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# **EXECUTIVE SUMMARY**

In this edition of Valuation Insights, we asked Roger Grabowski, Duff & Phelps Valuation Advisory Services Managing Director, a series of questions about the Cost of Capital Navigator, a new web-based platform that guides finance professionals through the steps of computing cost of capital.

In our Technical Notes section, we discuss Accounting Standards Update (ASU) 2016-01, Financial Instruments-Overall: Recognition and Measurement of Financial Assets and Financial Liabilities. While equity investments are generally required to be measured at fair value, the ASU does offer an election to measure certain equity investments at cost as a practical expedient. This article discusses the potential pitfalls of the cost election.

In our International in Focus article, we discuss highlights from the Global Regulatory Outlook report that Duff & Phelps publishes on annual basis.

Finally, our Spotlight article discusses Duff & Phelps' announced acquisition of Kroll, the global leader in complex investigations, security and cyber solutions.

In every issue of Valuation Insights, you will find industry market multiples that are useful for benchmark valuation purposes. We hope that you will find this and future issues of this newsletter informative and reliable.

Read this issue to find out more.



# **Industry Market Multiples Online**



# Duff & Phelps Launches the Cost of Capital Navigator

# A Q&A WITH ROGER GRABOWSKI, MANAGING DIRECTOR WITH DUFF & PHELPS VALUATION ADVISORY SERVICES

### What is the Cost of Capital Navigator?

The Cost of Capital Navigator is an interactive, web-based platform that guides finance professionals through the steps of computing cost of capital, a key component of any valuation analysis, in accordance with best practices and the latest theory.

The Cost of Capital Navigator replaces the Duff & Phelps Valuation Handbook – U.S. Guide to Cost of Capital, which includes risk-free rates, equity risk premia, size premia, risk premia over the risk-free rate, and industry risk premia from two essential valuation data sets: the CRSP Deciles Size Study and the Risk Premium Report Study. Analysts have relied on that data for years to estimate cost of equity capital using both the capital asset pricing model, or CAPM, and various build-up models.

The other three Valuation Handbooks (Valuation Handbook – U.S. Industry Cost of Capital, Valuation Handbook – International Guide to Cost of Capital, Valuation Handbook – International Industry Cost of Capital) will be migrated to the new online platform beginning later in 2018.

#### Why did Duff & Phelps develop the Cost of Capital Navigator?

Estimating cost of capital requires matching risk of the subject business with the appropriate return. In the case of the *Valuation Handbook – U.S. Guide to Cost of Capital*, we have found that many users often struggle to fully take advantage of the wealth of data contained in it. Matching risk and return takes time. For example, understanding the application of size premia is more than simply picking a number from a table. Appropriate size premia selection requires an understanding of risk characteristics. The Cost of Capital Navigator is designed to assist the analyst with examining the characteristics of the subject company and then selecting the cost of capital data that best matches the risk profile. It is as if one of the Valuation

Handbook co-authors were sitting alongside the analyst guiding them through the estimation process. The Cost of Capital Navigator helps users reduce errors and time spent on their analysis, and provides comprehensive documentation.

The Cost of Capital Navigator also improves user access to data as fast as the data is available. Analysts want access to the most up-to-date data at any time and from an array of devices. The shift from traditional books to a digital platform ensures that users are accessing the data they care about as quickly as Duff & Phelps can make it available. We are now able to make our data available to analysts much faster than was previously possible through print delivery.

#### What valuation data does the Cost of Capital Navigator include?

The Cost of Capital Navigator includes the (i) size premia, (ii) industry risk premia, (iii) equity risk premia (ERPs), (iv) risk-free rates, and (v) other risk premia from two essential valuation data sets that can be used to estimate cost of equity capital using the capital asset pricing model (CAPM) and various build-up methods, using two separate studies:

- The CRSP Deciles Size Study<sup>1</sup>, and
- The Risk Premium Report Study<sup>2</sup>.

Currently, both of these studies are updated with data through December 31, 2017. As of 2018, all data-years from 1999 through 2018 (data year 2018 includes the December 2017 data plus upcoming quarterly updates through 2018) are available in the Cost of Capital Navigator.

The valuation data and information in the Cost of Capital Navigator is the actual "as published" valuation data from the source publications.<sup>3</sup>

<sup>1.</sup> Published in the Duff & Phelps Valuation Handbook – U.S. Guide to Cost of Capital from 2014 to 2017, and, before that, in the Ibbotson Associates/Morningstar Stocks, Bonds, Bills, and Inflation® (SBBI®) Valuation Yearbook from 1999 to 2013.

<sup>2.</sup> Published in the Duff & Phelps Valuation Handbook – U.S. Guide to Cost of Capital from 2014–2017, and before that, as the stand-alone Duff & Phelps Risk Premium Report.

<sup>3.</sup> Published in the Valuation Handbook – U.S. Guide to Cost of Capital from 2014 to 2017, and the Ibbotson Associates/Morningstar SBBI® Valuation Yearbook and Duff & Phelps Risk Premium Report from 1999 to 2013. The 1999–2013 Ibbotson Associates/Morningstar 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.



### What are the subscription options that are available?

Duff & Phelps offers three subscription options: Basic, Pro and Enterprise. The Basic subscription provides data for the two most recent data years (i.e., 2017 and 2018) while the Pro subscription provides all data years, the 2018 data year plus historical data for all data years going back to 1999. The Enterprise license is the Pro subscription for companies that have more than 25 users.

# Are the content, examples, FAQs, and methodology that were available in the hardcover Valuation Handbook – U.S. Guide to Cost of Capital available in the new online Cost of Capital Navigator?

Yes, the 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 the new content for the 2018 data year are available in the Cost of Capital Navigator, organized by chapter, fully searchable, downloadable, and printable.

# Does the Cost of Capital Navigator provide comprehensive documentation?

Yes. The Cost of Capital Navigator is designed to guide the analyst through the data selection process in an efficient manner, providing auditable documentation at each step of the selection process for internal review and workpaper retention. All of this information is exportable to a PDF document or Excel spreadsheet.

# Are users' inputs and results confidential in the Cost of Capital Navigator?

Yes. Data confidentiality and security are strictly enforced within the system. Accounts are accessible only to the account owner. Only the account owner can view or modify an estimate.

# What additional features are being planned for the Cost of Capital Navigator?

We will be adding sample report text for the analyst to customize that explains the sources of the data and the analysis process.

We will also be introducing a new workpaper package, which will provide sources of information, as well as brief explanations for all the inputs, assumptions, and methodologies employed when calculating a discount rate using the Cost of Capital Navigator. This package can be used by valuation professionals and companies to assist in their response to requests submitted by audit review teams related to how discount rates were estimated based on the Cost of Capital Navigator.

We will also be adding a module that will allow the analyst to use the data now published in the *Valuation Handbook – U.S. Industry Cost of Capital* to benchmark, augment, support, and strengthen the analyst's own custom analysis of the industry in which a subject business, business ownership interest, security, or intangible asset resides.

Finally, we will be adding an Excel plug-in that will allow subscribers at the Pro and Enterprise levels to import any of the data available in the Cost of Capital Navigator directly into a new spreadsheet, or into their existing models.

# How can I learn more about and purchase the Cost of Capital Navigator?

Visit dpcostofcapital.com

Duff & Phelps



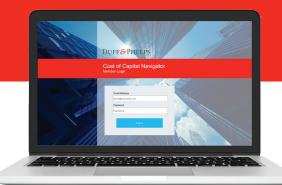
# NOW AVAILABLE The New Duff & Phelps Cost of Capital Navigator

The Duff & Phelps Cost of Capital Navigator guides the analyst through the process of estimating the cost of capital, a key component of any valuation analysis. Additionally, the Cost of Capital Navigator replaced the Valuation Handbook – U.S. Guide to Cost of Capital in 2018 and will eventually replace the entire Valuation Handbook Series.

# **Benefits:**

- Data available on more timely basis
- Accessible via desktop, laptop, or tablet
- Reduces computation errors
- Includes summary reports
- Saves time

# GET STARTED TODAY!



# **Data Included:**

- Risk-free rate data
- Equity risk premia data
- CRSP Decile size premia data
- Risk Premium Report Size and Risk data
- Industry Risk Premia data
- Additional data for Beta estimates and industry comparisons
- Quarterly updates



To learn more and order, please visit: dpcostofcapital.com



# Measuring Financial Instruments at Fair Value: The Potential Pitfalls of Electing the Cost Practical Expedient

## Background

In January 2016, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update 2016-01, Financial Instruments-Overall: Recognition and Measurement of Financial Assets and Financial Liabilities (the "ASU"). The ASU modifies certain aspects of recognition, measurement, presentation and disclosure of financial instruments and is now effective for public business entities and will be applicable for all other entities in 2019.

# Key Changes to the Measurement of Equity Investments

## Equity Investments Must be Measured at Fair Value

The ASU requires equity investments (other than those accounted for under the equity method of accounting, or those that result in consolidation of the investee) to be measured at fair value, with changes in fair value reflected in net income. The ASU removes the trading or available-for-sale classifications for equity investments and eliminates reporting changes in fair value in other comprehensive income.

Investments with readily determinable fair values are now required to be measured at fair value, in accordance with FASB ASC Topic 820, *Fair Value Measurement* ("ASC 820"), with changes in fair value reported in net income.

Pursuant to the ASU, an entity (except for Investment Companies) may elect to measure equity investments without readily determinable fair values, and that do not qualify for the Net Asset Value (NAV) practical expedient in ASC 820, at cost.

If the cost election is made, decreases in value resulting from impairment, or changes in value (upward or downward) indicated by observable price changes in orderly transactions must be reflected currently, with the change in value reported in net income. The election can be made on an instrument-by-instrument basis and must be applied consistently, until such time that the investment's fair value becomes readily determinable.

If the cost election is not made, investments without readily determinable fair values must be measured at fair value, with subsequent changes in fair value reported in net income.

The impairment assessment has been simplified to requiring the assessment of qualitative indicators of impairment. If the qualitative assessment indicates an impairment, then the investment must be measured at fair value. Qualitative indicators of impairment include, but are not limited to:

 A significant deterioration of the earnings performance, credit rating, asset quality, or business prospects of the investee;





- A significant adverse change in the regulatory, economic, or technological environment of the investee;
- A significant adverse change in the general market conditions of either the geographical area or the industry in which the investee operates;
- A bona fide offer to purchase, an offer by the investee to sell, or a completed auction process for the same or similar investment for an amount less than the carrying amount of the investment; or
- Factors that raise significant concerns about the investee's ability to continue as a going concern.

#### Observable Prices for Identical or Similar Investments

An entity that has elected the measurement alternative at cost for equity investments without readily determinable fair values must make upwards or downwards adjustments to their carrying values if there are observable price changes resulting from orderly transactions for identical or similar investments of the same issuer. The entity must make a reasonable effort (without incurring undue cost and effort) to identify observable transactions that occurred on or before the balance sheet date that are known or can reasonably be known.

#### Internal Control Process Implications

Entities must now enhance their fair value estimation process to ensure that qualifying equity securities are appropriately measured at fair value. In addition, for equity securities without a readily determinable fair value whereby the entity has made the measurement election at cost, the internal control process may need to be enhanced to identify and make informed judgments about identifying similar instruments, reasonably known or knowable observable orderly transactions, and qualitative impairment indicators.

# Unintended Consequences of Electing Cost for Equity Securities Without Readily Determinable Fair Values

Since the cost measurement election can be made on a securityby-security basis, an entity may need to consider the potential volatility introduced to net earnings by electing cost as a measurement alternative.

If cost is elected, greater volatility can result from the less frequent impairment write-downs, or pricing changes based on observable transactions for similar securities. If cost is not elected, the impact on earnings from changes in fair value measured on a quarterly basis may be *significantly less*. Depending upon the significance of the equity investment less extreme volatility in reported earnings may be more useful to financial statement users, and may more accurately reflect the financial position of the company, compared to the cost election.

#### Conclusion

The new requirements for measuring non-consolidated/non-equity method investments at fair value should enhance comparability and provide users of financial statements with more useful information. The cost election, while seemingly advantageous, will require additional steps for assessing impairment, identifying orderly transactions, and additional disclosures. In all cases, there will likely be a need to enhance an entity's processes and procedures to measure fair value for investments without a readily determinable fair value, whether using internal or external resources. Further, ASU 2018-03 was recently released which clarifies certain points noted above and may require additional analysis and consideration.

For more information contact David Larsen, Managing Director, at +1 415 693 5330 or Matthew Stariha, Vice President, at +1 415 693 5377.



# Duff & Phelps Publishes its Annual Global Regulatory Outlook

The more things change, the more they stay the same. With Brexit and Trump dominating global headlines last year, much of the resulting uncertainty persists in our Global Regulatory Outlook 2018 survey.

Both developments have yet to play out. On Brexit, negotiations continue with financial services regulation and access remaining among the many sticking points. In the U.S., we are beginning to get a sense of the priorities of new SEC Chairman Jay Clayton but it remains early days.

It is clear, though, that there will be little relief for financial services firms. In the EU, firms began the year with implementation of MiFID II and imminently face introduction of GDPR in May (where almost half in our survey are not confident they are on track to comply). Struggles with the Senior Managers and Certification Regime (SM&CR) in the UK also continue. In the U.S., meanwhile, it is fair to say that, whatever else, the campaign pledges of the Trump administration to dismantle Dodd Frank remain mostly unfulfilled.

At any rate, few expect the regulatory burden and impact to ease: 95% say regulations will increase their costs this year, with almost a quarter (24%) in our survey expecting they would be spending more than 5% of their annual revenue on compliance by 2023. In fact, a tenth (11%) felt they would spend more than 10% on it by that year.

#### Cyber certainty

As last year, the big regulatory growth area remains cybersecurity – only more so. About three in ten (29%) say this will be regulators' primary focus in 2018, and more than half (54%) think it will be a top three priority – leaving aside the 22% naming GDPR.

That now puts cybersecurity ahead of even anti money laundering (AML) and Know Your Customer (KYC) regulations as a perceived regulatory concern. The focus on cybersecurity is only likely to intensify, too; as we note frequently in the report, regulatory expectations in this area are still becoming clear.

It's not just regulatory pressure, of course. The spate of cybersecurity breaches over the last year has also contributed to firm's determination to address the issue. For both these reasons, 78% of respondents expect to spend more resources and time on it in 2018.

The key question is whether that spending, and the regulation prompting it, will prove effective.

### Be careful what you wish for

Whatever they expect its impact to be, what firms say they want from regulation is greater harmonization. Almost one in five (19%) say it's the single most important factor in maintaining an effective regulatory system (second only to principles-based regulation).

Most agree (52%) that regulators are improving their ability to coordinate across borders; but few think they have been effective in establishing consistent global regulatory standards (29%). This is largely the same as in previous years of the Global Regulatory Outlook survey. A more interesting issue, perhaps, is whether firms are right to yearn for those consistent standards.

Of course, it's recognized that regulation can have some positive impacts: A third say it "expands market reach" and almost three quarters (73%) concede regulations encourage improvements in internal systems and control.

Regulatory harmonization might alleviate some of the burden and complication of complying with different standards across jurisdictions. Given the tendency when it comes to regulatory alignment to level up to the highest standards in operation, and to harmonize without necessarily removing duplication, it's unclear whether greater consistency across jurisdictions would reduce, or add to, the cost of compliance.

## A Brexit bonus?

That's particularly pertinent when it comes to Brexit.

About one in five (21%) in our survey said Brexit had had an immediate impact on their compliance programs with changes already being made or planned for the next six months. Another quarter (26%) expect changes within 18 months.

As to how big those changes will be, much will depend on the final agreement reached, but UK Prime Minister Theresa May has recently ruled out passporting for financial services after the UK leaves the EU. This, she said, was "intrinsic to the single market of which we would no longer be a member".

The impact of Brexit remains to be seen. Yes, it is a risk – and not one that many of our survey respondents feel terribly confident about; while 53% currently say London is the current pre-eminent global financial center, only 29% expect it to be so in five years' time.

Visit www.duffandphelps.com/global-regulatory-outlook-2018 to read the full report.

Duff & Phelps



# Duff & Phelps Announces Acquisition of Kroll

Last month Duff & Phelps announced that it signed a definitive agreement to acquire Kroll, the global leader in complex investigations, security and cyber solutions, from Corporate Risk Holdings.

Established in 1972, Kroll has an unparalleled record of helping clients manage compliance, navigate litigation and mitigate risk relating to fraud, impropriety and security threats. The transaction dramatically enhances the combined firm's broad suite of services in the areas of valuation, corporate finance, compliance, investigations, security and cyber solutions. Kroll will also significantly expand Duff & Phelps' global scale, most notably in Europe and Latin America. The combined organization will have nearly 3,500 employees located in 28 countries around the world.

Noah Gottdiener, Duff & Phelps Chief Executive Officer, said, "Bringing together these two world-class organizations will significantly expand our global scale, broaden our client offerings and create great opportunities for our colleagues. Both firms share a common culture and heritage of putting clients first, and the combination will only strengthen this commitment. I welcome our new colleagues to Duff & Phelps and look forward to joining forces to build one great team."

Read the full announcement on www.duffandphelps.com.

Learn more about our Disputes and Investigations services on our website.





# North American Industry Market Multiples

# **AS OF MARCH 31, 2018**

|                                  | Market Value<br>of Equity to<br>Net Income |      | MVIC to EBIT |      | MVIC to<br>EBITDA |      |
|----------------------------------|--|------|--------------|------|-------------------|------|
| Industry                         | U.S. Canada                                |      | U.S. Canada  |      | U.S. Canada       |      |
| Energy                           | 10.8                                       | 15.6 | 20.3         | 21.1 | 10.9              | 8.3  |
| Energy Equipment & Services      | 17.8                                       | 20.4 | 20.1         | 21.5 | 13.9              | 9.7  |
| Integrated Oil & Gas             | _  | _    | _            | _    | _                 | _    |
| Materials                        | 16.1                                       | 11.2 | 16.4         | 13.6 | 10.2              | 8.1  |
| Chemicals                        | 19.6                                       | 17.1 | 17.2         | 14.9 | 12.4              | 9.9  |
| Diversified Chemicals            | _  | _    | _            | _    | 9.7               | _    |
| Specialty Chemicals              | 23.4                                       | _    | 18.1         | _    | 12.8              | _    |
| Construction Materials           | 18.3                                       | _    | 19.1         | _    | 11.8              | _    |
| Metals & Mining                  | 12.8                                       | 11.1 | 13.9         | 13.1 | 9.7               | 8.0  |
| Paper & Forest Products          | 15.1                                       | 10.5 | 14.8         | 8.7  | 7.5               | 6.6  |
| Industrials                      | 20.3                                       | 14.7 | 18.2         | 15.0 | 12.8              | 10.9 |
| Aerospace & Defense              | 24.7                                       | 20.0 | 19.9         | 22.7 | 14.7              | 15.0 |
| Industrial Machinery             | 26.2                                       | 27.8 | 18.7         | 22.6 | 14.1              | 24.0 |
| Commercial Services & Supplies   | 18.7                                       | 30.9 | 16.5         | 14.1 | 11.0              | 9.6  |
| Road & Rail                      | 13.0                                       | _    | 21.4         | 17.2 | 10.6              | 11.7 |
| Railroads                        | 9.0  | _    | 15.5         | _    | 11.5              | _    |
| Consumer Discretionary           | 17.6                                       | 15.9 | 15.1         | 15.9 | 10.8              | 10.5 |
| Auto Parts & Equipment           | 17.2                                       | _    | 12.4         | _    | 7.8               | _    |
| Automobile Manufacturers         | _  | _    | _            | _    | _                 | _    |
| Household Durables               | 17.3                                       | _    | 14.1         | _    | 11.2              | _    |
| Leisure Products                 | 19.1                                       | _    | 13.9         | _    | 10.9              | _    |
| Textiles, Apparel & Luxury Goods | 21.9                                       | 27.5 | 15.2         | 19.5 | 12.0              | 19.1 |
| Restaurants                      | 19.9                                       | 17.8 | 19.2         | 15.5 | 11.4              | 16.7 |
| Broadcasting                     | 5.5  | _    | 13.8         | 9.1  | 10.1              | 14.3 |
| Cable & Satellite                | 8.4  | _    | 19.0         | _    | 11.0              | _    |
| Publishing                       | 20.6                                       | _    | 16.7         | 31.2 | 12.1              | _    |
| Multiline Retail                 | 12.8                                       | _    | 11.7         | _    | 6.8               | _    |

|   | Market Value<br>of Equity to<br>Net Income |      | MVIC to EBIT |      | MVIC to<br>EBITDA |      |
|---|--|------|--------------|------|-------------------|------|
| Industry                                      | U.S. Canada                                |      | U.S. Canada  |      | U.S. Canada       |      |
| Consumer Staples                              | 17.5                                       | 21.1 | 16.0         | 17.5 | 12.8              | 13.4 |
| Beverages                                     | 22.0                                       | _    | 24.6         | 31.6 | 19.3              | 17.9 |
| Food Products                                 | 17.8                                       | 18.1 | 15.5         | 16.3 | 13.2              | 12.9 |
| Household Products                            | 19.8                                       | _    | 16.7         | _    | 13.4              | _    |
| Health Care                                   | 27.7                                       | 27.9 | 23.7         | 21.7 | 16.1              | 20.0 |
| Health Care Equipment                         | 45.4                                       | _    | 29.9         | _    | 23.5              | _    |
| Health Care Services                          | 22.7                                       | _    | 17.4         | _    | 12.4              | _    |
| Biotechnology                                 | 21.2                                       | _    | 18.1         | _    | 16.2              | _    |
| Pharmaceuticals                               | 13.6                                       | 27.8 | 20.1         | 24.6 | 13.5              | 21.4 |
| Information Technology                        | 27.8                                       | 33.9 | 23.1         | 25.2 | 17.3              | 18.7 |
| Internet Software & Services                  | 25.7                                       | 30.8 | 32.6         | 24.1 | 23.0              | 16.8 |
| IT Services                                   | 24.6                                       | 22.8 | 21.7         | 20.1 | 15.9              | 17.9 |
| Software                                      | 49.4                                       | 38.2 | 33.1         | 37.0 | 25.1              | 24.3 |
| Technology Hardware & Equipment               | 27.6                                       | 23.9 | 20.5         | 20.7 | 14.3              | 13.5 |
| Communications Equipment                      | 27.2                                       | 33.0 | 23.1         | 24.8 | 17.1              | 18.6 |
| Technology Hardware, Storage<br>& Peripherals | 30.5                                       | -    | 22.6         | -    | 14.1              | -    |
| Semiconductors                                | 40.2                                       | _    | 32.8         | _    | 20.0              | _    |
| Telecommunication Services                    | 12.3                                       | _    | 21.3         | _    | 8.5               | 9.0  |
| Integrated Telecommunication<br>Services      | 8.3  | -    | 15.9         | -    | 6.8               | -    |
| Wireless Telecommunication<br>Services        | 20.4                                       | _    | 28.0         | _    | 7.6               | _    |
| Utilities                                     | 20.7                                       | 18.3 | 18.4         | 19.0 | 11.8              | 12.0 |
| Electric Utilities                            | 20.4                                       | _    | 17.6         | _    | 10.5              | _    |
| Gas Utilities                                 | 15.9                                       | _    | 17.9         | _    | 11.8              | _    |

|                                | Market Value<br>of Equity to<br>Net Income | Market Value<br>of Equity to<br>Book Value |  |
|--------------------------------|--|--|--|
| Industry                       | U.S. Canada                                | U.S. Canada                                |  |
| Financials                     | 20.5 12.1                                  | 1.4 1.5                                    |  |
| Banks                          | 20.6 11.6                                  | 1.4 1.6                                    |  |
| Investment Banking & Brokerage | 23.9 —                                     | 2.1 3.6                                    |  |
| Insurance                      | 17.5 13.0                                  | 1.4 1.3                                    |  |



The Tax Cuts and Jobs Act ("Act"), which was enacted on December 22, 2017, had a significant one-time impact on the net income of many U.S. companies that was reported after that date. As a result, U.S. Net Income multiples may have been temporarily, but materially, impacted by some of the provisions in the Act, and which might require specific-company adjustments not reflected in the multiples reported herein. An industry must have a minimum of 5 company participants to be calculated.

For all reported multiples in the U.S. and Canada, the average number of companies in the calculation sample was 76 (U.S.), and 29 (Canada); the median number of companies in the calculation sample was 37 (U.S.), and 12 (Canada). Sample set includes publicly-traded companies (private companies are not included). Source: Data derived from Standard & Poor's Capital IQ databases. Reported multiples are median ratios (excluding negatives or certain outliers). MVIC = Market Value of Invested Capital = Market Value of Equity plus Book Value of Debt. EBIT = Earnings Before Interest and Taxes for latest 12 months. EBITDA = Earnings Before Interest, Taxes, Depreciation and Amortization for latest 12 months. Note that due to the exclusion of negative multiples from the analysis, the number of companies used in the computation of each of the three reported multiples across the same industry may differ, which may occasionally result in a counterintuitive relationship between those multiples (e.g. the MVIC-to-EBITDA multiple may exceed MVIC to EBIT).



# European Industry Market Multiples

# **AS OF MARCH 31, 2018**

|                                  | Market Value<br>of Equity to<br>Net Income | MVIC to EBIT | MVIC to<br>EBITDA |
|----------------------------------|--|--------------|-------------------|
| Industry                         | Europe                                     | Europe       | Europe            |
| Energy                           | 15.7                                       | 18.2         | 9.7               |
| Energy Equipment & Services      | 17.5                                       | 20.1         | 11.0              |
| Integrated Oil & Gas             | 18.8                                       | 15.4         | 8.2               |
| Materials                        | 17.5                                       | 15.9         | 10.5              |
| Chemicals                        | 19.8                                       | 18.6         | 11.4              |
| Diversified Chemicals            | 17.5                                       | 13.6         | 8.1               |
| Specialty Chemicals              | 23.0                                       | 20.6         | 13.2              |
| Construction Materials           | 17.4                                       | 15.9         | 10.3              |
| Metals & Mining                  | 12.6                                       | 12.7         | 9.4               |
| Paper & Forest Products          | 18.2                                       | 17.7         | 11.4              |
| Industrials                      | 18.9                                       | 17.2         | 12.2              |
| Aerospace & Defense              | 21.0                                       | 18.4         | 13.3              |
| Industrial Machinery             | 22.8                                       | 18.1         | 13.4              |
| Commercial Services & Supplies   | 19.9                                       | 17.5         | 11.6              |
| Road & Rail                      | 13.7                                       | 18.0         | 9.1               |
| Railroads                        | 12.2                                       | 19.1         | 9.2               |
| Consumer Discretionary           | 18.7                                       | 16.4         | 11.4              |
| Auto Parts & Equipment           | 15.2                                       | 13.8         | 8.8               |
| Automobile Manufacturers         | 9.3  | 15.7         | 11.5              |
| Household Durables               | 16.1                                       | 13.7         | 10.4              |
| Leisure Products                 | 28.0                                       | 19.3         | 13.4              |
| Textiles, Apparel & Luxury Goods | 23.2                                       | 19.0         | 13.0              |
| Restaurants                      | 20.7                                       | 15.4         | 10.5              |
| Broadcasting                     | 14.6                                       | 13.7         | 10.9              |
| Cable & Satellite                | 35.0                                       | 24.9         | 10.2              |
| Publishing                       | 17.0                                       | 15.6         | 10.6              |
| Multiline Retail                 | 20.0                                       | 12.7         | 10.4              |

|  | Market Value<br>of Equity to<br>Net Income | MVIC to EBIT | MVIC to<br>EBITDA |
|--|--|--------------|-------------------|
| Industry                                   | Europe                                     | Europe       | Europe            |
| Consumer Staples                           | 20.2                                       | 18.3         | 12.8              |
| Beverages                                  | 25.3                                       | 20.9         | 14.2              |
| Food Products                              | 18.0                                       | 17.2         | 11.7              |
| Household Products                         | _  | 18.8         | 10.3              |
| Health Care                                | 32.1                                       | 23.7         | 16.9              |
| Health Care Equipment                      | 31.1                                       | 23.8         | 17.4              |
| Health Care Services                       | 31.4                                       | 17.6         | 13.5              |
| Biotechnology                              | 34.3                                       | 27.3         | 29.2              |
| Pharmaceuticals                            | 20.4                                       | 19.4         | 14.7              |
| Information Technology                     | 26.4                                       | 21.6         | 16.5              |
| Internet Software & Services               | 33.9                                       | 24.8         | 20.6              |
| IT Services                                | 23.5                                       | 17.4         | 14.4              |
| Software                                   | 34.6                                       | 27.4         | 22.5              |
| Technology Hardware & Equipment            | 22.4                                       | 19.2         | 13.3              |
| Communications Equipment                   | 26.5                                       | 23.9         | 16.5              |
| Technology Hardware, Storage & Peripherals | 25.6                                       | 18.4         | 17.3              |
| Semiconductors                             | 26.0                                       | 28.2         | 18.1              |
| Telecommunication Services                 | 23.4                                       | 19.1         | 9.2               |
| Integrated Telecommunication<br>Services   | 19.7                                       | 17.6         | 8.1               |
| Wireless Telecommunication<br>Services     | 27.2                                       | 19.5         | 8.8               |
| Utilities                                  | 15.9                                       | 19.4         | 10.8              |
| Electric Utilities                         | 13.8                                       | 20.3         | 9.7               |
| Gas Utilities                              | 16.1                                       | 19.1         | 10.9              |

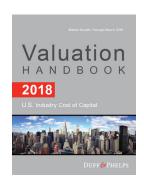
|                                | Market Value<br>of Equity to<br>Net Income | Market Value<br>of Equity to<br>Book Value |
|--------------------------------|--|--|
| Industry                       | Europe                                     | Europe                                     |
| Financials                     | 13.2                                       | 1.2  |
| Banks                          | 10.9                                       | 0.7  |
| Investment Banking & Brokerage | 21.0                                       | 2.0  |
| Insurance                      | 13.8                                       | 1.2  |



An industry must have a minimum of five company participants to be calculated. For all reported multiples in Europe, the average number of companies in the calculation sample was 90 and the median number of companies in the calculation sample was 39. Sample set includes publicly-traded companies (private companies are not included). Source: Data derived from Standard & Poor's Capital IQ databases. Reported multiples are median ratios (excluding negatives or certain outliers). MVIC = Market Value of Invested Capital = Market Value of Equity plus Book Value of Debt. EBIT = Earnings Before Interest and Taxes for latest 12 months. EBITDA = Earnings Before Interest, Taxes, Depreciation and Amortization for latest 12 months. Note that due to the exclusion of negative multiples from the analysis, the number of companies used in the computation of each of the three reported multiples across the same industry may differ, which may occasionally result in a counterintuitive relationship between those multiples (e.g. the MVIC-to-EBITDA multiple may exceed MVIC to EBIT).



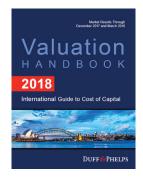
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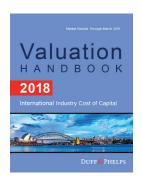
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