DUFF & PHELPS

Protect, Restore and Maximize Value

Valuation Insights

Second Quarter 2019

INSIDE

EXECUTIVE SUMMARY

In this edition of *Valuation Insights*, we look at how technology is changing the landscape of taxation in America, particularly in the areas of online commerce and cloud solutions, and how these developments can help streamline processes, improve efficiencies and minimize costs.

In our Technical Notes section, we analyze the new Public Company Accounting Oversight Board (PCAOB) Audit Standards, and the subsequent impact on Level 2 financial instruments. These audit standards apply when auditing accounting estimates, including fair value measurements.

In our International in Focus article, we present highlights from the Duff & Phelps 2018 European Goodwill Impairment Study. Now in its sixth edition, the 2018 study analyzes companies in the STOXX® Europe 600 Index, which is comprised of large, mid and small capitalization companies across just under 20 countries of the European region, for the 2013 – 2017 calendar years.

Finally, our Spotlight article takes a closer look at The Appraisal Foundation's recent Financial Reporting Advisory for the valuation of contingent consideration documenting best practices, so that companies, investors, regulators, auditors and independent valuation specialists can have a more consistent framework for valuing contingent consideration.

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.

Industry Market Multiples Online

Valuation Insights Industry Market Multiples are online with data back to 2010.
Analyze market multiple trends over time across industries and geographies.
www.duffandphelps.com/multiples

How Technology is Changing the Landscape of Taxation in America

Technological advances, particularly in the areas of online commerce and cloud solutions, have forever changed how business is conducted in the U.S. and abroad. Because of these developments, Corporate America has made quantum leaps in the use of technology to streamline processes, improve efficiencies and minimize costs.

Good News, Bad News

The digital revolution has been helping drive business growth by providing insights and options that were not available just a few years ago. We can now analyze enormous amounts of data to better inform decisions and more quickly accomplish business goals. In many ways, compliance costs have merely been shifted from human capital to technology, but accuracy has been vastly improved by the use of technology. For small and mid-sized businesses, it is often more affordable to outsource the compliance function than to employ the tools necessary to comply with filing requirements.

Finance and tax departments across the country have enthusiastically embraced technology to ensure that compliance functions operate quicker and better than in years past. This is particularly the case in the areas of sales and use tax and unclaimed property compliance. Despite these advances, state and local governments and the administrators charged with executing the laws of the land are often stuck in a time warp thwarting the efforts of corporations to realize many of the benefits that these technological advances can deliver.

There are numerous examples where technology has materially altered the world of corporate taxation, but none more evident than those resulting from last year's Wayfair Supreme Court decision. This past year, the Supreme Court in Wayfair threw prior precedence to the wind that previously only required sellers of goods or services to collect and remit sales tax if they maintained a physical presence in the state. Post Wayfair, states have broader authority to require companies to collect tax merely as a result of promoting goods or services for sale into a state. Thus, replacing the "physical" presence with a far less "economic" presence standard as the threshold for collecting tax.

Consequently, the majority of states have issued rules requiring all companies that exceed certain thresholds to collect and remit sales tax. The Supreme Court justices noted in Wayfair that software already exists to easily implement these new economic presence requirements. Yet, upon closer examination, failure by the states to adequately define which activities are subject to tax, as well as lack of conformity among the states, has created enormous inefficiencies and disrupted the ability of companies to deploy technology to comply with the changing landscape.

Current tax laws are based primarily on outdated notions of sales and use of tangible personal property between a retailer and a customer. Few states have uniform rules for the explicit treatment of web-based sales of both goods and services. Consequently, many states are trying to tax web-based service offerings as if they were the rental of tangible personal property. This is indicative of how archaic some tax laws are in relation to the technological advances most of us consider to be standard in today's economy.

While states have been quick to pass rules requiring companies to rapidly collect and remit tax, they have been slower to conform the tax laws to the current economy. The lack of conformity among the states has further exasperated the ability of companies to implement broad-based enterprise solutions.

In the unclaimed property arena, states have slowly begun adoption of the 2016 Revised Uniform Unclaimed Property Act (RUUPA), which is the third attempt by unclaimed property administrators at uniformity over the past 30 years. So far, six states have adopted acts based on RUUPA.

At the moment, lack of uniformity plagues corporate filers, with some states requiring electronic filing and payment, some requiring paper reports and checks and others requiring transmission of an encrypted diskette. Universally, states mandate filers use "snail mail" to an almost certainly bad address, as the required method of due diligence notification. RUUPA allows for electronic notification, which should greatly enhance the intent of the law: to reunite funds with true owners. Additionally, 20 states have purchased a uniform compliance software platform which will allow corporate filers some much needed consistency.

Finally, technological developments have inevitably led to new property types that companies must consider, and that the states must decide how to treat. Virtual and digital currency, bitcoins and the like, are specifically mentioned in RUUPA. However, no real guidance is provided on how to treat this new property type. Who is the owner? How can this be remitted to the states with the "encryption key"? Virtual wallets are a major issue now that the states have taken steps to address them. More and more people are conducting online transactions using virtual wallets with retail and resale platforms. Often, these wallets are set to pay a seller only after a certain dollar amount has accumulated. Frequently, owners ignore smaller dollar amounts that don't meet the payment threshold, and don't provide addresses when signing up. The states are now enforcing collection/compliance in this area as they search for new sources of revenue. Corporations who conduct these types of transactions would be well-served to address this issue proactively, either through remediation or planning opportunities.

While software solutions for sales and use tax can make it easier to collect and remit taxes in hundreds of state and local jurisdictions, determining the taxability of services rendered via the internet – whether classified as information services, data processing, credit reporting or software as a service (SaaS) – can be particularly challenging. As an indicator of the confusion, some states that initially ruled electronically transmitted information would not be considered tangible personal property subject to sales and use tax have gone on to revoke those original rulings, some states have issued refund claims on behalf of customers, essentially issuing refunds for taxes paid on services even though state policy mandated the purchases be subject to tax. Another illogical issue facing businesses is accessing information via the cloud. Is it a software license, SaaS, information service or something else? One example is when Pennsylvania determined that accessing information via the internet was a software license which is taxed as if you purchased software on a disk. Using an online research tool to determine if the service is taxable is itself a taxable event.

What to Consider Moving Forward

With constantly advancing technologies and swirling tax reform initiatives, if companies want to remain viable in the Digital Age, they must be capable of adapting to rapidly evolving taxation environments. Software applications can help, but no software can correctly source and properly tax all transactions in today's climate. Businesses may want to consider whether to outsource or co-source some taxation functions where internal resources are inadequate, and address the following proactively:

- Complying with digital requirements relating to collecting and reporting unclaimed property, and how states accept filings and reunite property with owners;
- Automating the processes that query, pull and send stale dated records from disparate systems (accounts payable, accounts receivable credits, payroll, corporate stock, rebates, gift cards, bank accounts) and aggregate the data;
- Understanding how states are treating new property types such as digital and virtual currency, bitcoin and various reward programs;
- Complying with record retention requirements for online activities that support transaction detail during an audit and for other reporting purposes;
- Adapting to new requirements for revenue sourcing, invoicing and appropriate line item billing to support all applicable jurisdictions; and
- Keeping up with ever-changing state and local sales and use tax rates.

For more information, contact:

Bob Peters, Managing Director
+1 312 697 4924; robert.peters@duffandphelps.com

Mary Alice Cashin, Managing Director
+1 973 775 8340; maryalice.cashin@duffandphelps.com

Scott Regan, Director
+1 215 430 6046; scott.regan@duffandphelps.com

Dustin Jensen, Director
+1 469 547 9643; dustin.jensen@duffandphelps.com

New PCAOB Audit Standards– How will your Level 2 Valuation Process change?

In December 2018, after years of study and public input, the Public Company Accounting Oversight Board (PCAOB) adopted amendments and revisions to audit standards that apply when auditing accounting estimates, including fair value measurements.

A single updated standard (AS 2501 (Revised)), replaces three existing audit standards (AS 2501, replaced and retitled; AS 2502 and 2503 rescinded). The new standard establishes a uniform risk-based approach and emphasizes that auditors need to apply professional skepticism, including addressing potential management bias, when auditing accounting estimates. Additionally, the new standard provides more specific direction on auditing the fair value of financial instruments that are based on information from third-party pricing sources.

Amendments to other audit standards were also adopted, including AS 1105, *[Audit Evidence, and AS 1210, Using the Work of a Specialist.]* The amended AS 1210 is now titled *Using the Work of an Auditor-Engaged Specialist*, as it focuses primarily on auditor employed or auditor engaged specialists. Auditing the results of company employed specialists or company engaged specialists (such as Duff & Phelps) is now addressed in a revised appendix to AS 1105.

While many auditors are already implementing the new standards, they are required to do so for audits of financial statements for fiscal years ending on or after December 15, 2020.

Impact on audits of Level 2 financial instruments

When determining the fair value of certain financial instruments that are not actively traded, but where pricing information is available from broker/dealers or pricing vendors, reliance has been historically placed on the "level 2" pricing data obtained from such sources. However, the new audit standard raises questions as to the sufficiency of such pricing data to support a relevant and reliable fair value estimate.

The new audit standards (AS 2501-A4) state that the following factors affect the relevance of pricing information provided by a pricing service:

a. The experience and expertise of the pricing service relative to the types of financial instruments being valued, including whether the types of financial instruments being valued are routinely priced by the pricing service;

b. Whether the methodology used by the pricing service in determining fair value of the types of financial instruments being valued is in conformity with the applicable financial reporting framework (compliant with ASC Topic 820); and

c. Whether the pricing service has a relationship with the company by which company management has the ability to directly or indirectly control or significantly influence the pricing service.

Further, transparency must be obtained from the pricing service such that the following factors are evaluated (AS 2501-A5):

a. Whether the fair values are based on quoted prices in active markets for identical financial instruments;

b. When the fair values are based on transactions of similar financial instruments, how those transactions are identified and considered comparable to the financial instrument being valued; and

c. When no recent transactions have occurred for either the financial instrument being valued or similar financial instruments, or the price was developed using a quote from a broker or dealer, how the fair value was developed, including whether the inputs used represent the assumptions that market participants would use when pricing the financial instruments.

When the fair values are based on transactions of similar financial instruments, the auditor should perform additional audit procedures to evaluate the process used by the pricing service, including evaluating how transactions are identified, considered comparable and used to value the types of financial instruments selected for testing (AS 2501-A6).

When the company's fair value measurement is based on a quote from a broker or dealer (broker quote), the relevance and reliability of the evidence provided by the broker quote depend on whether (AS 2501-A9):

a. The broker or dealer is free of relationships with the company whereby company management cannot directly or indirectly control or significantly influence the broker or dealer;

b. The broker or dealer making the quote is a market maker that transacts in the same type of financial instrument;

c. The broker quote reflects market conditions as of the financial statement date;

d. The broker quote is binding on the broker or dealer; and

e. There are any restrictions, limitations or disclaimers in the broker quote and, if so, their nature.

Note: Broker quotes generally provide more relevant and reliable evidence when they are timely; have binding quotes without any restrictions, limitations or disclaimers; and are from unaffiliated market makers transacting in the same type of financial instrument. If the broker quote does not provide sufficient appropriate audit evidence, the auditor should perform procedures to obtain relevant and reliable pricing information from another pricing source pursuant to the requirements of AS 2501.

Conclusion

If broker quotes are not actionable without restriction, or pricing vendor data is not transparent, contemporaneous and reflective f orderly transactions, for the size of position being valued, the auditor will be required to perform additional audit procedures. Management will then need to provide additional evidence, such as a validated model, which supports the fair value estimate. Over time, this may mean that models receive more emphasis in estimating fair value with pricing vendors or brokers providing supplementary support.

For more information, contact:

David Larsen, Managing Director
+1 415 693 5330; david.larsen@duffandphelps.com.

Duff & Phelps Publishes 2018 European Goodwill Impairment Study

Duff & Phelps published its 2018 European Goodwill Impairment Study (2018 Study) which examines general goodwill impairment trends across countries and industries within the European market. Now in its sixth edition, the 2018 Study analyzes companies in the STOXX® Europe 600 Index, which is comprised of large, mid and small capitalization companies across just under 20 countries of the European region, for the 2013 – 2017 calendar years.

The 2018 Study also analyzes goodwill impairment trends and statistics for benchmark stock market indices in five countries:

- CAC 40 in France
- DAX in Germany
- FTSE MIB in Italy
- IBEX 35 in Spain
- FTSE 100 in the United Kingdom

Highlights of the Study

Total goodwill impairment recorded by European listed companies in the STOXX® Europe 600 Index declined by 35% to €18.5 billion in 2017, dropping significantly for a second consecutive year. This was the lowest level in aggregate goodwill impairment for the STOXX® Europe 600 Index since 2010, the onset of the euro sovereign debt crisis. The number of goodwill impairment events fell by 9%, from 121 in 2016 to 110 in 2017, while the average impairment amount per event declined 28% from €234 million to €168 million over the same period.

Industry Highlights

Half of the 10 industries analyzed within the STOXX® Europe 600 Index saw their aggregate goodwill impairment amounts decrease. The top three industries with the most significant drop in goodwill impairment amounts in 2017 are as follows, in order of magnitude (€ billions):

- Financials and Real Estate (€8.1 to €3.4)
- Telecommunications (€7.0 to €2.4)
- Consumer Discretionary (€5.0 to €0.9)

Out of the ten industries analyzed, Consumer Staples had the largest amount of goodwill impairment of €4.0 billion in 2017, countering the trend with a sharp €3.1 billion increase relative to 2016.

Geographic Highlights

At €5.7 billion, Switzerland was the country with the highest aggregate amount of goodwill impairments in 2017 within the STOXX® Europe 600 Index, increasing from €0.5 billion in 2016. Switzerland also had four out of the top 10 European goodwill impairments reported in 2017.

In contrast, and despite Brexit uncertainty, the U.K. saw the largest decline in aggregate goodwill impairment in 2017, reaching its lowest level since Duff & Phelps began tracking this data in 2010. France and Germany also saw notable declines in total goodwill impairment during 2017, a reflection of a stronger European economy.

The following trends were observed when reviewing goodwill impairment amounts for companies within other benchmark stock market indices in 2017 vs. 2016. Aggregate goodwill impairment (€ billions) for:

- CAC 40 companies declined by a third
- DAX companies decreased by nearly 40%
- IBEX 35 companies doubled
- FTSE MIB companies increased by 38%, although with only a slight rise in absolute (euro) terms
- FTSE 100 companies plunged by 89%

Europe vs. United States: 2018 Goodwill Impairment Studies Comparison

In sharp contrast to the results of the European Goodwill Impairment Study, the 2018 U.S. Goodwill Impairment Study revealed a 23% increase in the aggregate goodwill impairment reported by U.S. companies. The rise in U.S. goodwill impairments from $28.5 billion in 2016 to $35.1 billion in 2017 was somewhat at odds with a strengthening global economy.

The number of impairment events increased by only 1.7%, but the average goodwill impairment per event rose by 21% in 2017. Yet, the average impairment amount of $120 million per event was still lower than the €168 million (or $202 million) observed for Europe STOXX® 600 companies.

Seven out of the 10 industries included in the U.S. study saw their aggregate goodwill impairment amounts rise in 2017, with Consumer Discretionary being hit the hardest. Telecommunication Services and Healthcare experienced the most significant goodwill impairment increases in 2017. This contrasts with Europe, where both Consumer Discretionary and Telecommunications saw dramatic declines in aggregate goodwill impairment.

In a year of global synchronized growth, 2017 saw strong U.S. deal activity, with a 9% increase in deal volume and a 3% increase in deal value. Historically, 2017 was one of the top years for mergers and acquisitions (M&A) activity, surpassed only by 2015 in terms of deal value.[1]

Unlike the U.S., European M&A activity plummeted in 2017, despite the generally favorable economic environment. The Eurozone saw a 10% decline in deal volume and a 70% drop in deal value (€ in billions) of closed M&A transactions. Notwithstanding Brexit uncertainty, M&A activity in the United Kingdom was essentially flat, with a 1% drop in deal volume and a 2% uptick in deal value.[2]

2018 Early Findings

In 2018, the top 10 goodwill impairment events within the STOXX® Europe 600 Index (disclosed as of the time of writing) increased to €13.3 billion, an 8.2% rise relative to the top 10 in 2017. By comparison, the top 10 goodwill impairment events soared in the U.S., reaching a staggering $54.2 billion in 2018, which represented a threefold increase from 2017.[3]

Visit www.duffandphelps.com/GWIStudies to obtain copies of the 2018 European and U.S. Goodwill Impairment Studies.

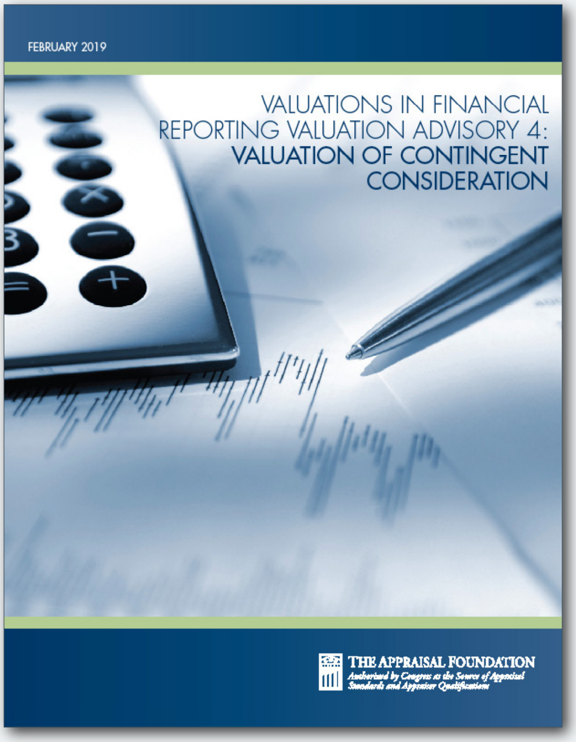
For more information, contact:

Michael Weaver, Managing Director
+44 (0)20 7089 4773
michael.weaver@duffandphelps.com

Greg Franceshi, Managing Director
+1 650 798 5500
greg.franceschi@duffandphelps.com

1. Source: S&P Capital IQ. M&A activity based on transactions closed in each year, where U.S. publicly traded companies acquired a 50% or greater interest.
2. Source: S&P Capital IQ. M&A activity based on transactions closed in each year, where European listed companies acquired a 50% or greater interest.
3. he identity of the top 10 largest impairment events in 2018 may change once all companies report full-year 2018 results. European data for calendar year 2018 was compiled on February 25, 2019. Data for U.S. companies in calendar year 2018 was compiled on March 26, 2019.

The Appraisal Foundation's Financial Reporting Advisory for Contingent Consideration



Background

In February 2019, The Appraisal Foundation (TAF) released its fourth Valuation in Financial Reporting (VFR) advisory on the topic of the valuation of contingent consideration (the Advisory). Since the adoption of the revised Financial Accounting Standard Board (FASB) and International Accounting Standards Board (IFRS) requirements for business combination accounting in 2009, companies are required to book contingent consideration at fair value as of the acquisition date, and subsequently update the fair value estimate for most contingent consideration arrangements at each reporting period thereafter until resolution. Also, pursuant to Accounting Standards Codification (ASC) 946, an investment company may be required to estimate the fair value of assets it holds related to contractual rights arising from contingent consideration arrangements.

Valuation of contingent consideration can be challenging, as such assets or liabilities are rarely traded, usually rendering a market approach infeasible. Furthermore, contingent consideration arrangements are based on the outcomes of uncertain future events. Most such arrangements also include tiers, caps, and/or thresholds, which introduce option-like, leveraged structures that make assessment of the appropriate discount rate difficult. As such, there was great diversity in practice.

Recommendations in the Advisory

Contingent consideration payments are dependent on, and often complex functions of, uncertain future events. As a result, valuing contingent consideration generally requires a probabilistic model with assumptions about the full distribution of future outcomes, not merely the expected case. This is one of the key differences between valuing a business and valuing contingent consideration. The Advisory recommends two primary techniques to be used under different circumstances: scenario based models (SBM) and option pricing models (OPM).

Scenario based methods typically probability-weight the payments in various scenarios and discount the expected payoff cash flow at an appropriate rate. SBM is recommended when either (1) the underlying metric is diversifiable (i.e., non-systematic), such as in the case of R&D or technical milestones, or (2) when the contingent consideration payoff structure is linear (i.e., there are no tiers, thresholds or caps). In these cases, it is straightforward to estimate the discount rate. If the metric is diversifiable, the discount rate need only address the time value of money (e.g., using a risk-free rate) and the obligor's credit risk (usually captured through a subordinate credit spread). If the metric is non-diversifiable (e.g., revenue or EBITDA) but the payoff structure linear, then the discount rate should also incorporate an appropriate risk premium. The Advisory provides guidance on how to estimate that required metric risk premium.

However, if the metric is non-diversifiable and the payoff structure is a nonlinear function, then the discount rate also needs to address the impact of the nonlinear structure on risk. Unfortunately, it is not easy to determine the amount of impact; it depends simultaneously on the structure, the metric, the metric's volatility and the positioning of the mean of the metric forecast distribution relative to the payoff threshold(s) and cap(s).

The Advisory recommends OPM when the underlying metric is non-diversifiable and the contingent consideration payoff structure is nonlinear (e.g., there are thresholds, caps, or tiers). OPM uses a risk-neutral framework to avoid the difficulty of estimating the adjustment to the discount rate for the impact of a nonlinear structure on risk. An OPM translates the forecast into a risk-neutral framework by discounting at the required metric risk premium before applying any thresholds, tiers or caps. Rather than using scenarios to incorporate uncertainty, the expected payoff in an OPM is typically estimated assuming a lognormal distribution, based on the metric mean and its volatility. The Advisory provides guidance on how to estimate metric volatility, including adjustments for size and company-specific risk premiums. The Advisory also provides suggestions for how to handle situations when the payoff distribution is far from lognormally distributed. Finally, the risk-neutral expected contingent consideration payments are discounted to present value at a rate that captures the time value of money and credit risk.

The Advisory goes into further detail regarding the differences between the valuation of a business and the valuation of contingent consideration; the estimation of contingent consideration cash flows, the required metric risk premium and volatility; how to debias management assessments; how to handle multi-currency structures; and the importance of maintaining consistency with other related valuations. Numerous examples are provided to flesh out the concepts.

Conclusion

The Advisory has documented best practices so that companies, investors, regulators, auditors and independent valuation specialists can have a more consistent framework for valuing contingent consideration.

For more information contact:

Lynne Weber, Managing Director
+ 1 650 798 5565
lynne.weber@duffandphelps.com

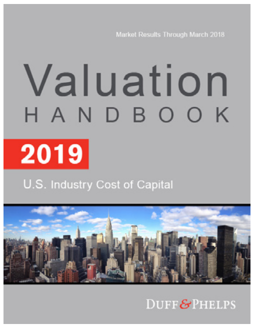
Gary Raichart, Director
+ 1 650 798 5586
gary.raichart@duffandphelps.com

Lynne Weber and Gary Raichart served as subject matter experts on TAF's VRF #4 working group on contingent consideration.

2019 Duff & Phelps Publications

EVERYTHING YOU NEED FOR ACCURATE COST OF CAPITAL ESTIMATIONS

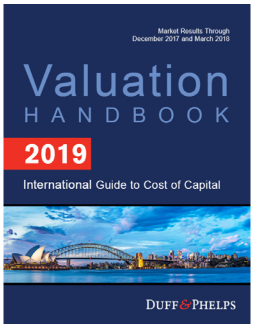
2019 Valuation Handbook Series



U.S. Industry Cost of Capital

Provides up to eight cost of equity capital and weighted average cost of capital estimates for the approximately 170 U.S. industries covered in the book, plus other key financial data on capital structure, valuation multiples, beta estimates and more, which are useful for benchmarking.

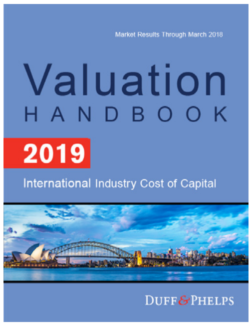
Ship Date: May 2019



International Guide to Cost of Capital

Provides country risk premia, relative volatility factors, equity risk premia, and other data that will enable the reader to assess risk and develop cost of capital estimates globally for over 180 countries.

Ship Date: May 2019

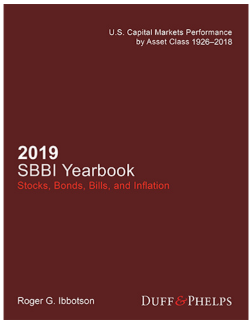


International Industry Cost of Capital

Provides international industry cost of capital estimates for four global economic regions, plus other key financial data on capital structure, valuation multiples, beta estimates and more, which are useful for benchmarking.

Ship Date: August 2019

2019 SBBI® Yearbook



Stocks, Bonds, Bills, and Inflation® (SBBI®) Yearbook

The definitive resource for historical U.S. capital markets performance data for over 30 years.

Available Now

To learn more and order, please visit:
duffandphelps.onfastspring.com/books

DUFF & PHELPS

North American Industry Market Multiples

AS OF MARCH 31, 2019

Industry	Market Value of Equity to Net Income		MVIC to EBIT		MVIC to EBITDA	
	U.S.	Canada	U.S.	Canada	U.S.	Canada
Energy	9.4	15.5	11.7	13.3	7.5	6.3
Energy Equipment & Services	14.7	—	14.3	17.0	8.8	8.4
Oil, Gas & Consumable Fuels	8.0	14.8	11.3	12.9	6.9	5.3
Materials	15.2	11.2	13.0	14.0	9.1	7.5
Chemicals	17.8	—	13.1	—	9.9	—
Metals & Mining	8.9	13.2	8.5	15.4	6.8	7.3
Industrials	17.1	16.7	15.1	15.0	11.1	10.1
Aerospace & Defense	19.0	—	17.9	—	13.4	—
Building Products	15.3	—	13.4	—	10.6	—
Construction & Engineering	15.7	—	14.3	—	10.1	—
Electrical Equipment	13.4	—	14.2	—	11.9	—
Machinery	18.7	—	15.4	—	11.6	—
Trading Companies & Distributors	14.0	—	14.7	—	11.3	—
Commercial Services & Supplies	15.5	—	15.7	—	10.5	—
Professional Services	20.1	—	14.9	—	11.8	—
Road & Rail	16.7	—	14.9	—	6.8	—
Consumer Discretionary	15.9	16.8	14.0	14.0	9.9	10.8
Auto Components	11.7	—	10.2	—	6.1	—
Household Durables	8.8	—	10.8	—	9.8	—
Leisure Products	—	—	—	—	—	—
Textiles, Apparel & Luxury Goods	16.3	—	13.5	—	10.5	—
Hotels, Restaurants & Leisure	21.4	21.1	18.5	15.1	11.0	—
Diversified Consumer Services	—	—	17.5	—	11.8	—
Internet & Direct Marketing Retail	—	—	—	—	—	—
Specialty Retail	14.1	—	12.1	—	7.9	—
Consumer Staples	20.2	18.9	16.9	16.2	12.7	11.8
Food & Staples Retailing	—	—	—	—	—	—
Beverages	—	—	—	—	—	—
Food Products	20.7	—	16.9	—	12.7	—
Personal Products	13.1	—	13.5	—	9.6	—

Industry Market Multiples are available online!
Visit www.duffandphelps.com/multiples

Industry	Market Value of Equity to Net Income		MVIC to EBIT		MVIC to EBITDA	
	U.S.	Canada	U.S.	Canada	U.S.	Canada
Health Care	22.4	19.9	19.5	17.5	14.8	13.0
Health Care Equipment & Supplies	35.0	—	28.4	—	18.9	—
Health Care Providers & Services	19.7	—	14.2	—	11.0	—
Health Care Technology	—	—	—	—	—	—
Biotechnology	17.1	—	—	—	—	—
Pharmaceuticals	8.7	—	14.0	—	11.6	—
Life Sciences Tools & Services	—	—	—	—	—	—
Information Technology	22.5	20.8	19.3	16.5	13.4	17.3
IT Services	26.8	—	21.1	—	13.2	—
Software	39.7	—	29.2	—	20.1	—
Communications Equipment	—	—	22.7	—	17.3	—
Technology Hardware, Storage & Peripherals	—	—	—	—	—	—
Electronic Equipment, Instruments & Components	15.0	—	15.3	—	11.2	—
Semiconductors & Semiconductor Equipment	18.2	—	16.2	—	12.6	—
Communication Services	15.4	18.9	15.7	15.5	9.6	9.4
Diversified Telecommunication Services	—	—	—	—	—	—
Media	12.9	—	13.6	—	9.3	—
Entertainment	—	—	—	—	—	—
Interactive Media & Services	—	—	—	—	—	—
Utilities	24.0	16.0	22.0	19.6	13.3	11.7
Electric Utilities	22.0	—	22.0	—	13.1	—
Independent Power and Renewable Electricity Providers	—	—	—	—	—	—

Industry	Market Value of Equity to Net Income		Market Value of Equity to Book Value	
	U.S.	Canada	U.S.	Canada
Financials	13.2	10.5	1.2	1.1
Banks	13.1	—	1.2	—
Thrifts & Mortgage Finance	13.9	—	1.1	—
Capital Markets	17.5	—	1.7	1.5
Insurance	16.1	—	1.2	—

An industry must have a minimum of 25 (U.S.) and 15 (Canada) 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 93 (U.S.), and 51 (Canada); the median number of companies in the calculation sample was 53 (U.S.), and 33 (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, 2019

Industry	Market Value of Equity to Net Income	MVIC to EBIT	MVIC to EBITDA
	Europe	Europe	Europe
Energy	12.2	13.4	8.3
Energy Equipment & Services	—	16.1	11.2
Oil, Gas & Consumable Fuels	10.7	10.5	7.2
Materials	13.2	13.7	8.2
Chemicals	18.0	16.0	10.4
Containers & Packaging	16.1	13.9	7.7
Metals & Mining	10.0	10.9	6.6
Industrials	15.9	14.3	10.1
Aerospace & Defense	22.1	18.3	12.8
Building Products	16.1	13.8	9.7
Construction & Engineering	10.8	12.5	9.4
Electrical Equipment	18.6	16.2	12.3
Machinery	16.2	14.0	10.0
Trading Companies & Distributors	14.0	12.7	9.6
Commercial Services & Supplies	17.4	15.0	10.0
Professional Services	16.4	13.4	11.9
Marine	10.5	20.6	10.7
Transportation Infrastructure	—	15.2	10.4
Consumer Discretionary	14.7	13.9	9.6
Auto Components	11.0	11.0	7.1
Household Durables	11.5	11.7	9.6
Leisure Products	—	—	—
Textiles, Apparel & Luxury Goods	16.7	16.0	11.1
Hotels, Restaurants & Leisure	18.1	16.2	10.7
Internet & Direct Marketing Retail	19.5	18.0	17.5
Specialty Retail	13.2	13.0	8.8
Consumer Staples	19.1	16.5	11.2
Food & Staples Retailing	—	16.9	11.3
Beverages	23.1	18.5	13.3
Food Products	18.1	15.7	9.8
Personal Products	—	—	—

Industry	Market Value of Equity to Net Income	MVIC to EBIT	MVIC to EBITDA
	Europe	Europe	Europe
Health Care	26.1	21.7	15.1
Health Care Equipment & Supplies	29.4	23.9	17.7
Health Care Providers & Services	24.1	19.9	12.5
Health Care Technology	—	—	—
Biotechnology	25.4	—	—
Pharmaceuticals	21.1	19.0	14.9
Life Sciences Tools & Services	—	—	—
Information Technology	20.9	17.6	13.0
IT Services	21.1	16.3	12.1
Software	29.4	22.6	17.4
Communications Equipment	—	—	—
Technology Hardware, Storage & Peripherals	—	—	—
Electronic Equipment, Instruments & Components	16.7	14.6	11.9
Semiconductors & Semiconductor Equipment	18.7	18.9	12.0
Communication Services	18.4	16.2	10.3
Diversified Telecommunication Services	23.1	18.4	9.1
Media	14.0	14.5	9.8
Entertainment	21.5	21.1	15.0
Interactive Media & Services	—	—	—
Utilities	17.2	18.8	10.2
Independent Power and Renewable Electricity Providers	20.8	19.1	11.0

Industry	Market Value of Equity to Net Income	Market Value of Equity to Book Value
	Europe	Europe
Financials	10.1	1.0
Banks	8.6	0.6
Diversified Financial Services	17.7	1.2
Capital Markets	16.5	1.2
Insurance	13.0	1.2

An industry must have a minimum of 25 company participants to be calculated. For all reported multiples in Europe, the average number of companies in the calculation sample was 110 and the median number of companies in the calculation sample was 71. 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).

UPCOMING EVENTS

MAY 21 - 23

TP Minds Australia

Sydney, Australia

JUNE 10 - 12

Select USA Investment Summit

Washington, D.C.

JUNE 26 - 30

TEI Southeast Region Conference

Hilton Head, South Carolina

CONTRIBUTORS

Mary Alice Cashin

Greg Franceschi

Dustin Jensen

David Larsen

Carla Nunes

Bob Peters

Gary Raichart

Scott Regan

Gary Roland

Marianna Todorova

Jamie Warner

Mike Weaver

Lynne Weber

EDITOR

Sherri Saltzman

FSC
www.fsc.org
MIX
Paper from responsible sources
FSC® C103525