

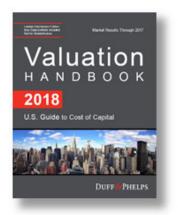
# Cost of Capital Navigator Frequently Asked Questions: General

# Question 1: What is the Duff & Phelps Cost of Capital Navigator?

In 2018, Duff & Phelps transitioned from print to online delivery of the *Valuation Handbook* series when Duff & Phelps launched the new online Cost of Capital Navigator.

The Cost of Capital Navigator guides the Analyst through the process of estimating the cost of capital, a key component of any valuation analysis.<sup>1</sup>

The four *Valuation Handbooks* will be transitioned over to the online Cost of Capital Navigator in stages. In the first stage, the *Valuation Handbook – U.S. Guide to Cost of Capital* was transitioned over:







**Cost of Capital Navigator** 

This is the book that many Analysts are most familiar with. It includes two essential valuation data sets:

- The CRSP Deciles Size Study (the former Ibbotson/Morningstar *SBBI*® *Valuation Yearbook* data)
- The Risk Premium Report Study.

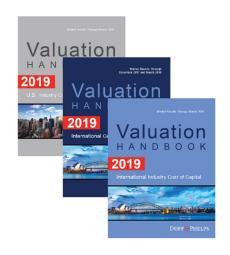
This book is where the (i) size premia, (ii) industry risk premia, (iii) equity risk premia (ERPs), (iv) risk-free rates, and (v) other risk premia are found that Analysts have used and trusted for years to develop cost of capital estimates for us companies.<sup>2</sup>



At launch, the Cost of Capital Navigator only included cost of equity estimates. Now, the Cost of Capital Navigator also includes the ability to calculate a weighted average cost of capital (WACC), and further modules will be added to calculate cost of debt, as well as industry specific data.

<sup>&</sup>lt;sup>2</sup> To learn more, see: FAQ – Data/Functionality

The other three *Valuation handbooks* (the *Valuation Handbook – U.S. Industry Cost of Capital, the Valuation Handbook – International Guide to Cost of Capital,* and the *Valuation Handbook – International Industry Cost of Capital*) will be printed and distributed as books in 2019, but will be added to the Cost of Capital Navigator later in 2019 and 2020.



Later, in 2019/2020





**Cost of Capital Navigator** 

#### 2019 and 2020 Schedule:

	2019	2020
Valuation Handbook – U.S. Guide to Cost of Capital	Data available only in the Cost of Capital Navigator	Data available only in the Cost of Capital Navigator
Valuation Handbook – U.S. Industry Cost of Capital	Printed as book	Data available only in the Cost of Capital Navigator
Valuation Handbook – International Guide to Cost of Capital	Printed as book	Data available only in the Cost of Capital Navigator
Valuation Handbook – International Industry Cost of Capital	Printed as book	Data available only in the Cost of Capital Navigator

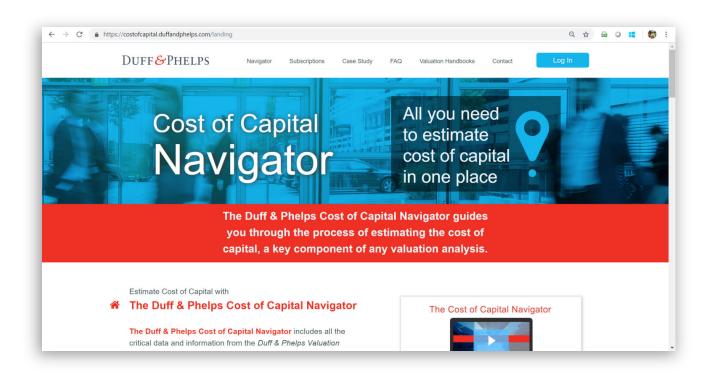


# **Question 2:** How does the Cost of Capital Navigator work?

The Cost of Capital Navigator guides the Analyst through the process of estimating the cost of equity capital, a key component of any valuation analysis.

The Cost of Capital Navigator includes all of the critical information and data from the 1999–2019 CRSP Deciles Size Study and Risk Premium Report Study that were published in the *Valuation Handbook – U.S. Guide to Cost of Capital* from 2014 to 2017, and, before that, in the Ibbotson/Morningstar *Stocks, Bonds, Bills, and Inflation*<sup>®</sup> (*SBBI*<sup>®</sup>) *Valuation Yearbook* and Duff & Phelps' *Risk Premium Report*, respectively, from 1999 to 2013.<sup>3</sup> Both of these two valuation data sets have been used and trusted by valuation Analysts for more than 20 years.

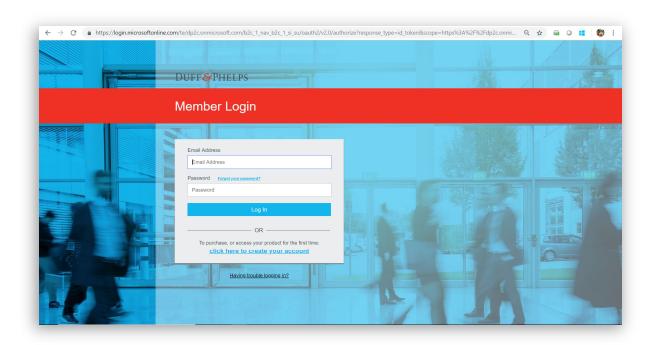
The Cost of Capital Navigator is web-based, so you can access it from your desktop, laptop, or tablet:



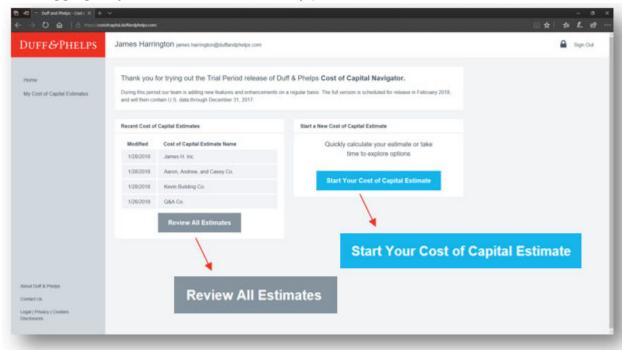
The valuation data and information in the Cost of Capital Navigator is the actual "as published" valuation data from the source publications (i.e., the *Valuation Handbook – U.S. Guide to Cost of Capital* from 2014 to 2017, and the Ibbotson/Morningstar *SBBI*® *Valuation Yearbook* and Duff & Phelps' *Risk Premium Report* from 1999 to 2013). The 1999–2013 Morningstar/Ibbotson size premia, industry risk premia, and other valuation data that are presented within the Cost of Capital Navigator are used with permission from Morningstar, Inc.



You log in using your email address and password:



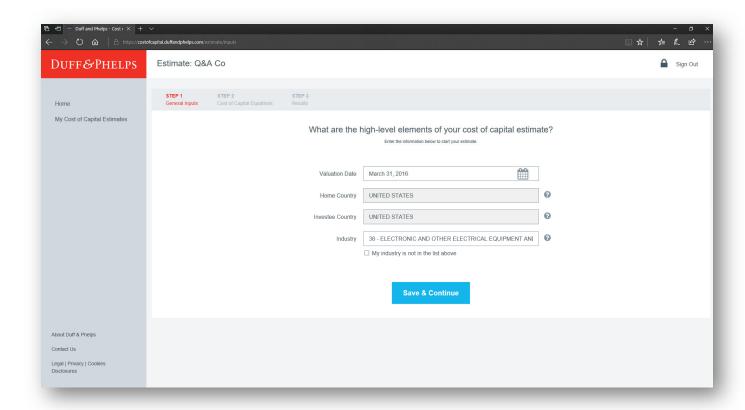
After logging in, you can review and modify previous estimates,<sup>4</sup> or start a new estimate:





<sup>&</sup>lt;sup>4</sup> To learn more, see: FAQ – Data/Functionality

In this example, we will start a new estimate. The Cost of Capital Navigator will prompt the Analyst to answer four high-level questions about the new estimate:



- 1. Valuation Date<sup>5</sup>
- 2. Home Country<sup>6</sup>
- 3. Investee Country<sup>6</sup>
- 4. Industry<sup>7</sup>

The selections of "Industry" include any of the 200+ industries for which industry betas are calculated in the Duff & Phelps Valuation Handbook – U.S. Guide to Cost of Capital and Valuation Handbook – U.S. Industry Cost of Capital.



The Cost of Capital Navigator provides valuation data spanning 20 years, and can be used to develop cost of equity capital estimates for all valuation dates from December 31, 1998 through present with a "Pro" level subscription. The "Basic" subscription offers only the two most recent years of data.

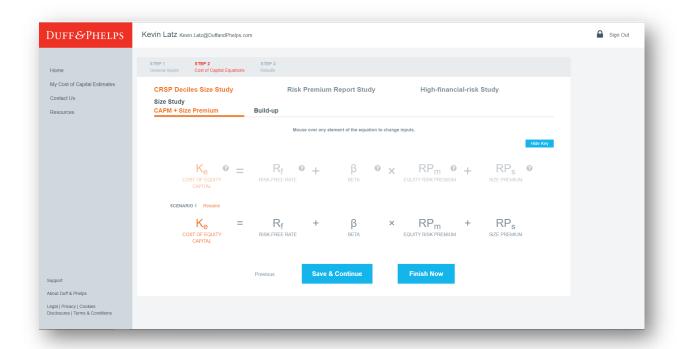
As of the initial launch of the Cost of Capital Navigator in February 2018, the information and data from the *Valuation Handbook* – *U.S. Guide to Cost of Capital* is included, and so the "Home Country" and "Investee Country" are both defaulted to "United States". After adding the other three *Valuation Handbooks* to the Cost of Capital Navigator later in 2019/2020 (which includes international valuation and international industry data), the Analyst will be able to select from up to 56 "Home Countries" and approximately 180 "Investee Countries", and use the Cost of Capital Navigator to estimate cost of equity capital *globally*.

After entering these four high-level questions, the Analyst can use the Cost of Capital Navigator to estimate cost of equity capital for a subject company using the valuation data that Analysts have used and trusted for years from the CRSP Deciles Size Study and the Risk Premium Report Study (e.g., (i) risk-free rates, (ii) equity risk premia (ERPs), (iii) size premia, (iv) risk premia over the risk-free rate, and (v) industry risk premia).<sup>8,9</sup>

The Cost of Capital Navigator can be used to estimate the cost of equity capital using the capital asset pricing model (CAPM) and various Build-up methods.

The Cost of Capital Navigator is easy to use. You just click the data set desired at the top (CRSP Deciles Size Study, or Risk Premium Report Study), and then click the method desired (CAPM, or various Build-up methods), and the appropriate equation is displayed.

In the image below, the CRSP Deciles Size Study and the CAPM method have been selected, and the CAPM equation appears:



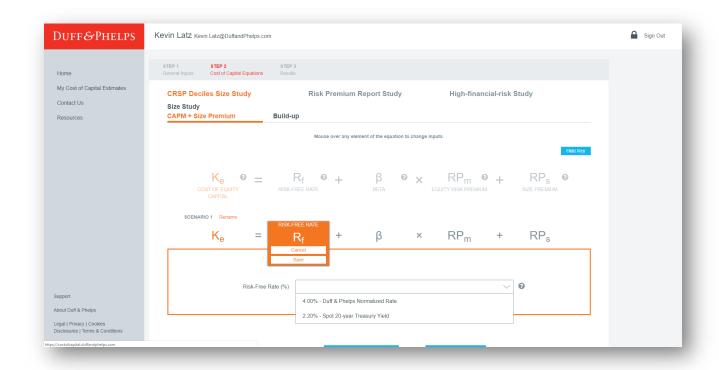
The Risk Premium Report Study was published as the Duff & Phelps Risk Premium Report from 2005 to 2013, as Standard & Poor's Corporate Value Consulting Risk Premium Report for reports from 2002 to 2004 and as the PricewaterhouseCoopers Risk Premium Reports and Price Waterhouse Risk Premium Reports for years before 2002. Starting in 2018, the Risk Premium Report Study is available only through the Duff & Phelps Cost of Capital Navigator.



The "CRSP Deciles Size Study" was published in the Ibbotson (Morningstar Stocks, Bonds, Bills, and Inflation (SBB) Valuation Yearbook from 1999–2013, and in the Duff & Phelps Valuation Handbook – U.S. Guide to Cost of Capital from 2014–2017. Starting in 2018, the CRSP Deciles Size Study is available only through the Duff & Phelps Cost of Capital Navigator.

The Analyst can then click on each of the elements in the equation, and either (i) type in a custom value, or (ii) select various "off-the-shelf" values.

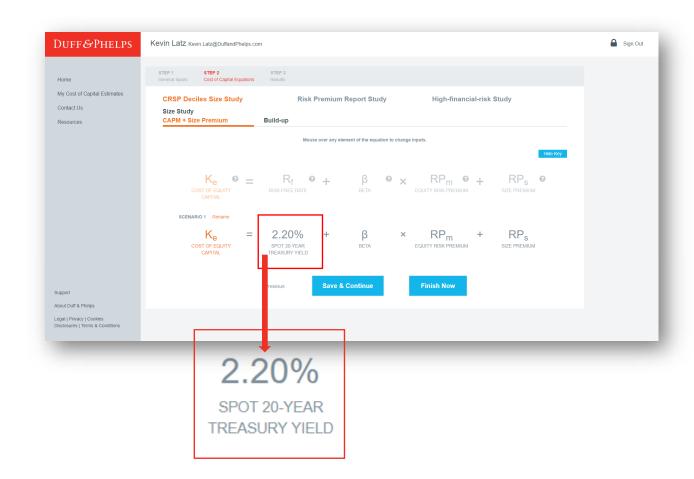
For example, in the image below, the risk-free rate in the equation has been clicked. The Analyst can (i) type in a custom rate, or select either (ii) the "spot" rate, or (iii) the Duff & Phelps normalized rate.<sup>10</sup>



<sup>&</sup>quot;Spot" risk-free rates in the Cost of Capital Navigator are long-term 20-year constant maturity U.S. Treasury yields from the U.S. Federal Reserve. The Duff & Phelps "normalized" risk-free rate is the long-term "sustainable" 20-year yield that takes into account the effect of central bank monetary interventions.



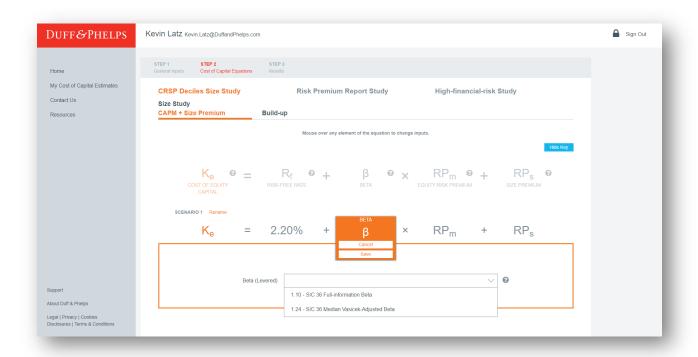
In this example, the Analyst has selected the "spot" rate, and the Cost of Capital Navigator automatically pulls in the appropriate rate as of the valuation date, and then labels the risk-free rate "Spot Rate" to reflect this:



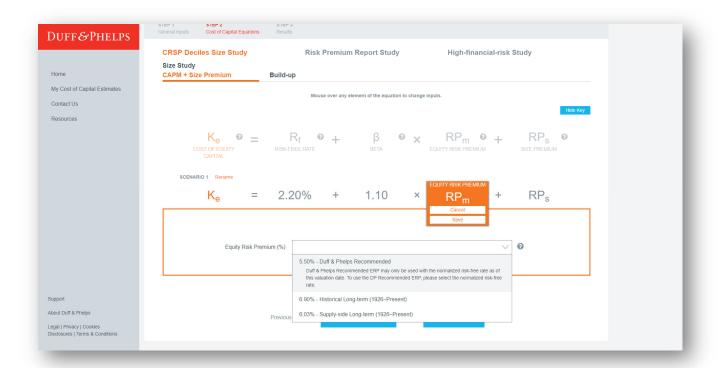
The Analyst continues to click on each of the elements in the equation (in turn), and types in custom values, or selects "off-the-shelf" input until the equation is completed (see following pages).



#### Selection of "Beta" for use in the CAPM:

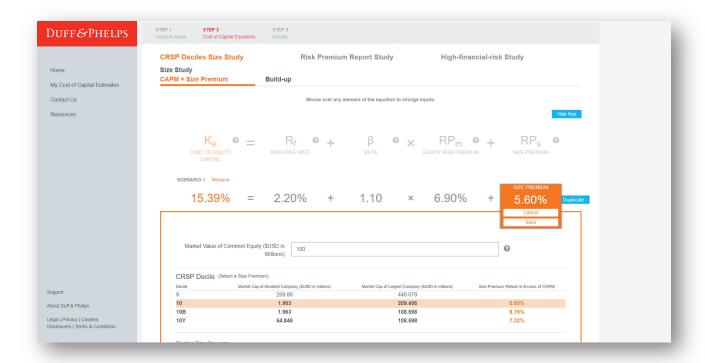


## Selection of an equity risk premium (ERP):





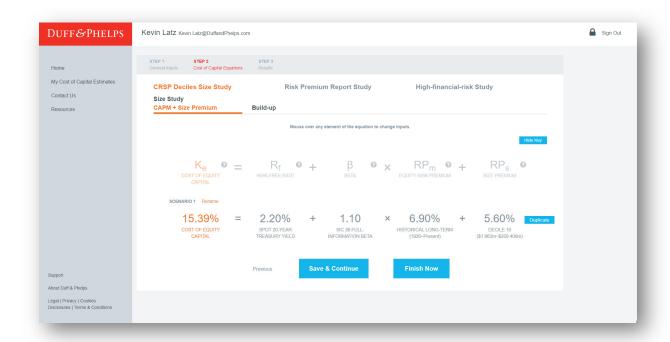
## Selection of a size premium:



After the Analyst has clicked on each of the elements in the equation (in turn), and selected either an "off-the-shelf" input or typed in a custom value for each, the Cost of Capital Navigator can calculate a cost of equity capital estimate for the subject company (in this case, 15.39%):

(Continued on next page)





At this point, the Analyst (i) can "duplicate" the equation and vary the inputs to develop a sensitivity analysis for the valuation, or (ii) move on and estimate cost of equity capital for the subject company using a different method (e.g., Build-up), or a different data set altogether (e.g., the Risk Premium Report Study).



# **Question 3:** Is the Cost of Capital Navigator a "Black Box"?

No.

The new Cost of Capital Navigator platform is a fully-documented application that is even more transparent (and more flexible) than the former hardcover books.

Luckily, full documentation is available in the Cost of Capital Navigator.

Over the course of the two plus years it has taken to get the Cost of Capital Navigator up and running, tested, and ready for launch, we have spoken to many hands-on users of the "Valuation Handbooks", firms (both large and small), and our distributors about how to transition this data over from hardcover books to digital delivery smoothly, and with minimal disruption.

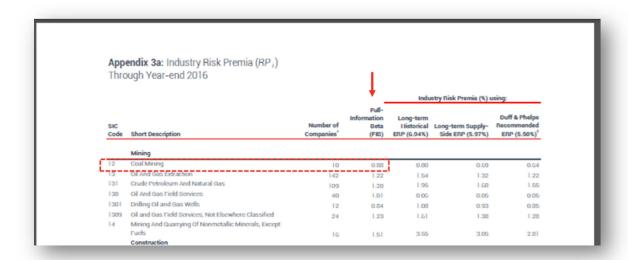
We appreciated what we heard back, which basically boiled down to two big sentiments: (i) there really is <u>no</u> way to do this without causing some disruption, and (ii) the Cost of Capital Navigator must be transparent (i.e., not a "black box").

We listened carefully to these concerns, agree with these concerns, and are committed to making the Cost of Capital Navigator even more transparent (and more flexible) than the former hardcover books. In fact, it is even easier to retrieve the data you need from the Cost of Capital Navigator than from the hardcover books, and on the next page we will demonstrate that the data in the Cost of Capital Navigator is the *exact same* as in the *Valuation Handbooks*.

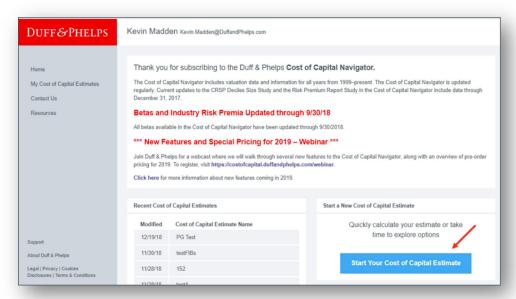
(Continued on next page)



For this example, we will compare how an analyst would find an industry beta with the *Valuation Handbook – U.S. Guide to Cost of* Capital and the Cost of Capital Navigator. Before the release of the Cost of Capital Navigator, an analyst would need to look up their industry beta by (i) selecting the correct book based on their valuation date, (ii) finding the correct data table in the book, and (iii) reviewing the entire table to find their SIC code. For this example we have chosen SIC 12 – Coal Mining for a February 28, 2017 valuation date. We will use December 31, 2016 data since that is the most recent quarterly update as of our valuation date. The Full-Information Beta as of December 31, 2016 for SIC 12 is 0.88 as seen below.

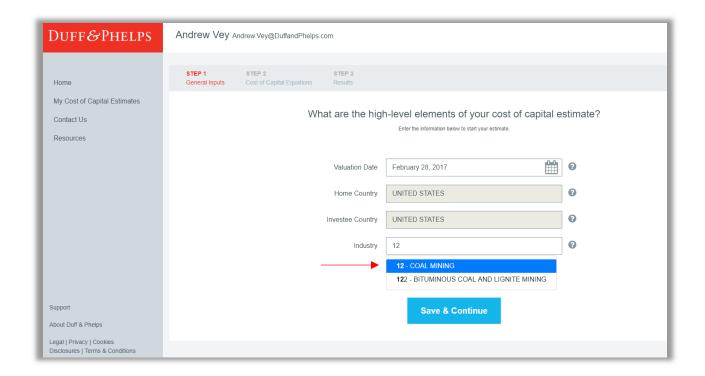


In the Cost of Capital Navigator, this data is even easier to retrieve. To begin, an analyst starts a new Cost of Capital Estimate.



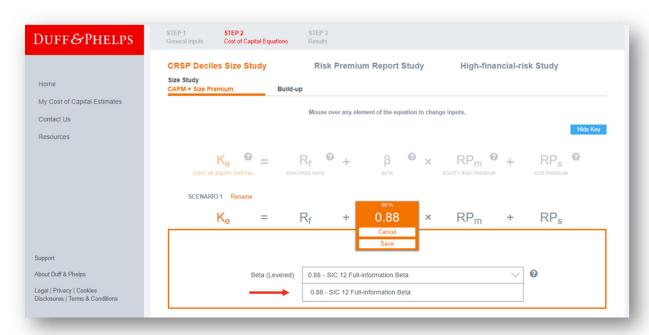


The first step is to select a valuation date and an industry. We enter our valuation date of February 28, 2017 and SIC 12 for our industry. The Navigator will automatically map us to use data as of December 31, 2016 since this is the most recent quarterly data available. This will match us with the data from the 2017 Valuation Handbook – U.S. Guide to Cost of Capital. The Cost of Capital Navigator also allows for any industry to be selected, as long as we have data for that industry (as of your valuation date). Just as you would search for an SIC code in the book, you can type in your desired SIC code, by number or keyword. As you see below, we will once again be finding a beta for SIC 12 – Coal Mining.





The final step is to select your beta to use in your CAPM or to calculate an industry risk premium in the Build-up method. To select any data point, the analyst simply needs to hover over that data point and then click on the drop-down menu as seen below. Once selected, the drop-down menu will show any data point available to the analyst as of that valuation date. After clicking on the beta drop down in the CAPM equation, we see a Full-Information Beta of 0.88, the exact same as in the 2017 Valuation Handbook – U.S. Guide to Cost of Capital.



#### Features of the Cost of Capital Navigator:

• Same Data: The 1999–2017 CRSP Deciles Size Study and Risk Premium Report Study data that is available in the Cost of Capital Navigator is the <u>same data</u> that was published in the *Valuation Handbook – U.S. Guide to Cost of Capital* from 2014 to 2017, and, before that, in the Ibbotson/Morningstar *Stocks, Bonds, Bills, and Inflation (SBBI®) Valuation Yearbook* and Duff & Phelps' *Risk Premium Report*, respectively, from 1999 to 2013. 11 Both of these two valuation data sets have been used and trusted by valuation Analysts for more than 20 years.

The valuation data and information in the Cost of Capital Navigator is the actual "as published" valuation data from the source publications (i.e., the *Valuation Handbook – U.S. Guide to Cost of Capital* from 2014 to 2017, and the Ibbotson/Morningstar *SBBI Valuation Yearbook* and Duff & Phelps' *Risk Premium Report* from 1999 to 2013). The 1999–2013 Morningstar/Ibbotson size premia, industry risk premia, and other valuation data that are presented within the Cost of Capital Navigator are used with permission from Morningstar, Inc.



- Same Tables: Starting in 2019, the size premia from the CRSP Deciles Size Study and the size premia and "risk premia over the risk-free rate" from the Risk Premium Report Study (i) will be viewable within the Cost of Capital Navigator, and (ii) will be included in the Cost of Capital Navigator's PDF outputs.
- Same Data Sources: The <u>same data sources</u> used to produce the valuation data in the former hardcover *Valuation Handbook U.S. Guide to Cost of Capital* (and before that book's creation in 2014, the Ibbotson/Morningstar *SBBI Valuation Yearbook* and Duff & Phelps' *Risk Premium Report*), are being used to produce the Cost of Capital Navigator data in 2018 and beyond.<sup>12</sup>
- Content, Examples, FAQs, and Methodology are Included: All of the great content, examples, frequently asked questions (FAQs), and methodology, from each of the Valuation Handbooks U.S. Guide to Cost of Capital from 2014 forward, including all of the new content for 2019, will be available in the Cost of Capital Navigator, organized by chapter.
- Searchable: All of the content, examples, FAQs, and methodology are fully searchable. This makes it even easier to find the information you want in the Cost of Capital Navigator than in the former hardcover books.
- **Printable:** All of the content, examples, FAQs, and methodology are printable by section. You can do that by simply clicking "print", which is just as easy, if not easier, than scanning or copying individual pages form a hardcover book.
- Comprehensive, Auditable Summary Documentation: The Cost of Capital Navigator provides a comprehensive, auditable summary of your cost of capital estimate, and the inputs, assumptions, and sources used in your analysis. All of this is exportable to a PDF document or Excel spreadsheet.

These sources include, but are not limited to: (i) the Center for Research in Security Prices (CRSP) market-cap-based NYSE/NYSE MKT/ NASDAQ indices (to learn more about the Center for Research in Security Prices at the University of Chicago Booth School of Business, visit www.crsp.com), (ii) Standard & Poor's Research Insight database (to learn more about Standard & Poor's, visit www.standardandpoors.com/home/en/us), (iii) the Stocks, Bonds, Bills, and Inflation (SBBI) Series from Morningstar's Direct database (to learn more about Morningstar's Direct database, visit www.corporate.morningstar.com).



# **Question 4:** What are some of the future additions to the Cost of Capital Navigator?

Later in 2019 and 2020, the remaining three *Valuation Handbooks* (the *Valuation Handbook – U.S. Industry Cost of Capital, the Valuation Handbook – International Guide to Cost of Capital, and the Valuation Handbook – International Industry Cost of Capital*) will be transitioned over to the Cost of Capital Navigator.

Other enhancements that will be released in 2019 include:

**Excel Add-in:** Do you already have your own Excel models and templates set up the way you like them to perform your valuation analysis? Then the new Cost of Capital Navigator Excel "Add-in" is designed just for you. This powerful new tool enables Cost of Capital Navigator users to directly import Duff & Phelps cost of capital data (size premia, equity risk premia, risk-free rates, betas, industry risk premia and more) into their own Excel spreadsheets.

**Industry Snapshot:** The Cost of Capital Navigator Resources section will include a new "Industry Snapshot" which provides key industry-level data (e.g., industry-level cost of equity capital estimates, betas, valuation multiples, etc.) from the *Valuation Handbook – U.S. Industry Cost of Capital*, as of your valuation date for the industry in which your subject company operates.

"Size" Tables Now Included: In 2019, the full size premia and risk premia tables from the CRSP Deciles Size Study and the Risk Premium Report size study and risk study will be:

- Viewable within the Cost of Capital Navigator
- Included in the Navigator's PDF outputs

**Enhanced Outputs:** In 2019, "Enhanced Outputs" provide robust and comprehensive documentation of the user's cost of capital assumptions, sources, analysis, and results. The enhanced outputs will be available as an export to PDF and Excel.

**Estimate WACC:** In 2019 users can incorporate their cost of equity capital estimates into a weighted average cost of capital (WACC) computation.



# **Question 5:** What is the Duff & Phelps Cost of Capital Navigator Excel Add-in?

#### **Description**

This powerful new tool enables Cost of Capital Navigator users to import Duff & Phelps cost of capital data (size premia, equity risk premia, risk-free rates, betas, industry risk premia, and more) directly into their <u>own</u> Excel spreadsheets and templates. Find an image of the Add-in at the end of this question.

#### **Features and Functionality**

- Export any Duff & Phelps cost of capital data from the add-in to your own spreadsheets by clicking into the destination cell and using the "link" icon in the add-in.
- Any changes you make will automatically refresh any linked data in your spreadsheet.
- All data from the add-in will be saved upon saving the workbook. If you close the add-in or close the workbook and then reopen it, rename it, copy it, etc., all data from the add-in will be saved and "live" so you can update it at any time.
- Master Inputs tab where you can enter all subject company information up-front.
- "Data Summary" tab which provides full documentation and supplementary data. This information can be added as an extra sheet in your workbook.
- Ability to view where in your spreadsheet each data point is linked.
- Link data from your spreadsheets to use as inputs in the add-in (e.g., market cap, sales, etc.).

#### **Coming Soon:**

• Help text for each data point and functionality tips.

### **Technical Requirements**

For Windows x86 and x64 desktops and tablets such as Surface Pro: 32- or 64-bit version of Office 2016 or a later version, running on Windows 7 or a later version.

For Mac devices: Excel 2016 or O365 Excel or Excel Online.

#### **How to Download**

To download, first open excel and navigate to "Insert" on the Ribbon. Once there, find "Add-Ins" and then "Get Add-Ins" to be brought to the Microsoft store. Search for "Cost of



Capital" and you should see the D&P Excel Add-in available. Click "add" to download the Excel Add-In and it should appear on the ribbon above. To use the Add-in, sign in with the same credentials you use to access the Cost of Capital Navigator. You will <u>not</u> need to re-install the add-in whenever new data is added. The add-in will be updated automatically.

