specific (or subject-specific) risk. For purposes of this discussion, the subject could be (1) the subject of the valuation analysis, (2) the subject of the damages measurement, or (3) the tangible or intangible property (or service) that is transferred in the transfer price analysis. This subject-specific risk component is called by many names in the professional literature, including unsystematic risk, asymptomatic risk, nondiversifiable risk, nonsystematic risk, project-specific risk,

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residual risk, investment-specific risk, and company-specific risk.

This subject-specific risk component is also sometimes called alpha — or the remaining component of risk that is not measured by the other K_e components. Whatever name is applied to this risk component, it relates to a nondiversifiable element of risk and is one consideration in the analyst's selection of the discount rate or capitalization rate to be applied in the construction company valuation, damages, or transfer price analysis.

This discussion focuses on what should be considered in the analysis of the K_e alpha component (i.e., the unsystematic risk component). It will be presented in two parts, with this first installment focusing on the factors that analysts may consider in the alpha estimation when selecting a K_e for a construction company valuation, damages, or transfer price analysis. The second part of this discussion, to appear in the next issue, will present the empirical evidence that analysts may consider when estimating the company-specific or project-specific risk as part of the construction company cost of capital measurement.

The construction company cost of capital

The K_e is the rate of return that an equity investor expects on the capital invested in a particular investment. Equity investors are usually attracted to a particular investment because they expect to earn a certain return on that investment. In economic terms, the K_e for a particular investment is the opportunity cost of capital. That is, the K_e is 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.

Fundamentally, the K_e is a forward-looking expectation of investment return (i.e., 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, or the amount of return that an investor would expect to earn on a risk-free investment;
- the expected inflation rate, or 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, or 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.

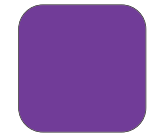
The K_e metric enables the investor to convert (or discount) an estimate of expected future income to a present value. This present value procedure allows the investor to (1) make informed pricing decisions with respect to the purchase or sale of the subject investment and (2) compare one investment opportunity to alternative investment opportunities.

There are several generally accepted K_e measurement methods (often called K_e measurement models). Most of the generally accepted 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. For purposes of this discussion, we generally refer to that unsystematic risk premium as the company-specific risk premium (CSRP).

There are generally accepted data sources that analysts can access to quantify the first four K_e components. For the fifth K_e component (i.e., the unsystematic risk premium), there is no easily identifiable data source that analysts can access for specific quantification. Of course, there is no data source available as a reference for the subject-specific risk measurement because the subject-specific risk by definition is unique to the individual construction company or individual investment project.

There are numerous qualitative factors and 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 construction company K_e is a matter of the analyst's professional judgment.

For purposes of this discussion, the CSRP is explained in the context of the valuation of a construction company ownership interest (e.g., corporation common stock, limited liability company member capital, partnership capital, etc.). That is, the consideration and estimation



THE K_e IS THE RATE OF RETURN THAT AN EQUITY INVESTOR EXPECTS ON THE CAPITAL INVESTED IN A PARTICULAR INVESTMENT.

of a company-specific risk premium is discussed. It is important to note that the concept of CSRP may also be considered in the context of other types of investments. For example, when valuing real estate or tangible personal property (e.g., the operating assets of the construction company), analysts may consider a *property*-specific risk premium in the estimation of the discount rate or direct capitalization rate.

The S_p and the CSRP are sometimes referred to collectively as the alpha (α) 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 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 is as follows:

$$\alpha = R_i - [R_f + \beta \times (R_m - R_f)]$$

where α is Jensen's alpha; R_i is the actual rate of return on the investment; R_f is the risk-free rate of return; $(R_m - R_f)$ is the long-term equity risk premium (measurement of the overall equity risk premium); and β is the 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., when the actual rate of return equals the expected rate of return) will be zero. If, however, the equity security earns a higher rate of return than the CAPM-predicted rate of return, it will have a positive alpha. A negative alpha indicates that the portfolio did not earn its CAPM-predicted rate of return.

While capital markets are typically considered 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 (1) describes several of the generally accepted models that may be applied to measure the construction company K_e, (2) summarizes the empirical evidence that analysts may consider to support the estimation of the CSRP component in the construction company K_e measurement, and (3) presents several benchmarking procedures and best practices that analysts may consider in the CSRP estimation.

Cost of capital measurement models

Investors and finance professionals have developed numerous models for analyzing and measuring the K_e component of investment in a construction company (including a private construction company), a fractional ownership interest (including an identified bundle of income-producing assets), a security, or an intangible asset. These generally accepted K_e measurement models include (1) the dividend yield plus capital gain model (also called the discounted cash flow, or DCF, model), (2) the arbitrage pricing theory (APT) model, (3) the Fama–French multi-factor model, (4) the CAPM, (5) the modified capital asset pricing model (MCAPM), (6) the build-up model (BUM), (7) the Duff & Phelps risk premium report model (RPM), (8) the R_f plus risk premium model, and (9) the Gordon growth model, among many others.

The following discussion focuses on the application of the BUM, the CAPM, the MCAPM, and the RPM to measure K_e for the purpose of valuing a private construction company, company securities, or company tangible or intangible property. However, analysts should be aware that the CSRP (or unsystematic risk premium) is a consideration in just about every discount rate and capitalization rate measurement as well as in just about every construction company valuation, damages, or transfer price analysis.

In each K_e measurement model, the R_f is the rate of return available on a security 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, which is often used as the empirical benchmark in the measurement of the general ERP.

THE CSRP (OR UNSYSTEMATIC RISK PREMIUM) IS A CONSIDERATION IN JUST ABOUT EVERY DISCOUNT RATE AND CAPITALIZATION RATE MEASUREMENT AS WELL AS IN JUST ABOUT EVERY CONSTRUCTION COMPANY VALUATION, DAMAGES, OR TRANSFER PRICE ANALYSIS.

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 for 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 (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 is the equity risk premium; R_m is the expected rate of return on the stock market; and R_f is the 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 CSRP.

In the BUM, the K_e is generally calculated as follows[2]:

$$K_e = R_f + ERP + IRP + S_p + CSRP$$

where K_e is the cost of equity capital; R_f is the risk-free rate of return; ERP is the equity risk premium; IRP is the industry risk premium; S_p is the size-related risk premium; and CSRP is the company-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 applied 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 CSRP.

In addition, the basic CAPM is based on a number of fundamental assumptions. Some of these assumptions underlying the development and application of the basic 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.

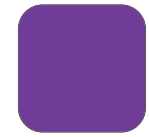
These fundamental assumptions typically do not apply in the valuation of a private construction company, company ownership interest, security, or intangible asset. Further, the fundamental assumptions of the CAPM do not always apply when estimating the K_e of a well-diversified portfolio of publicly traded securities. Analysts know this because alpha is still observable in the public capital markets.

The basic CAPM formula is presented as follows[5]:

$$K_e = R_f + \beta \times (R_m - R_f)$$

where K_e is the cost of equity capital; R_f is the risk-free rate of return; $(R_m - R_f)$ is the long-term equity risk premium (measurement of the overall equity risk premium); and β is the industry beta.

Modified capital asset pricing model. The MCAPM measurement method expands upon the basic CAPM method. The application of the MCAPM is appropriate for measuring the K_e that would be applicable



THE FUNDAMENTAL ASSUMPTIONS OF THE CAPM DO NOT ALWAYS APPLY WHEN ESTIMATING THE K_e OF A WELL-DIVERSIFIED PORTFOLIO OF PUBLICLY TRADED SECURITIES.

to the valuation of a private construction company, company ownership interest, security, or intangible asset. This is because the MCAPM includes consideration of both an S_p component and a CSRP component.

The MCAPM formula is presented as follows[6]:

$$K_e = R_f + \beta \times (R_m - R_f) + S_p + CSRP$$

where K_e is the cost of equity capital; R_f is the risk-free rate of return; $(R_m - R_f)$ is the long-term equity risk premium (measurement of the overall equity risk premium); β is the industry beta; S_p is the size-related risk premium; and CSRP is the company-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 debt/equity leverage in the public company's capital structure.

ANALYSTS RELY ON THE SUBJECT INVESTMENT (E.G., THE PRIVATE CONSTRUCTION COMPANY) OPERATING FUNDAMENTALS AND THE CORRESPONDING REGRESSION EQUATION TO ESTIMATE THE ERP OVER THE R_f FOR THE SUBJECT INVESTMENT.

Duff & Phelps risk premium report model. Duff & Phelps, LLC, annually publishes a measurement of the ERP based on the factors included in their "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. 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 (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 and 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 private construction company.

Analysts rely on the subject investment (e.g., the private construction company) operating fundamentals and the corresponding regression equation to estimate the ERP over the R_f for the subject investment. Analysts may include a CSRP component in the indicated ERP to measure the subject investment's K_e.

For example, assume that an analyst is valuing an ownership interest in a private construction company as of June 2017. Also assume that the private construction company reports a historical five-year average net income of $700,000. Applying the RPM regression formulas, the applicable regression equation variables are a constant of 14.722 percent and a coefficient of –2.565 percent.[7]

The calculation of the ERP over the R_f in this example is 14.722 percent plus –2.565 percent, multiplied by the common logarithm (or Log_{10}) of $700,000. The resulting ERP over the R_f equals 15.12 percent.

The RPM relies on an estimated ERP by Duff & Phelps to calculate the regression variables, and therefore, an ERP adjustment is needed. One frequently applied procedure for making this adjustment is to reconcile the difference between the ERP used in other K_e models (e.g., the MCAPM) and the estimated ERP from Duff & Phelps used to calculate the regression variables.

Continuing with the previous example, 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 then be the R_f (assume 2.60 percent) plus the ERP of 15.12 percent, plus the ERP adjustment of 1.94 percent, plus the CSRP (assume 3 percent). Therefore, the estimated K_e would be 22.66 percent.

In the application of the MCAPM to measure the K_e for a private construction company, company ownership interest, security, or intangible asset, analysts should understand both the conceptual basis for

— and the empirical data considered in the measurement of — the subject S_p and the CSRP. To do so, it is important for analysts to understand the concepts of systematic risk and unsystematic risk.

Systematic risk and unsystematic risk. To understand the importance of both the S_p and the CSRP in measuring K_e for the analysis of a private construction company, company ownership interest, security, or intangible asset, it may be helpful to identify the differences between systematic risk and unsystematic risk. According to the textbook *Valuing a Business*:

> ...*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. [8]

The basic CAPM assumes that the K_e risk premium component is a function of the subject investment's systematic risk only. One fundamental principle of the basic CAPM is that the subject investment is both (1) perfectly liquid and (2) part of a perfectly diversified portfolio of liquid investments. 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 basic CAPM does not incorporate an adjustment for CSRP.

However, MCAPM was developed as a method for measuring K_e for an investment that is (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 an investment in a private construction company, company ownership interest, security, or intangible asset.

Unsystematic risk is incorporated in the MCAPM measurement of K_e by including the consideration of both S_p and CSRP (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 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 to attract equity investors.

Company-specific risk premium. The CSRP is the risk premium associated with the level of unsystematic risk inherent in a particular private construction company, company ownership interest, security, or intangible asset. The CSRP can be positive or negative depending on the facts and circumstances of the private construction company or investment. It represents the additional risk premium required to compensate an equity investor for the uncertainty of investing in a particular private construction company or investment.

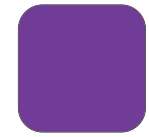
The following discussion considers (1) the conceptual principles for the CSRP component of the K_e and (2) the practical procedures for measuring the CSRP component of the K_e.

Selection of a company-specific risk premium

In the professional literature related to investment analysis and portfolio management, company-specific risk is interchangeably referred to as investment-specific risk, property-specific risk, nonsystematic risk, unsystematic risk, nondiversifiable risk, and idiosyncratic risk. This discussion will sometimes use the term investment-specific risk but will generally use the term company-specific risk.

Consideration of a company-specific risk premium. In estimations of the appropriate discount rate or capitalization rate related to an investment, the CSRP is generally the last component applied when measuring the K_e. The CSRP is the component of risk that makes an investment (1) unique and (2) different from other benchmark investments that may be used to measure construction company capitalization rates, valuation pricing multiples, and/or other pricing metrics.

The inclusion of a CSRP in the K_e measurement is a generally accepted valuation procedure. However, a few issues make estimating a supportable level of company-specific risk difficult, including risk identification,



IT IS IMPORTANT FOR ANALYSTS TO UNDERSTAND THE CONCEPTS OF SYSTEMATIC RISK AND UNSYSTEMATIC RISK.

risk measurement, and risk correlation with the appropriate incremental rate of return.

Because the CSRP is based on company-specific risk, there is no database, empirical study, measurement model, or formula that can be applied to calculate a CSRP for an individual investment. Therefore, while both qualitative analysis and quantitative empirical data proxies may be useful in the estimation of a CSRP, the CSRP estimation process is ultimately a matter of the analyst's professional judgment.

In many (but not all) transactions involving business interests, investors (or potential willing buyers) expect to be compensated for the assumption of company-specific risk. However, investors (or potential willing buyers) do not expect to be compensated for a CSRP in transactions in which company-specific risk can be easily diversified away.

BECAUSE THE CSRP IS BASED ON COMPANY-SPECIFIC RISK, THERE IS NO DATABASE, EMPIRICAL STUDY, MEASUREMENT MODEL, OR FORMULA THAT CAN BE APPLIED TO CALCULATE A CSRP FOR AN INDIVIDUAL INVESTMENT.

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 private construction company valuation, damages, or transfer price analysis. This is because the MCAPM incorporates a component for the increased risk associated with private construction company investment factors — factors that are not mitigated by perfect diversification and perfect liquidity.

For construction company business 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 CSRP.

The CSRP is considered directly in the application of the income approach when analysts select a discount or capitalization rate for the valuation of a construction company business interest.[9] The CSRP is considered indirectly, on the other hand, in the application of the market approach and the asset-based approach in the valuation of a construction company business interest.

More specifically, the CSRP is considered directly in the valuation income approach when analysts estimate the K_e for purposes of calculating (1) a cash flow–based (enterprise) discount or capitalization rate or (2) a net income–based (equity) discount or capitalization rate.

The CSRP is considered indirectly in the valuation market approach when (1) selecting guideline publicly traded companies and guideline merger and acquisition transactions and (2) extracting subject interest–specific pricing multiples from the selected guideline publicly traded companies or the guideline merger and acquisition transactions.

The CSRP is also considered indirectly in the valuation asset-based approach when (1) measuring any intangible value in the nature of goodwill, particularly through the application of the capitalized excess earnings method (CEEM) of intangible property valuation, or (2) measuring any economic obsolescence in the cost approach valuation of the construction company 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 CSRP may be influenced by the purpose of the valuation.[10] For example, the selection of the CSRP 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); and
- 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).

Furthermore, the consideration of CSRP with regard to a construction company valuation, damages, or transfer price analysis may be informed by legal instructions from

legal counsel. Legal counsel may instruct the analyst as to relevant statutory authority, judicial precedent, or administrative rulings. The Delaware Court of Chancery (hereafter, the Chancery Court) has opined on the inclusion of a CSRP in numerous fair value–related shareholder appraisal rights and shareholder oppression matters. In these judicial decisions, the Chancery Court has generally disallowed the inclusion of a CSRP in the K_e measurement with regard to fair value valuations. As a result, in such a shareholder dispute pending before the Chancery Court, legal counsel may instruct the analyst not to consider the CSRP in the valuation discount or capitalization rate analysis.

The following discussion summarizes the analyst's qualitative and quantitative considerations related to the CSRP.

Quantification of a company-specific risk premium

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

Qualitative factors. Three sets of qualitative factors that analysts consider are presented as follows:

- the National Association of Certified Valuators and Analysts (NACVA) factors;
- the subject company competitive analysis factors; and
- the subject company functional analysis factors.

NACVA factors: In its publications, NACVA has recommended various factors that analysts may consider in the estimation of a CSRP. 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; and
6. local economic effects.

NACVA indicates that analysts make individual quantitative and qualitative assessments within each of the first four categories of CSRP factors. To determine an appropriate CSRP, analysts assign 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 construction company operations.

The final two categories are economic factors to which 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 all of the point values in the first four categories (weighted by the number of individual factors in each category) and all of the point values in the last two categories. This summation provides an indication for analysts to consider in the judgment-based estimation of the CSRP.

The NACVA analysis is considered a numerical procedure. An example of a numerical procedure is presented later in this discussion.

Construction company competitive analysis factors: The analyst's strategic assessment of the construction company's competitive position provides an analysis structure — based on a competitive advantage and strategy analysis — for estimating the CSRP. This competitive analysis aggregates the CSRP factors into three categories that consider the construction company's strengths, weaknesses, opportunities, and threats (SWOT). These categories of factors are presented as follows:

1. macroenvironmental factors;
2. industry factors; and
3. 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, a competitive analysis should be part of the analyst's judgment in estimating a supportable CSRP.

The competitive analysis may be applied by considering any of the qualitative factor analysis procedures presented later in this discussion.

Construction company functional analysis factors: A functional analysis considers the assets employed, the functions performed, and the risks assumed by the construction company. Such a functional analysis includes

ANALYSTS MAY RELY ON A QUALITATIVE ANALYSIS TO ESTIMATE A SUPPORTABLE CSRP.

the analyst's consideration of various categories of individual quantitative and qualitative CSRP factors.

One of the functional analysis categories of CSRP considerations relates to the following construction company risk factors:

- economic risk;
- operating risk;
- asset risk;
- market risk;
- regulatory risk;
- business risk;
- financial risk;
- product risk;
- technological risk; and
- legal risk.

Such a functional analysis further presents a category of CSRP considerations relating to the following construction company nonfinancial factors:

- economic conditions;
- location of business;
- depth of management;
- barriers to entry into market;
- industry conditions;
- competition;
- quality of management; and
- the bottom line.

APPLYING THE LISTING DOCUMENTATION PROCEDURE, ANALYSTS LIST ALL OF THE POSITIVE AND NEGATIVE COMPANY-SPECIFIC RISK FACTORS.

The analyst's company-specific assessment of all these factors is relevant to the CSRP estimation process. Moreover, as with all of the CSRP factors considered, analysts rely on informed professional judgment when estimating a supportable CSRP.

The following section presents three practical procedures that analysts may consider to analyze and document the qualitative factors presented here.

Documentation procedures of a qualitative factor analysis. Some analysts adhere to three procedures for estimating a CSRP based on the qualitative analysis of the company-specific risk factors and documenting the analyst's due diligence and ultimate estimation of the CSRP. 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 CSRP factors selected by the analyst.

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 CSRP; the minus notation indicates that the factor decreases the amount of the CSRP. A blank notation indicates that the factor has a neutral impact on the amount of the CSRP.

Double or triple notations (e.g., ++ or –––) indicate that the individual factor has a particularly positive or a particularly negative impact on the quantum of the CSRP. Each plus/minus notation, however, does not necessarily represent one percentage point.

Ultimately, the quantum of the CSRP is based on the analyst's professional judgment. The estimation of the CSRP 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 CSRP 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 CSRP 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 CSRP. Finally, if the analyst assigns "0" to a particular factor, that factor has no impact on the quantum of the CSRP.

In contrast to the previously described plus/minus procedure, in the numerical procedure, the analyst's estimation of the CSRP is informed by the numerical summation of all of the individual values for each CSRP factor.

The listing procedure: Applying the listing documentation procedure, analysts list all of the positive and negative company-specific risk factors. Analysts do not assign a numerical quantum to either the negative factors or the positive factors, and they do not indicate the relative importance of any individual CSRP factor.

Applying the listing procedure, the analyst estimates a supportable CSRP based on professional judgment.

Example of qualitative factor analysis. Exhibit 1 depicts the three CSRP documentation procedures as applied to a simplified illustrative private construction company valuation. In this simplified illustrative example, the analyst identified the strategic, financial, and operational risk factors that most affect the construction company.

EXHIBIT 1
Documentation of Analyst's CSRP Assessment Judgments in an Illustrative Private Construction Company Valuation Analysis: Example of Qualitative Factor Analysis

	Plus/Minus Documentation Procedure	Numerical Documentation Procedure	Listing Documentation Procedure
Analysis of Private Construction 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 Private Construction 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 Construction Company CSRP (%)	4.0	4.0	4.0
Analyst's Estimated CSRP (%)			**4.0**

Based on a functional analysis, the analyst assessed each positive and each negative company-specific risk factor affecting the illustrative construction company. In Exhibit 1, the analyst prepared three alternative documentation procedures (plus/minus, numerical, and listing) related to the subject company–specific risk due diligence and analysis. In this illustrative example, regardless of the due diligence documentation procedure selected, the analyst consistently estimated 4 percent as the CSRP. Therefore, the analyst concludes that 4 percent is the most supportable CSRP estimate.

Summary

The CSRP estimation is an important component in the cost of capital measurement for any construction company valuation, damages, or transfer price analysis. The first part of this two-part discussion summarized (1) the generally accepted cost of capital measurement models, (2) the impact of the CSRP on the cost of capital measurement, and (3) the qualitative factors that analysts may consider in the estimation of the construction company CSRP.

The second part of this two-part discussion will present various quantitative analyses that analysts may consider as a proxy, benchmark, or approximation in the construction company CSRP estimation process. These quantitative analyses are intended to be considered by analysts as a proxy, benchmark, or approximation to provide general guidance in the construction company CSRP estimation. ■

NOTES

[1] "2018 cost of capital: Annual U.S. guidance and examples," Duff & Phelps Cost of Capital Navigator (2018).

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

[3] *Ibid.*, p. 546.

[4] *Op. cit.* note 2, p. 546.

[5] *Ibid.*

[6] *Op. cit.* note 2, p. 552.

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

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

[9] CSRP 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) 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 CSRP in an analyst's assignment is not necessarily limited to valuations. The CSRP may also be applied in damages engagements, transfer price engagements, and numerous other analyst engagements.